SIRIM

Best Partner for Innovation

BUILDING A RESILIENT FUTURE

ANNUAL REPORT 2020

BUILDING A RESILIENT FUTURE

The new normal has dawned upon us. Priorities shifted as our lives have gone through a significant change in our everyday routine. For businesses, the need to stay relevant for the present motivates them to rise above the ordinary with breakthrough ideas that promote a resilient future. The concept therefore highlights the Industry 4.0 revolution in motion that businesses can leverage to empower greater growth through innovations – a position that SIRIM readily embraces, helping businesses to build a resilient future with sustainable solutions.

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ANNUAL REPORT

2020

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VISION

BEST PARTNER FOR INNOVATION

MISSION

WE PROVIDE QUALITY AND SUSTAINABLE INNOVATION TO INDUSTRY, GOVERNMENT AND SOCIETY

CORPORATE VALUES

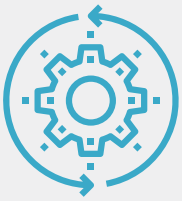
- **CUSTOMER FOCUS**
  We focus on delivering excellence to our customers
- **INTEGRITY**
  We practise the highest standards of integrity
- **TEAMWORK**
  We achieve success through dedication, commitment and teamwork

View our Annual Report and other information about SIRIM Berhad at

www.sirim.my/annual-report.html

SIRIM CULTURAL BELIEFS

- **ACHIEVE SUSTAINABILITY**
  I shape SIRIM for our sustainable future.
- **LEAD INNOVATION**
  I drive innovation for market competitiveness.
- **ENGAGE TEAMWORK**
  I embrace differences and build high performance teams.
- **ACT FAST**
  I take ownership to exceed R2.
- **DELIVER EXCELLENCE**
  I partner to deliver excellent service.



FUNCTIONS

- **To enhance public and industrial welfare, health and safety**
- **To promote and undertake scientific industrial research:**
  - Improving technical processes and methods
  - Discovering new processes and methods
  - Encouraging the utilisation of Malaysian products
  - Adopting or adapting technology developed in other countries for use in Malaysia
- **To provide industrial extension and consultative services to assist industry in meeting standards**
- **To improve production processes and techniques**

ROLES

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

OBJECTIVES

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

BOARD OF DIRECTORS

1. **ACADEMICIAN TAN SRI DR. IR. AHMAD TAJUDDIN ALI, FASc**
   Chairman
2. **HAWARIIAH ABDUL WAHID**
3. **DATUK IR. (DR) KHAIROL ANUAR TAWI**
4. **HAIRIL YAHRI YAACOB**

5. **MOHD RASHID MOHD YUSOF**
6. **DATO' IR. LIM YEW SOON**
7. **DATUK (DR) HAFSAH HAASHIM**
8. **NORLIN ABDUL SAMAD**
9. **DATUK OMAR SHARIFF MYDEEN**

ZERENEWATI ZAINAL
Company Secretarial

BOARD OF DIRECTORS

ACADEMICIAN TAN SRI DR AHMAD TAJUDDIN ALI, FASc, CHAIRMAN, SIRIM BERHAD

EXPERIENCE:

Academician Tan Sri Dr Ir Ahmad Tajuddin Ali was appointed Chairman of SIRIM Berhad on 20 May 2015. In addition to this position, he holds directorships in several other esteemed organisations including Linde Malaysia Holdings Berhad, Construction Industry Development Board (CIDB), Universiti Teknikal Malaysia Melaka (UTeM), Malaysian Industry-Government Group for High Technology (MIGHT), Aerospace Malaysia Innovation Centre (AMIC) and Northern Corridor Implementation Authority (NCIA).

He is also Pro-Chancellor of Universiti Tenaga Nasional (UNITEN), the Chairman of the Board of Trustees of Yayasan Khazanah, and a Member of the Board of Trustees of Mahathir Science Award Foundation, Yayasan Penyelidikan Antartika Sultan Mizan, and the Board of Governors of the Malay College Kuala Kangsar (MCKK), his alma mater.

QUALIFICATIONS:

- Senior Fellow, Academy of Sciences Malaysia
- Fellow, Institution of Engineers Malaysia
- Fellow, ASEAN Federation of Engineering Organisations
- Fellow, ASEAN Academy of Engineering and Technology
- Registered Professional Engineer, Board of Engineers
- Graduate of Harvard Business School's Advanced Management Programme
- Honorary Doctorate of Management Degree, Universiti Malaysia Perlis
- Honorary Doctor of Science Degree, Universiti Kebangsaan Malaysia
- Honorary Doctor of Engineering Degree, Universiti Teknikal Malaysia Melaka
- Honorary Doctor of Science Degree, Universiti Malaysia Terengganu
- Honorary Doctor of Engineering Degree, Universiti Tenaga Nasional
- Honorary Doctor of Science Degree, Universiti Putra Malaysia
- Post-doctoral work in nuclear engineering at Oregon State University & Pennsylvania

STATE UNIVERSITY

- Doctorate in Nuclear Engineering, Queen Mary College, University of London
- First Class Honours in Mechanical Engineering, King's College, University of London

DATUK (DR) HAFSAH HAASHIM

EXPERIENCE:
Besides sitting on the Board of SIRIM Berhad, where she is also Chairman of the Investment Committee, Tender Committee and SIRIM Tech Venture Sdn Bhd, Datuk (Dr) Hafsah Haashim also holds directorships in Zurich Takaful, Serunai Commerce Sdn Bhd, Arab Malaysia Chamber of Commerce, Majlis Agama Islam Wilayah Persekutuan (MAIWP) Dagang Sdn Bhd and USains Holding Sdn Bhd.

She was the Chief Executive Officer of SME Corporation Malaysia (SME Corp. Malaysia) for nearly 14 years. Under her leadership, SME Corp. Malaysia formulated the internationally acclaimed SME Masterplan that charts the direction of SME development until 2020.

QUALIFICATIONS:
- Honorary Doctorate in Management and Entrepreneurship, Universiti Tenaga Nasional
- Honorary Fellow, ASEAN Federation of Engineering Organisations
- Master of Business Administration, Aston University, UK
- Bachelor in Applied Science, Universiti Sains Malaysia

HAWARIIAH ABDUL WAHID

EXPERIENCE:
As the Principal Assistant Secretary of the Government Investment Companies Division in the Ministry of Finance, Hawariiah Abdul Wahid is responsible for the affairs and corporate strategic direction of MOF Inc., particularly in the telecommunication, water and sewerage industries.

Prior to this, she was the Assistant Director of the Implementation Coordination Unit in the Prime Minister's Department, where she coordinated, monitored and evaluated the implementation and outcomes of Programme/Project Malaysia Five-Year Development Plan, and coordinated and monitored the effectiveness of policies and strategies of the Federal Statutory Bodies (MDS).

QUALIFICATIONS:
- Association of Chartered Certified Accountants (ongoing)
- Bachelor of Accounting (Hons), Universiti Islam Antarabangsa Malaysia

DATUK IR. (DR) KHAIROL ANUAR TAWI

EXPERIENCE:
Datuk Ir. (Dr) Khairol Anuar Tawi is the founder and the current Executive Chairman of KAT Group, Malaysia's largest prepaid distributor.

KAT Group started off in the year 1999 as a modest distribution company with just 3 employees and an annual revenue of RM600,000. Today, KAT currently operates across 13 offices in Malaysia's major cities, employing over 250 staff nationwide. In the year 2015, KAT recorded its highest annual revenue of RM850 million. The following year saw KAT evolve into an international solutions provider, deploying its advanced end-to-end digital distribution platform in countries like Nepal.

Under Datuk Khairol's visionary leadership, the company has won numerous prestigious awards both locally and internationally, cementing its reputation as Malaysia's leading digital distribution specialist in the retail and supply chain.

QUALIFICATIONS:
- Honorary Doctorate and Fellowship, University of Swansea, Wales UK
- Senior Management Development Programme, Harvard Business School, USA
- Executive Masters in Business Administration, Cranfield Institute of Management, UK
- B.Sc Hons Electrical & Electronics Engineering, University of Swansea, Wales UK

BOARD OF DIRECTORS

NORLIN ABDUL SAMAD

EXPERIENCE:

Norlin Abdul Samad was appointed to the Board of SIRIM Berhad on 5 September 2019. She has 38 years of experience in corporate law in the Plantation, Property Development, Manufacturing and Investment sectors as Head of Legal at Kompleks Kewangan Malaysia Berhad (KKMB) (now known as Amanah Capital Berhad), Golden Hope Plantations Berhad (Golden Hope) and Permodalan Nasional Berhad (PNB).

She was Company Secretary for both KKMB and Golden Hope, and an Associate Partner at Messrs Zaid Ibrahim & Co (Zaid Ibrahim). She held directorships whilst in service with Golden Hope and PNB. She has extensive experience in M&A exercises, cross-border investments, joint venture transactions, contract negotiations and corporate governance.

QUALIFICATIONS:

- LLB (Hon) University of London
- Barrister-at-Law Honourable Society of Lincoln's Inn
- Advanced Management Program (AMP) INSEAD, Fontainebleau, France
- Certificate in Translation from the Malaysian Institute of Translation & Books (ITBM)

DATO' IR LIM YEW SOON

EXPERIENCE:

Dato' Ir Lim Yew Soon worked at Tenaga Nasional Berhad for more than 38 years, where he was the Chief Engineer and General Manager of its operations in Penang and the Federal Territory of Kuala Lumpur. He is a Professional (Malaysia), Chartered (UK), Competent (Suruhanjaya Tenaga) and Services (Suruhanjaya Tenaga) Engineer.

He was appointed to the Board of SIRIM Berhad on 5 September 2019.

QUALIFICATIONS:

- Masters in Electrical Engineering (MEE), University of Technology Malaysia
- B.Sc (Hons) Electrical & Electronic Engineering, Strathclyde University, Glasgow, Scotland, UK

HAIRIL YAHRI YAACOB

EXPERIENCE:

Hairil Yahri Yaacob is currently the Deputy Secretary General (Trade) of the Ministry of International Trade and Industry (MITI), Malaysia. He holds a Master's Degree in Strategy and Diplomacy from National University of Malaysia and a Bachelor of Arts (Honours) in Politics and International Relations from University of Kent at Canterbury, UK.

He joined the Malaysian Administrative and Diplomatic Service in 1995, and has been in the Malaysian civil service for over 25 years. He has extensive experience in economics and commerce, public management and social development management, and has held numerous positions throughout his career, including Deputy Secretary General (Investment) at MITI, Counsellor (Economics) at the Permanent Mission of Malaysia to the World Trade Organization (WTO) in Geneva, Switzerland, from 2005-2008, and Minister Counsellor (Economics) at the Embassy of Malaysia, Washington D.C, USA, from 2011–2018.

QUALIFICATIONS:

- Bachelor of Arts (Honours) in Politics and International Relations, University of Kent at Canterbury, United Kingdom
- Master of Arts in Strategy and Diplomacy, National University of Malaysia

MOHD RASHID MOHD YUSOF

EXPERIENCE:

Mohd Rashid Mohd Yusof commenced his career with PETRONAS in 1980. He has held various financial positions in PETRONAS as Head of Group Accounting, Head of Group Treasury and Head of Group Internal Audit as well as Financial Director of Engen Limited, before assuming general management positions as CEO of MITCO and later on MD/CEO of Engen Limited in South Africa. Whilst he was MD/CEO of Engen Limited in South Africa, he also served a term as the Chairman of the South African Petroleum Industry Association (SAPIA). His last appointment in PETRONAS before retiring in July 2016 was as Vice President of Supply Chain and Risk Management.

During the course of his career, he has also served as a Director of several companies in the PETRONAS group, including Putrajaya Holdings, KLCC Holdings, Energas Insurance (Labuan) Limited and Chairman of Petronas ICT.

Mohd Rashid currently sits as Independent Director on the Boards of Standard Chartered Bank Berhad, Velesto Energy Berhad (previously known as UMW Oil and Gas Berhad), and Scicom Berhad. He also serves on the Audit and Risk Committee of Mavcom (Malaysian Aviation Commission). At Velesto Energy, he serves as Chairman of the Board. At Standard Chartered he serves as Chairperson of the Audit Committee, Chairperson of the Nomination and Remuneration Committee and is a member of the Risk Committee. At Scicom, he serves as a member of the Audit and Risk Committee. Previous key directorships held include Media Prima Berhad, KLCC Holdings Berhad and Putrajaya Holdings Berhad.

QUALIFICATIONS:

- Member of the Chartered Association of Certified Accountants (UK)
- Member of the Malaysian Institute of Accountants
- Advanced Management Program at Wharton Business School, Pennsylvania

DATUK OMAR SHARIFF MYDEEN

EXPERIENCE:

Datuk Omar Shariff Mydeen is a businessman and an entrepreneur with a wide spectrum of businesses and experience in Education, Technical & Vocational Training (TVET), ICT, Property Development, Corporate Strategic Planning and Risk Management.

Presently, he is the Executive Director for My-Partners Group of Companies and has over 27 years of working experience in the ICT and education industry, playing a major role in developing new management platforms and business development strategies in providing premium deliverables. He has executed, developed and delivered numerous training programmes for governmental and private organisations in Business Process Re-Engineering, Project Management and Strategic Planning.

He is also an accomplished strategist who played a pivotal role in the inception of Skills Johor, an international vocational skills training hub which transforms and trains skilled and knowledgeable employees to propel the industry in Malaysia. He was involved in the development of Bandar Akademi in Kota Tinggi, Johor, as well as other state technical and vocational initiatives that will impact and improve the quality of life and assist in the overall economic development of Johor.

A significant "feather in the cap" is the initiation of the MyCareerMyFuture project, a graduate development programme in collaboration with the Ministry of Higher Education to enhance employability through training. This programme successfully enhanced the skills of more than 6,000 graduates, ensuring they were effective contributors to our national education initiative with placements in reputable companies.

QUALIFICATIONS:

- Diploma in Public Administration (Best Student UiTM 1994), Universiti Teknologi MARA, Melaka
- Bachelor of Corporate Administration with Honours (Company Secretary) "First Class", Universiti Teknologi MARA, Shah Alam
- Executive Master's in Business Administration "First Class", Universiti Teknologi MARA, Shah Alam

MANAGEMENT COMMITTEE

DATUK IR. DR. AHMAD FADZIL MOHAMMAD HANI
President (until March 2021)

1. **YM TENGKU INTAN NARQIAH TENGKU OTHMAN**
Chief Digital & Information Officer, Digitalisation & Information Technology

2. **SABARINA HARUN**
Vice President, Group Finance

3. **DR. ZANARIAH UJANG**
Vice President, Group Strategic Planning

4. **NUR FADHILAH MUHAMMAD**
Vice President/ Chief Executive Officer, SIRIM QAS International Sdn Bhd

5. **DATO' DR. AHMAD SABIRIN BIN ARSHAD**
President and Group Chief Executive

6. **NIK JULIAH NIK JAAFAR**
Senior Vice President, Group Human Resource

7. **MOHD AZANUDDIN SALLEH**
Senior Vice President SIRIM Industrial Research

CHAIRMAN'S MESSAGE

ACADEMICIAN TAN SRI DR. IR. AHMAD TAJUDDIN ALI, FASc
Chairman, SIRIM Berhad

DEAR STAKEHOLDERS,

The year under review was undoubtedly one of the most unprecedented in history, let alone in the annals of SIRIM. The impact of the global COVID-19 pandemic has been widespread, affecting not just lives but livelihoods. The lockdown measures imposed to contain the outbreak has disrupted how we live and do business, upturned markets and sent stocks and oil prices plunging, and our economy into recession.

As a company wholly-owned by the Government of Malaysia and placed under the purview of the Ministry of International Trade and Industry (MITI), the events of 2020 underscored the importance of SIRIM's role in supporting businesses and industry through the provision of technical support services of testing, calibration, standardisation, certification as well as technology and R&D support as the premier industrial research and technology organisation in Malaysia. Aside from helping companies survive the immediate uncertainty, we see new opportunities for transformation not only within SIRIM but more importantly in supporting our partners in their own transformation process so that together, we can thrive in the new normal and work on **Building a Resilient Future**.

ENSURING BUSINESS CONTINUITY AMID THE PANDEMIC

Foremost in our focus in 2020 was the implementation of SIRIM's Business Continuity Plan (BCP) which was activated during the MCO 1.0. Prepared in anticipation of unplanned service disruption events, the BCP was adjusted to outline the specific alternative business processes that allowed us to continue operating during the MCO, to provide much needed technical support to our customers in line with our role as the national body for industrial technology research and development as well as the custodian for standardisation and quality programmes.

This led to many of SIRIM's physical operating processes, such as meetings, audits and training programmes, migrating to the digital sphere, while safety measures are also put in place to mitigate the spread of the COVID-19 virus at SIRIM's premises.

REMAINING RELEVANT IN THE NEW NORMAL

With the BCP in place, SIRIM's focus shifted to address and adapt to the new and emerging challenges brought forth by COVID-19. Efforts were made to ensure that our internal capabilities are in keeping with changing technological and social media trends, as well as mitigating the immediate COVID-19 impacts on our Commercial, Technology Development, and Statutory activities.

SIRIM's digital transformation plan, also known internally as Digital SIRIM, which was approved by the Board in March 2020 prior to the implementation of the MCO, was exceptionally timely in helping uncover talents within the organisation who could provide rapid and innovative digitalisation services. This helped SIRIM to remotely develop a mobile app, automate simple business processes and build a virtual operations dashboard during the initial lockdown period, and assisted SIRIM's workforce in transitioning to working remotely more seamlessly. Digital SIRIM will continue to strengthen internal R&D capabilities in technology and help SIRIM teams keep pace with the advancement of new and disruptive innovations and technology.

In that same vein, fast changing trends in social media requires new skills and competencies, which was embraced by SIRIM as COVID-19 disrupted traditional communication activities. In 2020, the Group began to more fully leverage on its online platforms for brand building activities and to promote SIRIM services.

SIRIM's Commercial, Technology Development, and Statutory activities were also impacted by the wider economic uncertainty brought about by the COVID-19 pandemic. Many companies, especially SMEs, had to rein in their spending. This affected project delivery scopes and timelines, which were compounded by the restrictions imposed during the various stages of the MCO/EMCO/CMCO. Nevertheless, with patience, perseverance and understanding among all stakeholders involved, SIRIM's subsidiaries and developmental units performed well considering the challenges faced.

MAJOR ACHIEVEMENTS OF 2020

The Malaysia Energy Efficiency and Solar Thermal Application Project (MAEESTA) under the implementation ambit of the United Nations Industrial Development Organization (UNIDO) with SIRIM as the executing agency, continued to make strong progress in promoting and demonstrating sector-specific improvements in energy efficiency and application of solar thermal technology for Malaysia's industry.

The UNIDO MAEESTA Project Management Unit successfully completed the installation of the solar thermal system at IOI Pan Century Oleochemical Sdn Bhd, Pasir Gudang, Johor, and NB Poultry Processing Sdn Bhd, Pontian, Johor, despite facing significant challenges due to COVID-19 restrictions. Notably, the Solar Process Heating for Scalding Process at NB Poultry Processing Sdn Bhd now stands as the biggest Solar Thermal System for industrial use in Malaysia upon completion, capable of contributing Greenhouse gas emissions reduction of 257.66t CO_2 per year.

On the research and development front, the year 2020 saw the successful commercialisation of 'Chytosponge Wound Dressing for Exudative Wound' to Chytoplast Sdn Bhd by SIRIM Tech Venture Sdn Bhd (STV) through a Technology Licensing Agreement. This is part of a wound management series being developed by SIRIM that supports the medical devices sector through the delivery and commercialisation of innovative biomedical technology applications and solutions into sustainable marketplace businesses.

FACTS AT A GLANCE

Solar Process Heating for Scalding Process at NB Poultry Processing Sdn Bhd now stands as the **biggest Solar Thermal System** for industrial use in Malaysia

In advancing the metrology and calibration capabilities of the country, the National Metrology Institute of Malaysia (NMIM) introduced the 25m interferometer bench system at its Length and Dimensional Laboratory which meets the requirements of legal activities under the Weights and Measures Act 1972 and stands as another testament to Malaysia's metrology and calibration capabilities that are on par with other developed countries.

For 2020, the Group's largest subsidiary SIRIM QAS International introduced the IPv6 Compliant Product Certification for Ipv6 capable equipment in line with the mandate from Malaysian Communications and Multimedia Commission (MCMC). I am also happy to note that SIRIM QAS provided mobile consignment services for imported electrical appliances at the port of entry or their warehouses which helped minimise travel and sample handling due to pandemic restrictions.

Year 2020 also saw the sale of a 70% stake in GranuLab Sdn Bhd to KPower Berhad for RM1 million. The share sale agreement was part of SIRIM Tech Venture's smart partnership arrangements to enhance its commercialisation activities in medical devices. GranuLab Sdn Bhd is a Bio-Nexus status medical device manufacturing company for synthetic bone graft, GranuMas®. Through the share sale agreement, KPower Berhad had acquired the majority share of GranuLab Sdn Bhd while the remaining shares were owned by SIRIM Tech Venture.

SIRIM's sound policies and strategies based on Environmental, Social and Governance (ESG) principles are in support of the country's agenda to be a high income and high-tech nation. SIRIM has always been at the forefront of environmental technology with various offerings covering among other things, solar thermal technology for industrial process heat, solar powered street lighting as well as promoting circular economy through Eco Industrial Park.

SIRIM's commitment to the society is demonstrated with the implementation of projects for the community such as purification system for underground water and solar hybrid desalination for clean water supply for a remote island community in Sabah.

In terms of governance, SIRIM took pride as the whole organisation is Anti-Bribery Management System certified. An Integrity Policy is also in place to prevent any conflict or conflict of interest in any ongoing or potential business dealings with SIRIM and its subsidiaries.

FORGING AHEAD TOGETHER

As we move into 2021 with the pandemic still in our midst, much of the prevailing challenges of 2020 will remain in effect. Nevertheless, with preparation and experience from the past year, as well as the strong organisational fundamentals and national mandate spearheading SIRIM's charge, the Group will continue to forge ahead in implementing the strategic thrusts identified in the 10-Year Strategic Plan.

Strengthening capabilities remain the key focus of SIRIM's agenda in 2021, building on the Group's proven operation and business model while strengthening SIRIM's reputation in the marketplace. Through SIRIM's role as the national body for industrial technology R&D, standardisation services and quality custodian, we will continue supporting the national agenda in shifting Malaysian manufacturing to Industry 4.0.

While we ourselves must look for ways for survival in this post pandemic era, the survival of industries is even more important to the nation as without our customers, we are irrelevant. This is among SIRIM's thrust, where we will assist our customers so that they will bounce back through the services that they require from us, and at a price that they can afford.

Meanwhile, initiatives are already in place as SIRIM positions itself to address the country's challenges by being part of the national recovery agenda post pandemic. Commercially viable solutions will be made available faster in our efforts to regenerate and reinvigorate national economic growth and improve the wellbeing of the *rakyat*.

APPRECIATION AND ACKNOWLEDGEMENTS

As a proudly Malaysian organisation, we would like to extend our sincerest appreciation for the hard work and sacrifices of our nation's frontliners for their service in fighting the pandemic. We pledge to continue supporting your efforts as we did in 2020, through R&D, standardisation and testing of equipment and the provision of PPE supplies to keep frontliners protected.

I would like to take this opportunity to thank our stakeholders, especially Ministry of Finance and Ministry of International Trade and Industry, as well as other ministries, government and regulatory bodies, and business partners, for their varied contributions and invaluable support to the Group.

On behalf of the Board and employees, I would like to thank YBhg Datuk Ir Dr Ahmad Fadzil Mohamad Hani, the former President and Group Chief Executive who finished his term on 30 April 2021, for his years of service since 2017 at the helm of SIRIM. His capable leadership has helped SIRIM remain as a premier industrial technology and innovation organisation in Malaysia, delivering strong financial performance alongside project track records.

We extend a warm welcome to YBhg Dato' Dr Ahmad Sabirin bin Arshad as the new President and Group Chief Executive, who has stepped into the role amid the raging pandemic. Dato' Dr Ahmad Sabirin brings with him a strong management experience at the helm of several successful ventures and companies, as well as a wealth of aerospace engineering expertise that will no doubt be a boon to SIRIM's industrial technological innovation future. We look forward to supporting him as SIRIM charts the next stage of the Group's resilient growth.

To the outgoing Board members of FY2020, we bid a fond farewell. SIRIM thanks you for your service and counsel in advancing the Group's journey in delivering on its national mandate, as we welcome the newly appointed Board members of FY2021. We look forward to your guidance and advice in **Building a Resilient Future** for SIRIM and our beloved nation, Malaysia

Thank you.

TAN SRI DR. IR. AHMAD TAJUDDIN ALI, FASc.
Chairman, SIRIM Berhad

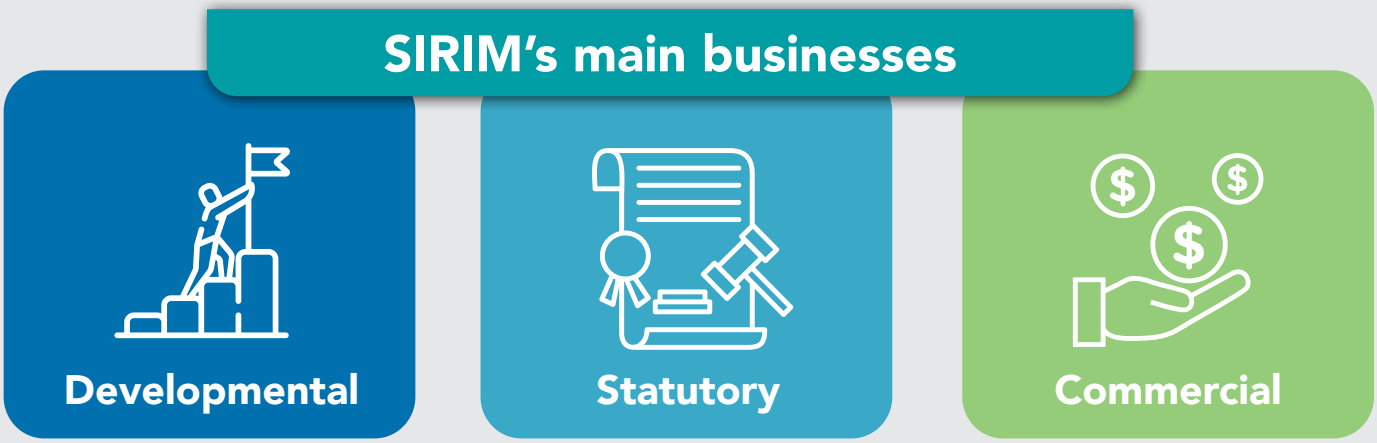
PRESIDENT & GROUP CHIEF EXECUTIVE'S REPORT

DATO' DR AHMAD SABIRIN BIN ARSHAD
President & Group Chief Executive, SIRIM Berhad

SIRIM has shown amazing resolve in the financial year ended 31 December 2020 (FY2020) to rise above the challenges posed by the pandemic. Together, we have embraced the changes in our daily operating routines while continuing to support the industry, agency partners and companies in the progressive implementation of Industry 4.0 strategies, technologies and processes to bridge capacity gaps towards Building a Resilient Future.

SIRIM'S BUSINESS & OPERATIONS

SIRIM's vision is to be the 'Best Partner for Innovation' for our key stakeholders, namely the Government, Industry and Society, with a mission to provide quality and sustainable innovation to the key stakeholders. SIRIM contributes towards the national policies and aspiration in serving the government. SIRIM enhances trade access, competitiveness and business growth of the industry. SIRIM improves the quality of life through health, safety, environment and consumer protection, in serving the society at large.



SIRIM's main businesses are divided into three core activities, which include developmental, statutory and commercial. The developmental activities are driven by SIRIM Industrial Research and Malaysia Design Council (MRM). The National Metrology Institute of Malaysia (NMIM) provides services in physical measurements, which is fundamental to trade access; and its activities are deemed statutory in nature. Both developmental and statutory functions still require financial support from the government in serving the nation's mandate. The six entities provide services which are commercially driven activities, namely SIRIM QAS International, SIRIM STS, SIRIM Standards Technology, SIRIM Tech Venture, Packaging and Security Design Centre and National Precision Tooling.

PRESIDENT & GROUP CHIEF EXECUTIVE'S REPORT

SIRIM'S ACHIEVEMENTS IN 2020

The year of 2020 has been the most challenging year for SIRIM as the COVID-19 pandemic had impacted all aspects of SIRIM's businesses from its key activities and business model to the safety and wellbeing of staff. SIRIM's revenue target for 2020 is projected at RM241 mil, with a profit before tax of RM16.2 mil.

In accommodating the nation's agenda for economic survival and resilience, SIRIM plays a big role in enhancing the national trade facilitation through its conformity assessment, industrial standards, and measurement calibration. Whilst SIRIM's industrial R&D, quality and technology training and techno-based SME development will assist to increase the industry's innovativeness, productivity and competitiveness, provision of high skilled workforce, competitiveness in high technology and support in systematic supply of industry value chain, among others, will provide a platform for future foreign direct investment to be realised.

In 2020, SIRIM has succeeded in assisting more than 13,603 companies and launched 39 new products and services such as My3D Printing Marketplace, a digital platform that can translate ideas and designs into real form using 3D printing technology which is mainly being used by independent designers, technology entrepreneurs and manufacturing companies. Other products include Remote Sampling Labelling of Motorcycle Helmet through communication via teleconference and CCTV system and also iVenture App, a mobile application which offers new innovations and technologies from IHLs, IP owners and industry.

Other notable achievements are made by National Metrology Institute of Malaysia (NMIM), which has successfully submitted six new Calibration Measurement Competencies (CMCs) to BIPM KCDB for the area scopes of Temperature and Humidity, whereby all CMCs have been published. NMIM has also officially been appointed as the Competent Authority by Medical Device Authority (MDA) under Medical Devices Act 2012 to perform Accuracy Test on Non-Contact IR Thermometers.

FACTS AT A GLANCE

Profit Before Tax

RM16.2mil

FACTS AT A GLANCE

Over **13,600**

Companies Assisted

39

New Products & Services Launched

COMMERCIALISATION OF TECHNOLOGY

SIRIM Technology Venture (STV) Sdn Bhd has expanded further through commercialisation of Bromex Bioactive, an anti-aging bioactive from pineapple extract with nano emulsion to Ensulife Sciences Sdn Bhd, and recently signed an MoU with Bion Sdn Bhd to promote collaboration in the distribution of energy gas through pipeline system (Virtual Pipeline System (VPS)).

With our commitment to be the 'Best Partner for Innovation', we take great pride in the fact that SIRIM Industrial Research has received six awards in the year under review from the Association of British Inventors and Innovation at MTE 2020, consisting of two Gold Awards, three Silver and one Special Award, spurring us to continue developing SIRIM's technological innovation capabilities. The two winning inventions with the gold medal were Clean Water Solution for Seaweed Community using Solar Hybrid Powered Desalination, led by Dr Rohaya Md Zain, and Multi-Functional BioComposite Membrane for Guided Bone Regenerative Therapy in Dentistry and Orthopaedics, led by Dr. Jamuna Thevi.

Three projects that won silver medal were Innovative Ceramic Hive for Stingless Bee Farming, led by Dr. Teng Wan Dung; Eco-Friendly Artificial Reef Material for Restoration and Rehabilitation of Sustainable Marine Ecosystem, led by Nor Azmah Abdul Kadir and also Fabrication of Carbon-Copper Composite using Local Carbon Material for Electrical and Electronic Applications, led by Dr. Mohd Asri Selamat. In addition, SIRIM also won the Best Booth Design Award at the event.

ENTREPRENEUR DEVELOPMENT

On the entrepreneurial development front, we are pleased to note that SIRIM-Fraunhofer programme has recorded an economic impact to the country. This is shown from its technology uptake programme that assists the industry in improving its productivity through upgrading of its production, process, machines and systems, new testing methods and equipment. A total of 78 out of 111 assisted companies have registered an increase in sales of RM80 mil from a total SIRIM-Fraunhofer grant of RM15.6 mil, based on the sales revenue difference between 2018 and 2019.

For every RM1 of SIRIM-Fraunhofer grant, RM5.12 will be contributed to the economy. With a multiplier effect of 1.2, the total economic impact is estimated at RM176 mil.

For year 2020, the SIRIM-Fraunhofer programme registered about 68 new technology audit applications, with 200 technology audits conducted, 133 technology uptake projects approved and 130 SMEs personnel trained.

In addition, the SIRIM ECER programme has assisted about 481 micro SMEs in generating about 27% increase in new job creation from 967 workers to 1,229 workers after completion of the programme in 2020. The programme reported about 38% increase in total revenue from RM84.4 mil to RM116.5 mil as of December 2020. The impact is observed to be at a ratio of 1.2, as for every RM1 of SIRIM ECER grant spent, RM2.4 will be generated to the economy. With that multiplier effect, a total of RM38.4 mil will be generated by SIRIM ECER, giving a total economic impact of RM70.4 mil.

As of December 2020, Packaging & Security Design Centre (PSDC) continues to nurture about 454 Technology-Based Entrepreneurs. Meanwhile, the Malaysia Design Council (MRM) has successfully hosted design competitions on Promotional Product Design Competition & COVID-19 Creative Campaign 2020, and organised Malaysia Good Design Award (MGDA) 2020.

FACTS AT A GLANCE

Total Economic Impact of
RM169.1mil
from Entrepreneur Development

FACTS AT A GLANCE

50% to 150%
Productivity Gains from Digitalisation

DIGITALISATION OF SIRIM

SIRIM has progressed further on our digital transformation programme with 10 digitalisation initiatives implemented. It was reported that productivity gained from digitising business processes ranged from 50% to 150%, and the opportunity to increase income from enabling online services can potentially reach up to 400%.

NETWORKING AND STRATEGIC COLLABORATIONS

SIRIM continues to strengthen its relationship with its key stakeholders in Federal and State Governments, and industry players, through strategic collaborations to deliver sustainable innovation to the industries, growing the economy, and bolstering productivity and competitiveness. In strengthening relationship with stakeholders, the following activities were carried out in the year under review: six international collaborations, four Key Stakeholder Engagements, one SIRIM Industry Dialogue (SID), two SIRIM Industry Engagements (SIE), eight exhibitions of which six are virtual and two are physical, and more than 80 webinars/ forums/ seminars have been conducted.

SIRIM's Environmental, Social & Governance (ESG) Initiatives

ENVIRONMENTAL

Greener SIRIM for Greener Malaysia – 10 year Strategic Plan

- The Utility Dashboard – SIRIM Building Performance can be assessed through Quick Links
- Solar PV installation for Net Energy Metering
- Solar Industrial Process Heat
- Solar Powered Street Lighting

SOCIAL

- Gender Equality in Top Management Team (at least 30% position are women)
- AYAQNano – an environmentally friendly water filtration system that uses the latest nanotechnology, with ultraviolet (IV) scanning light and polypropylene (PP) micro filtration, to filter up to 5,000 litres of water at Teluk Intan, Perak.
- Solar Hybrid Desalination for Clean Water Supply in Semporna, Sabah

GOVERNANCE

- Anti-Bribery Management System (ABMS) certified
- Integrity Policy

HUMAN CAPITAL DEVELOPMENT

SIRIM continued its human resource development programme to ensure that the human resource needs in strategic technology areas for the country are met. As of December 2020, 12 staff have obtained PhDs, Masters, and Professional Engineer status; and three new approved signatories were obtained in the areas of mass, dimensional, pressure, flow, high voltage and acoustic; while 64 competent personnel were developed on various expertise and 41 qualified Industry4WRD assessors have been appointed.

FACTS AT A GLANCE

12 staff have obtained PhDs, Masters, and Professional Engineer status

3 new approved signatories were obtained in the areas of mass, dimensional, pressure, flow, high voltage and acoustic

64 competent personnel were developed on various expertise

41 qualified Industry4WRD assessors have been appointed

FIGHT AGAINST COVID-19

SIRIM was quick in responding to the fight against COVID-19 by leveraging on SIRIM's technology and expertise to support our nation's frontliners. During FY2020, SIRIM distributed homegrown PPE products including hand sanitisers, 3D printed visors (i.e. transparent face shields), Y-Splitters, and face mask tie clips to the frontliners in Jabatan Kesihatan Negeri Selangor and Negeri Sembilan, Balai Polis Bandar Baru Bangi, and various hospitals and Ministries. SIRIM also responded to the government's call to assist and waived RM429,626 worth of rental between April to September 2020 for 14 companies.

FACTS AT A GLANCE

RM429,626
worth of Rent Waived for 14 Companies

MOVING FORWARD

SIRIM will continue to build our capacity and strengthen the resilience and business continuity of SIRIM in order to achieve our business growth and sustainability targets, guided by SIRIM's 10-Year Strategic Plan. We remain committed in providing quality and sustainable innovation to our key Government, Industry and Society stakeholders through our role in serving the nation's mandate for setting industry standards, and in line with Wawasan Kemakmuran Bersama and the Sustainable Development Goals.

APPRECIATION AND ACKNOWLEDGEMENT

On behalf of SIRIM management and the rest of the staff, I would like to convey our highest appreciation to my predecessor, YBhg Dato Ir Dr Ahmad Fadzil Mohamad Hani, who ended his service on 1 April 2021. He was instrumental in putting in place the strong organisational fundamentals that have helped see us through these tough times – we are indebted to you for your relentless effort.

Also, a special note of thanks goes out to the Board of Directors of SIRIM, ably led by the Chairman, YBhg Tan Sri Dr Ir Ahmad Tajuddin Ali. Their firm hand and good counsel have guided and steered SIRIM through this period of uncertainty. We have certainly emerged stronger and more resilient to serve as the best partner for innovation and sustainable solutions.

Last but not least, to our industry and ministry partners, customers, and the hardworking and resilient staff of SIRIM, we thank you for sharing and believing in our vision for the nation. Together, we will continue to chart SIRIM's journey at the forefront Industry 4.0 developments in Malaysia.

Thank you.

Dato' Dr Ahmad Sabirin bin Arshad
President & Group Chief Executive, SIRIM Berhad

SIRIM INDUSTRIAL RESEARCH

PIONEERING INNOVATIONS, ADVANCING OUR INDUSTRIES

SUMMARY OF SIRIM INDUSTRIAL RESEARCH

REPORT BY:
MOHD AZANUDDIN SALLEH
Senior Vice President SIRIM Industrial Research

SIRIM Industrial Research (SIRIM IR) is one of Malaysia's leading applied research centres and technology innovation hubs. Through its Technology and IC-Innovation Centres, SIRIM IR delivers outstanding technology solutions to many stakeholders in research, development, technology transfer and other technological services.

HIGHLIGHTS OF 2020

During the year, SIRIM IR continued to embrace the technological shift of global trends that have accelerated the government's agenda in promoting technological uptake within industrial clusters including smart manufacturing, medical technology, energy and environment, and machinery and equipment.

As a research and technology innovation arm, SIRIM IR's initiatives throughout 2020 supported the national industrial innovation ecosystem through high-impact technology penetration and upgrading programmes to address the challenges faced by SMEs and raise the productivity of SMEs through technology. Reinforcing industry competitiveness under the National Industry4WRD policy under the SIRIM-Fraunhofer Programme has alleviated SMEs' technology transformation by adding high value to their products and services.

SIRIM IR has also reinforced its efforts in supporting the national agenda by preparing industry-ready graduates on required Industry 4.0 skills and knowledge for their future growth and adaptation to the Industry 4.0 environment under the Train the Trainer Programme. The programme was formulated with comprehensive modules that amplify Industry 4.0 pillars through real industry applications.

SIRIM IR has further strengthened its commitment in aligning towards Sustainable Development Goals (SDG) by cultivating greener business cultures and introducing initiatives that improve environmental performance and the sustainability of products, services and any activities. The establishment of a Biodegradation Testing Facility in SIRIM to support Malaysia's Roadmap to Zero Single-Use Plastics has reinforced our partnership with the industry by offering biodegradability and composting assessment.

Certified ISO 9001:2015 and MS ISO/IEC 17025 Lab'

SIRIM IR continued to offer the best services by ensuring its testing facilities are Quality Management System (QMS) ISO 9001:2015 and MS ISO /IEC 17025 certified. In 2020, SIRIM IR has successfully extended the scope of ISO17025 accreditation for toxicology, microbiology, material characterisation and scope under Advanced Materials Testing Laboratory.

HIGHLIGHTS OF 2020

As 2020 is also the year where COVID-19 started to impact social and economic growth worldwide, SIRIM IR has accelerated its excellence assurance offering by actively supporting the national SARS-Cov2 initiatives to assist the nation in establishing industry standards on hand sanitisers and developing bacterial filtration efficiency (BFE) tests for face masks. As the best innovation partner, SIRIM IR aspires to continue supporting the nation in combatting COVID during the pandemic through its product development and testing services.

Moving forward, SIRIM IR will continue to create high value and provide innovation and technologies to the industry, guided always by the principle of Rakyat Centric and SME Centric. SIRIM IR is also looking into playing a bigger role in pioneering frontier technology that will transform the technological paradigm for the deployment of new technologies. Ultimately, SIRIM IR hopes to become the role model to the industry and support the nation to ensure long term growth and sustainability.

SIRIM handling glove testing procedures

SIRIM-FRAUNHOFER PROGRAMME

REPORT BY:
NOR AZLAN MOHD RAMLI
Head, SIRIM Fraunhofer Secretariat

The SIRIM-Fraunhofer Programme was started in 2015 as a pilot project and was later approved for implementation under the 11th Malaysia Plan (RMK-11). Year 2020 is the end of RMK-11 and achievements of the SIRIM-Fraunhofer Programme have brought light to many SMEs in the manufacturing sector, particularly in terms of technology adoption in boosting their productivity. The government has also seen the positive impact of this programme throughout the five years of its implementation, which is in tandem with its continuous efforts in catalysing growth of the SMEs.

The objectives are to be achieved through technology penetration and upgrading, with SIRIM Industrial Research (SIRIM IR) at the forefront in spearheading and delivering various projects to ensure fulfilment of these objectives. The SIRIM-Fraunhofer Secretariat was set up to oversee the implementation of the various technology programmes as well as introduction of new ones, all with the aim of creating maximum impact to the SMEs.

The programme leverages on the experience of the Fraunhofer Model, which has been successful in spearheading the innovation and technology development of German industries. For its implementation, SIRIM has put in place the SIRIM Industrial Innovation Model (SIIM) which is based on two significant features – enhancement of innovation services and strengthening of networks with strategic partners.

FACTS AT A GLANCE

The programme comprises four main activities:

1. **Implementation of Innovation Management/ Technology Audit**
2. **Increase Technology Uptake**
3. **Nurture Growth of Small and Micro Enterprises (SMEs)**
4. **Cross-cutting Programmes**

The response from SMEs have been overwhelming, with encouraging feedback and strong implementation track records as well as the positive word of mouth within the circle of manufacturing SMEs.

FACTS AT A GLANCE

404

Technology Uptake projects have been approved for the SMEs.

HIGHLIGHTS OF 2020

Technology audit in Sun High Technology

Technology audit workshop for auditors

The year 2020 has been challenging for SIRIM in its efforts to meet the aspirations of the SMEs. At the start of the year, the sudden outbreak of COVID-19 was a wake-up call for many, especially the SME sector which have been significantly impacted. Digitalisation, automation, online marketing and communication suddenly became a necessity for many SMEs. Companies which have benefited from technology adoption such as the implementation of automation and digital technology in the programme, were able to adapt and respond quickly to the changing needs.

In 2020, the focus of the SIRIM-Fraunhofer Programme has been on the technology intervention and in delivering technology solutions which include automation, digitalisation, product development, packaging, and technology training programmes. Technology Audit remains the main entry point for technology interventions. A total of 243 SMEs were audited in 2020, which hails mostly from the food and beverage, industrial, machinery and equipment, and medical devices sectors.

Technology intervention comprises activities in technology adoption, application and facilitation. A total of 404 technology uptake projects have been approved for the SMEs to date, involving areas of mechanisation and automation, technology enhancement and technical advisory, localisation of technology, packaging and labelling, enhancement of competitiveness and market access, as well as training and consultancy programmes.

SIRIM-FRAUNHOFER PROGRAMME

HIGHLIGHTS OF 2020

The expected outcome from this technology intervention include the increase in production yield, reduction in waste and production reject rate, and development of new products and processes. A total of 504 intervention projects were successfully completed in 2020 in the areas mentioned above.

Technology training on development and production of cosmetics products

Site visit for solving industry-wide problems

Technology training is also an important aspect of the programme, which plays a crucial role in preparing the workforce towards adopting new technologies. Innovation and technology management workshop is most sought after by the SMEs with 204 companies trained using the proven tools and methodologies for innovation and technology management. Through its Technology Centres and Centres of Innovation, SIRIM has carried out several technology training, such as the development, processing and best practices for the production of detergents, cosmetics and herbal-based products as well as those related to data science, calibration and measurement.

An important area of technology uptake programme is the "Solving Industry-Wide Problems" in which common issues faced by industries are identified and solutions are developed or sourced from various strategic partners. In this programme, SIRIM and its partners undertake technology and innovation projects to solve common problems of selected industries.

FACTS AT A GLANCE

243 SMEs underwent technology audit in 2020

133 technology uptake projects in 2020

A total of seven projects have been undertaken in 2020, which cover the areas of: retrofitting and upgrading of manufacturing processes towards digital production management, data digitalisation and customisation for small and micro companies, design and development of SIRIM Intelligent Energy Management System (SIEMS) for electricity peak shaving, smart solar-powered street lighting system, automated process for ceramic production, development of real-time machine monitoring system, as well as development of solar thermal kiln drying system for wood-based industry.

SIRIM-FRAUNHOFER PROGRAMME

FACTS AT A GLANCE

"SIRIM-Fraunhofer 2.0 has been approved for implementation under the 12th Malaysia Plan (RMK-12)"

HIGHLIGHTS OF 2020

SIRIM Industrial Innovation Model Fund (SIIMF) site visit

Enhancement in mould fabrication through improvement in Computer Numerical Control (CNC) and Electronic Data Machine (EDM)

Transforming recycled agricultural waste from paddy fields into biodegradable packaging products and disposable tableware

Improvement of ceramic guide pin products for spot welding application

A newly introduced programme for 2020 is the Merchandising & Business Matching for SMEs. The programme has enabled seven selected SMEs to enter modern retail business in a hypermarket with enhanced presence and visibility through the various advertisements and promotional activities together with the hypermarket (Mydin Malaysia). As the year 2020 marks the end of the RMK-11 programme, a post technology audit was introduced with a total of 78 audits carried out to analyse and measure the impact of the intervention received under the programme and how it has affected the companies.

The analysis found that most companies participating in the programme have embarked on mechanisation, automation, Industry 4.0 technology-based projects and systems, as well as retrofitting of machineries to improve their current production operation. New product development projects carried out were mainly in the areas of food and baverages, machinery and equipment, electrical and electronics, medical devices, automotive, cosmetics, consumer and engineering products. Companies have also embarked on projects related to process improvement based on their new products or their new automation systems.

Looking at the successful implementation of the SIRIM-Fraunhofer Programme, an enhanced version known as the SIRIM-Fraunhofer 2.0 has been approved for implementation under the 12th Malaysia Plan (RMK-12) with new programmes which promote innovation such as Frugal Innovation, hand-holding for small and micro companies, and programmes towards preparing SMEs for digitalisation to embrace Industry 4.0 technologies and in preparation towards participation in MITI's Industry4WRD programme.

ENVIRONMENTAL TECHNOLOGY RESEARCH CENTRE

REPORT BY:
ISNAZUNITA ISMAIL
General Manager,
Environment Technology Research Centre

Environmental Technology Research Centre (ETRC) plays a major role in environmental management and protection through research and innovative technology solutions that transform businesses with sustainable product-service and resource recovery efficiency.

HIGHLIGHTS OF 2020

Public training on LCA conducted on 5 to 6 October 2020 at Grand Bluewave Hotel, Shah Alam

Training sessions on product-CFP and organisational-CFP were conducted on 28 to 29 September and 2 October 2020, respectively, at Nets Printwork Sdn Bhd

1. Promoting Environmental Impact-Based Performance Assessment through Life Cycle Assessment (LCA) and Carbon Footprinting (CFP)

Environmental Management Section conducts contract research and consultancy services for both public and private industrial sectors. It employs a life cycle management approach in finding practical solutions towards sustainable development, either from the consumption or production perspective. This is achieved through the applications of Life Cycle Assessment (LCA), product Carbon Footprinting (product-CFP), organisational Carbon Footprinting (organisational-CFP) and Life Cycle Costing (LCC). These activities are supported by SIRIM's LCA-based platforms of the Malaysia Life Cycle Inventory Database (MYLCID) and SIRIM Karbon Kalkulator (SIRIM KK).

In moving forward towards the global Sustainable Development Goals (SDG), life cycle thinking is inevitably one of the key principles to inculcate greener business cultures leading to improved environmental performance and sustainability of products, services and any activities at large. The Environmental Management Section has initiated an inter-business partnership between a Malaysian-owned private entity, Nets Printwork Sdn Bhd, and SIRIM's very own subsidiary, SIRIM STS Sdn Bhd, in offering the first local public training on the understanding of LCA, product-CFP and organisational-CFP for public and private sectors.

Through the inter-company business initiatives with SIRIM STS Sdn Bhd, a two-day public training on LCA was conducted on 5 to 6 October 2020 at Grand Bluewave Hotel, Shah Alam. The training course has benefited 19 participants from both public and private entities such as Edgenta Energy Projects Sdn Bhd, SIRIM QAS International Sdn Bhd, Institute of Tropical Forestry and Forest Product (INTROP, UPM), Malaysian Rubber Board (MRB) and Malaysian Timber Council (MTC).

With the support of SIRIM-Fraunhofer Programme (P3-2) Enhancement of Competitiveness and Market Access of SMEs, a project collaboration with Nets Printwork Sdn Bhd was initiated on 8 September 2019 and implemented for a duration of six months for knowledge transfer, capacity building and consultancy relating to product and organisational-CFP.

These knowledge transfer activities certainly help in providing an avenue for Malaysian stakeholders in embarking on their upcoming sustainable strategies, projects and initiatives. Ultimately, the end game is to support the national aspiration of becoming a developed nation in tandem with the quest for global sustainable development and growth.

ENVIRONMENTAL TECHNOLOGY RESEARCH CENTRE

HIGHLIGHTS OF 2020

Biodegradation testing facility

Disintegration test

2. Biodegradation Testing Facility in Support of Malaysia's Roadmap to Zero Single-Use Plastics

In recognition of the mounting plastic pollution problem in the country, in 2018, the Malaysian government has released Malaysia's Roadmap to Zero Single-Use Plastics 2018-2030. This roadmap is envisaged to deploy actions that can deflect the current trajectory to a more sustainable pathway towards a cleaner and healthier environment by 2030.

In response to the government initiative, the plastics and food container industries have now shifted their business to use biodegradable polymers in place of petroleum derivative materials to meet this new policy. As a condition to market their plastic bags and food containers, the industry players must show that their products are biodegradable, compostable and safe for the people and also the environment.

SIRIM Berhad as a partner to the industry supports the plastic manufacturers in providing consultation and testing services under its Biodegradation Laboratory situated within SIRIM's Environmental Technology Research Centre. Currently, SIRIM is the leading and one of the pioneer organisations in the country that is qualified to carry out biodegradability and composting assessment according to ecolabelling criteria of ECO 001 and ECO 009. This shall include a comprehensive assessment complying to the EN-13432:2000 standard requirements for plastic packaging materials. Specifically, the assessment covers each of the stages of the composting tests, i.e. characterisation of materials, determination of the biodegradability using laboratory tests under a controlled aerobic composting test, investigation of the disintegration of the test material in industrial or bench-scale composting facilities, and finally, chemical and ecotoxicological analysis of the compost produced.

These tests can be applied to different types of materials, such as cellulose or plastics, and to different types of additives and products, such as bags, containers or single-use utensils.

ENVIRONMENTAL TECHNOLOGY RESEARCH CENTRE

HIGHLIGHTS OF 2020

3. Eco-Industrial Parks Transformation Programme

Year 2020 marks the beginning of the new programme, The Technology-Enabled Support for The Development of Eco-Industrial Parks – Intervention & Digitalisation (MY-EIP), which is a four-year project under the purview of the Ministry of International Trade and Industry (MITI), with SIRIM Berhad acting as the implementing agency on behalf of MITI. The objectives of the project are to facilitate the transformation of brownfield industrial estates to eco-industrial parks (EIPs) based on international good practices and to demonstrate the viability and benefits of EIP approaches in scaling up resource productivity and improving economic, environmental and social performances of businesses, thereby contributing to inclusive and sustainable industrial development in Malaysia.

The MY-EIP project is planned to reveal a range of assumptions and factors (i.e. activities and changes in stakeholders' knowledge, attitude, skills, and aspirations) that are necessary for the intended end outcomes and impact to be achieved. For instance, the initial assessment of 12 selected industrial parks was intended to reveal gaps in understanding and differences of opinions associated with EIP criteria and requirements. To address these gaps, training and awareness sessions will be conducted to convince key governmental stakeholders of the benefits of EIPs and to assist them with the mainstreaming of EIP into policy and national plans in Malaysia.

At the company level, MY-EIP is intended to identify opportunities and adopt resource efficiency and industry synergies through the Resource Efficiency and Industrial Symbiosis Opportunity Assessment (REISO) programme with 60 companies within the identified industrial parks. This included options for optimising inputs of raw material, energy, water, as well as chemical safety and waste management. These companies will be assessed for possible synergistic (or symbiosis) options, so that a waste- or by-product of one company could become an input for another. MY-EIP facilitates potential symbiosis opportunities between the EIP and nearby communities through the development and operation of E-Industry Symbiosis platform.

MY-EIP Support for Industrial Parks and Company Level

WHAT	*HOW*	*WHY*
Provides technical assistance, policy support and capacity-building, with key focus on 12 selected industrial parks.	**Increased capacity of park management, companies and government agencies to implement EIP practices.** **Strengthened institutional arrangements to implement EIP approaches in Malaysia and industrial park levels.** **Identified, assessed and implemented technical solutions in industrial parks (e.g. REISO).**	**To increase economic, environmental and social performance of pilot industrial parks (through GHG savings, cost savings, and community well-being).**

ENVIRONMENTAL TECHNOLOGY RESEARCH CENTRE

HIGHLIGHTS OF 2020

The submerged breakwater will control and reduce beach erosion by sand nourishment which increases the beach area and coastline gradually (July 2020).

4. Impact Study on the Efficiency of Wave Breaker at Pantai Puteri, Melaka

In April 2018, a 100-metre geotextile submerged wave breaker together with six units of ISFAD, the artificial reef developed by Eco-Materials Technology Section (EMTS) of Environmental Technology Research Centre (ETRC), were installed at 140-150 metres from the coastline of Melaka at Pantai Puteri (200-220 metres from coastal road) at a depth of 3-metre. Another secondary 18-metre geotextile wave breaker was also placed next to the groyne near the coastline.

The impact study was done in July 2020 to evaluate the effectiveness of the geotextile submerged breakwater and artificial reef on the surrounding area. From the evaluation, the coastline behind the location of installation has moved forward about 6% in 2020 due to sand nourishment effect. The change of coastline area has also increased the overall beach area accordingly.

In terms of biodiversity, the integration of geotextile submerged wave breaker with artificial reef has increased the number of fish species in the area from nine to 15 species, of which all six new species has high commercial value. The increase in fish species surrounding this area is due to the growth and abundance of food sources such as algae, small crustacean and fish surrounding the area of installation. This condition has attracted high value predatory fish species such as Dorab wolf-herring (Ikan Parang), Narrow-barred Spanish mackerel (Ikan Tenggiri), Fourfinger threadfin (Ikan Senangin), Black pomfret (Ikan Bawal Hitam), Barramundi (Ikan Siakap) and Indian threadfin (Ikan Kurau) from the deep to coastal area. As a result, it provides additional benefit and value to the artisanal fishermen operating near Pantai Puteri, raising their income and socio-economic standing indirectly.

Family	Species	Common name	Note
Clupeidae	Anodontostoma chacunda	Chacunda gizzard shad	Common
Engraulidae	Thryssa mystax	Moustached thryssa / Gangetic anchovy	Common
Chirocentridae	Chirocentrus dorab	Dorab wolf-herring	Uncommon
Polynemidae	Eleutheronema tetradactylum	Fourfinger threadfin	Uncommon
Scombridae	Scomberomorus commerson	Narrow-barred Spanish mackerel	Uncommon
Pristigasteridae	Ilisha elongate	Chinese herring / slander shad	Common
Ariidae	Arius thalassinus	Giant sea catfish / giant salmon catfish / giant marine-catfish	Common
Carangidae	Parastromateus niger	Black pomfret	Uncommon
Engraulidae	Colia dussumieri	Goldspotted grenadier anchovy	Common
Leiognathidae	Secutor hanedai	Haneda's ponyfish	Common
Trichiuridae	Trichiurus lepturus	Largehead hairtail / beltfish	Common
Tetraodontidae	Lagocephalus sp.	Pufferfish	Common
Sciaenidae	Nibea soldado	Soldier croaker	Common
Latidae	Lates calcarifer	Barramundi	Uncommon
Polynemidae	Leptomelanosoma indicum	Indian threadfin	Uncommon

List of fish species captured during the project's impact study, with new fish species in the area marked as uncommon

Local artisanal fishermen showing commonly captured fish species among their daily catch during the impact study

Dorab wolf herring (Ikan Parang, left) and Black pomfret (Ikan Bawal Hitam, right) are among the new high value species captured during the study

ENVIRONMENTAL TECHNOLOGY RESEARCH CENTRE

HIGHLIGHTS OF 2020

The installation of integrated geotextile submerged wave breaker and artificial reef have also become a suitable ground for seaweed and microalgae to grow. There were three species of seaweed growing on the geotextile surface which are red, green and brown seaweeds. The presence of these seaweeds attracts sea turtles to feed in the area and potentially lay egg at a nearby beach. After one year of the wave breaker installation, Melaka recorded its first ever sea turtle landing at Pengkalan Balak beach, which is north of Pantai Puteri.

Moreover, these species of seaweed have potential application which can be commercialised in the future, as shown in the table below.

Species	Common name	Potential Application	Image
Gracilaria changii & Calllophyllis laciniata	Red seaweed	High yield of good quality agar (food industry), bio-adsorbent for Copper removal	
Chaetomorpha sp. & Chaetomorpha linum	Green seaweed	Used as wastewater treatment and suitable candidate for biofuel	
Ectocarpus siliculosus	Brown seaweed	Biofertilizers, pharmaceutical, nutraceutical	

Besides functioning as wave breakers, geotextile bags may also be used as an artificial substrate for seaweed growth. Ecologically, the presence of seaweeds on geotextile bags provides a sustainable natural habitat for other marine organisms to breed and survive.

INDUSTRIAL BIOTECHNOLOGY RESEARCH CENTRE

REPORT BY:
DR. AHMAD HAZRI AB RASHID
General Manager,
Industry Biotechnology Research Centre

THE INDUSTRIAL BIOTECHNOLOGY RESEARCH CENTRE (IBRC) IS MADE UP OF TWO SECTIONS

COSMETICS AND NATURAL PRODUCTS SECTION (CNP)

CNP is a one-stop centre for R&D on natural products which covers developing new active ingredients, cosmetics formulations and production processes under GMP requirements for market access. The value chain of natural product development covers raw material sourcing and processing, extraction and standardisation, bioactivity screening and safety evaluation for upstream activities, and product development, stability evaluation, claim substantiation and product manufacturing for downstream activities.

BIO-PROCESS SECTION (BP)

BP focuses on the industrialisation of bioproducts and biological processes through the utilisation of microbial, fermentation and enzyme technologies. Some of the bioproducts that have gone through our industrialisation process include animal vaccines, microbial enzymes such as phytase, microbial metabolites such as citric acid, and natural vinegar.

The IBRC offers solutions for products' regulatory needs. IBRC's experienced analysts deliver accredited testing services according to international standards, catering to clients who market a wide range of products including traditional medicine, medical devices, cosmetics, fabrics, food, beverages, chemical disinfectants and biofertilizers.

All of IBRC's tests are ISO/IEC 17025 accredited, which provides assurance that its facility is fit for internationally recognised testing protocols, and staff competency are thoroughly assessed periodically. The toxicology lab is compliant with the Principles of Good Laboratory Practices (GLP), which is a laboratory compliance programme developed by the Organisation for Economic Cooperation and Development (OECD) countries considered to be the highest laboratory compliance programme globally.

The types of tests conducted are shown below.

MICROBIOLOGY AND MOLECULAR BIOLOGY
Pharmaceuticals, medical devices, food, fertilizers, chemicals such as disinfectants, cosmetics, traditional medicine

BIOASSSAY
Skincare and other topical products, herbal extracts

TOXICOLOGY
For pharmaceutical, medical devices, cosmetics, chemicals, food, nutraceuticals

MATERIAL CHARACTERISATION
Safety and stability analysis for pharmaceuticals, cosmetic products and traditional medicine, as well as authentication of herbal extracts or products

INDUSTRIAL BIOTECHNOLOGY RESEARCH CENTRE

HIGHLIGHTS OF 2020

1. Commercial Biotechnology Collaboration

The IBRC very actively participated in commercial biotechnology projects with local organisations and SMEs for the production of bio-based products from renewable resources that hold great potential value for industries in many sectors including chemicals, wellness and healthcare products. A total of five technical papers were published and one patent was granted in 2020.

2. Supporting National SARS-Cov2 Initiatives

To assist the nation in its battle against the Coronavirus Disease 2019 (COVID-19), IBRC was part of the committee which successfully published the industry standard on hand sanitisers and developed the bacterial filtration efficiency (BFE) test for face masks, which will be offered as a service to the industry in 2021.

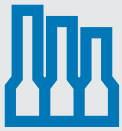
3. Cosmeceutical R&D

During the year under review, IBRC was also involved in research and development and commercialisation activities of cosmeceutical products. A total of 115 cosmetic products formulated by researchers were registered with the National Pharmaceutical Regulatory Agency (NPRA) and are being sold by local entrepreneurs under different brand names. One topical product was successfully registered with the Ministry of Health under the traditional medicine classification and commercialisation is ongoing.

4. Upholding Quality Benchmarks

In 2020, the centre successfully maintained its ISO 9001 quality management certification after being audited by SAI Global. To stay competitive in the area of technical testing services, the centre has increased its scope of ISO 17025 accreditation testing from Standards Malaysia to include toxicology, microbiology and material characterisation testing. As a mark of the highest standard of laboratory accreditation, the IBRC successfully maintained the OECD GLP compliance in the area of toxicology to the NPRA and Standards Malaysia for the following products:

MEDICAL DEVICES



INDUSTRIAL CHEMICALS

PESTICIDES

MACHINERY TECHNOLOGY CENTRE

REPORT BY:
ZURIANI USOP
General Manager,
Machinery Technology Centre

Machinery Technology Centre (MTC) is one of SIRIM IR's technology centres located in Rasa, Hulu Selangor. The centre is ISO 9001:2015 certified for the Provision of Engineering Services in the area of Machinery Technology. It offers end-to-end design and engineering solutions in machinery and equipment. MTC's business is supported by 45 technical and 13 non-technical staff, and by its two main core business sections:

1. **Foundry Technology Section (FTS)**
   FTS provides engineering services related to metal casting and machining which serves both internal and external clients utilising the facilities in its foundry and tooling workshop.

2. **Machine Design Section (MDS)**
   The core activities of MDS are in the areas of machine design and development, machining and fabrication services, as well as technical assessment and verification services.

FACTS AT A GLANCE

ISO 9001:2015

Certified in the Provision of Engineering Services

45 technical

13 non-technical staff

HIGHLIGHTS OF 2020

Test specimen for Plastics and Composite Materials Section, SIRIM QAS International Sdn Bhd

Forming operation of special pipe support

Aluminium sacrificial anode

Foundry Technology Section (FTS)

Among the services rendered to internal clients during 2020 was the machining of test specimens for the Plastics and Composite Materials Section of SIRIM QAS International Sdn Bhd. In one example of services to external clients, FTS has continued to render its support to a new start-up company by providing casting service in the pilot production of aluminium sacrificial anode used in marine and Oil & Gas applications.

In 2020, FTS has received two orders to manufacture special pipe support for oil and gas piping system that complies with the requirements and standards of the industry. The components were entirely manufactured in SIRIM under stringent controls. One order has been successfully completed while another order has been manufactured, delivered to site and is due for installation in 2021.

FTS is the project implementer for Phase 3 of the Capacity Development Programme for Vendors (PPKV) targeting Bumiputera vendors and funded by the Ministry of Entrepreneur Development and Cooperatives (MEDAC), which saw the participation of 44 vendor companies implemented in one year until September 2020. A total of 15 companies had obtained their QMS ISO9001:2015 certification as a result from this programme. Apart from the consultation given to vendor companies for QMS ISO9001:2015 certification, FTS also carried out three sub-programmes focused on assisting the vendor companies to resolve their waste issues in their operation through identification of the root causes by using proper techniques and tools.

FTS continued to receive requests from its past clients in providing customised training programmes related to topics in foundry and tooling technology. In 2020, three training programmes in tooling technology were conducted for Perak Entrepreneur and Skills Development Centre (PESDC).

MACHINERY TECHNOLOGY CENTRE

HIGHLIGHTS OF 2020

Capacity Development Programme for Vendors (PPKV), Phase 3 Bumiputera

Training programme in tooling technology for Perak Entrepreneur and Skills Development Centre (PESDC)

Among the completed projects in 2020 are:

1. Development and Improvement of Roti Naik 'Tok Ayah' Dough Extruder System
2. Increasing the Shelf Life of Instant Sambal Soup Meatballs through Sterilisation and Improvement in Packaging Process
3. Automated Seaweed and Popiah Cutting and Drying Machine
4. Improvement of Keropok Lekor Production Technology
5. Development and Improvement of 'Jus Sehat' Herbal Drink Production System for Hainiq Enterprise
6. Improvement of Filling Process and Product Consultation for Liquid Cleaning Agents
7. Enhancement of Forming and Baking Process for the Production of Red Velvet Cookies
8. Development of Automation System for the Filling and Packaging Process of Mak Maz Milled Chilli

FTS was also actively involved in the implementation of SIRIM-Fraunhofer Programme including technology audit, technology uptake, and post project audit. Auditors from FTS participated in technology audits throughout the year either as lead auditors or second auditors in realising the target number of audits being assigned to MTC. The year 2020 has seen a total of six technology uptake projects being undertaken by FTS as lead implementer, with another six projects as sub-implementer.

Machine Design Section (MDS)

MDS has secured a commercial project from SIRIM Tech Venture Sdn Bhd in providing technical consultation on the Supply, Delivery, Commission and Establishment of Processing Machines for the Development of Commercial-ready Glass Solar Panel for Dye Solar Cells. This project is scheduled to be completed, delivered and commissioned in 2021 to the Centre of Innovative Nanostructures and Nanodevices (COINN), Universiti Teknologi Petronas.

Throughout 2020, MDS was actively involved in the implementation of the SIRIM-Fraunhofer Programme, participating in 11 technology audits, three post technology audits, six post project audits and 27 technology uptake projects.

MACHINERY TECHNOLOGY CENTRE

HIGHLIGHTS OF 2020

Machine Design Section (MDS)

MDS continued its support in providing engineering services to industries, especially for the rail sector through a collaboration project with Protech Master Coach Sdn Bhd (PMC) for monorail assembly works, which included the scope of fabrication and machining of parts as well as quality control on the assembly process. As for the automotive sector, MDS continued to provide fabrication and machining services for the development of the stamping dies of car components.

For assessment and verification services, MDS has five qualified Industry4WRD Readiness Assessment (RA) assessors, who were actively involved in 57 RAs throughout the year, while a team of seven qualified verifiers conducted 102 verification jobs for the Malaysian Investment Development Authority's (MIDA) Automation Capital Allowance (ACA) programme and 10 verification jobs as part of the plastic industry Approval Permit (AP) renewal process for Jabatan Pengurusan Sisa Pepejal Negara (JPSPN). A new technical assessment service on the Technology Competitiveness Analysis has been performed for Bio Eneco (M) Sdn Bhd.

Monorail Assembly Work

Automotive Stamping Die Machining

In research activities, MDS has published several research outputs in the form of three articles in various publications in 2020. These included:

1. Dicing characterisation on optical silicon wafer waveguide
   – Applied Mechanics and Materials, 899, 163-168;

2. Representation of bolted joints in a structure using finite element modelling and model updating
   – Journal of Mechanical Engineering and Sciences, 14(3), 7141-7151; and

3. Prototype development of mecanum wheels mobile robot: A review
   – Applied Research and Smart Technology (ARSTech), 1(2), 71-82.

On top of that, a paper was presented in a conference on the topic of:

1. Multiple Linear Regression Parameters for Generating Fatigue-based Entropy Characteristics of Magnesium Alloy
   – Virtual Conference on Mechanical Fatigue (VCMF 2020), 9-11 September 2020.

INDUSTRIAL CENTRE OF INNOVATION – NANOTECHNOLOGY

REPORT BY:
DR. MOHD RADZI MOHD TOF
Director, Industrial Centre of Innovation – Nanotechnology

The Industrial Centre of Innovation in Nanotechnology (ICI Nano.) is one of the Industrial Centres under SIRIM Industrial Research (SIRIM IR). ICI Nano. undertakes research and development (R&D) in nanotechnology and engineering materials for industrial applications. ICI Nano. works with government agencies, industries, communities, and universities as a partner/collaborator in developing new knowledge and value-adding technology to the industry.

The centre's aim is to enhance the nation's capability in generating technology through upstream applied research with a focus on market driven technology development in nanotechnology and engineering materials. The role of ICI Nano. is to provide innovative solutions in nanotechnology and engineering materials to boost technology penetration of SMEs in the areas of functional coating, green materials, engineering materials as well as technical services and consultancy.

ICI Nano. also supports and collaborates with National Nanotechnology Centre (NNC) and Nano Malaysia Berhad (NMB) under the Ministry of Science, Technology and Innovation (MOSTI) to build up and enhance nano technology industry in Malaysia.

As a partner of NNC and NMB, the ICI Nano. team was appointed as a Task Force and Technical committee member for the development of the "Advanced Materials RoadMap 2021-2030" and "National Nanotechnology Policy & Strategy 2021-2030" under MOSTI. In the ASEAN network, SIRIM's ICI Nano. represents Malaysia as a Focal Point under the Subcommittee of Materials Science and Technology (SCMST) for ASEAN Committee of Science and Technology. This event was conducted every year since 2014 at the host country by rotation.

HIGHLIGHTS OF 2020

Courtesy visit to the Secretary General of the Ministry of Water, Land and Natural Resources (KeTSA)

Collaboration networking with the Geological Society of Malaysia (JMG), Northern Region

In line with the centre's role, ICI Nano. has carried out market-driven research and development in nanotechnology and engineering materials to deliver outputs and products for future commercialisation. One project on the Development of Ceramic Hive materials for Stingless Bee was carried out under MITI's Product Development Programme (PDP).

ICI Nano. also received a new development project under the 12th Malaysian Plan 2021-2025 (RMK-12). The amount approved for the project, titled "Inovasi Kimia dan Bahan Termaju Produk Biodegradasi Bagi Aplikasi Teknologi Hijau" (Chemical Innovation and Advanced Materials of Biodegradable Products for Green Technology Applications), is RM4 million. One of the main purposes of the project is to set up a physical facility for biodegradable plastic development and testing for the industry.

Currently, ICI Nano. is also working with the Department of Mineral and Geoscience Malaysia (JMG) in Water Nanofiltration System from Tube Well Water, and as a collaboration partner in R&D to utilise our local minerals for filtration media. The MoU has been drafted between both parties and will be finalised in early 2021.

INDUSTRIAL CENTRE OF INNOVATION – NANOTECHNOLOGY

HIGHLIGHTS OF 2020

Fabrication of water nanofiltration system at Masjid Desa Aman, Kedah.

Under the SIRIM-Fraunhofer Programme, there were 18 technology uptake projects approved in 2020. A total of 79 audits were conducted for SMEs, consisting of 21 Technology Audits, 20 Post Technology Audits, seven Post Project Assessments and 31 Readiness Assessments. The audits were carried out by 14 qualified technology auditors from ICI Nano. As a result, various technology interventions such as technology enhancement, innovative processes and automation have been adopted by those SMEs, improving productivity in their processes.

In technical services and consultancy, ICI Nano. received about 304 requests from SMEs, government agencies and universities during the year under review, which represents an increment of about 240% as compared to 2019. This allowed the centre to participate in testing contracts, and provide materials characterisation services for ceramics, metals, composites and polymers utilising high-end equipment and materials processing facilities. New testing facilities have been developed for nanosafety physical and chemical testing and verification to identify nanomaterial characteristics in nano-based products.

Also in 2020, ICI Nano. secured three commercial projects, namely "Study in the establishment of a benchmark for the safety risks of nano-based products", "Fabrication of water nanofiltration system at Masjid Desa Aman" and "Reskilling and upskilling ceramic industry workforces into technopreneurs" under PENJANA, valued at RM7.5 million, RM95,000 and RM171,000 respectively. One contract research was also successfully formulated for water-based nano coat rust converter for metal roofing and engineering parts with the company.

ICI Nano aims to increase awareness and collaboration among industry partners, academia, research institutions and government agencies on its technological capabilities and facilities through participation in technology exhibitions and the organisation of seminars, workshops and training programmes. Through these ventures, contract research and development, consultancy, training and technical service projects can be undertaken by ICI Nano in the near future.

ICI Nano's achievements were recognised on the world stage in 2020, receiving a Silver Award in Innovative Ceramic Hive for Stingless Bee Farming from the International Award of Merit Republic of Croatia, and a Silver Medal in Fabrication of Carbon-Copper Composition using Local Carbon Materials for Electrical and Electronics Application at Malaysia Technology Expo 2020. Likewise in 2020, ICI Nano.'s work were published in three refereed journals, and one patent was granted to the centre.

In the long term, the visibility of ICI Nano can also be enhanced by having experienced personnel serve as an expert panel for grant proposal evaluations involving Smart Challenge fund. Towards that end, ICI Nano. was recently appointed to a new grand scheme called the Main Grand Challenge Fund, consisting of AGF, TED1, TED2, SRF, AIF, ASEAN Science and Technology Innovation Fund and other nanotechnology-related funds.

INDUSTRIAL CENTRE OF INNOVATION – SENSOR

REPORT BY:
HAMIDAH SIDEK
Director, Industrial Centre of Innovation – Sensor

Industrial Centre of Innovation in Sensor (ICI Sensor) was established in the year 2017 to focus on developing products and services through sensor technology in biosensor, photonics, and integrated sensing system.

HIGHLIGHTS OF 2020

ICI Sensor's efforts in 2020 is focused on the undertaking of projects in collaboration with government agencies and industry players, successfully implementing the following projects:

1. **DSTIN - MOSTI**
   1.1 A Modular Microfluidic System for Rapid Serotype-Specific Detection of Dengue Virus Infection

2. **MySI (Malaysia Social Innovation) – MOSTI**
   2.1 Lighting System (EsLite) for Pasar Tani Traders

3. **SIIMF (SIRIM Industrial Innovation Model Fund) – SIRIM-Fraunhofer Programme**
   3.1 Improvement in Component Design and Product Packaging for Manufacturing Vertical Farming System
   Company: HAVVA Agrotech Sdn Bhd

   3.2 Design and Optimisation of Low and High Intensity Obstruction Lighting Product
   Company: Avialite Sdn Bhd

   3.3 Improvement in CNC Manufacturing Process Using Grid Plate Clamping System
   Company: UIS Technologies Sdn Bhd

   3.4 Development of Mosquito Home AQ Automated Process and Tracking
   Company: One Team Network Sdn Bhd

   3.5 Development of Auto Linear Dispenser System with IoT Connectivity
   Company: NSW Automation Sdn Bhd

INDUSTRIAL CENTRE OF INNOVATION – SENSOR

HIGHLIGHTS OF 2020

3. SIIMF (SIRIM Industrial Innovation Model Fund) – SIRIM-Fraunhofer Programme (Cont'd)

3.6 Development of Automotive Camera Assembly Line
Company: Delloyd C&C (M) Sdn Bhd

Improvement on the current Automotive Camera Assembly Line which includes automated lens inspection, lens torque testing, and UV glue curing process

PCB inspection

Focus and centre process

Assembly – gluing process

3.7 Introducing Electronic Water Conditioner for Plastic Extrusion Industry
Company: Danapac Industries (M) Sdn Bhd

Upgrade water-cooling system by installing electronic water conditioner at cooling tower and chiller in plastic production line to prolong the machine life span and reduce the hard water maintenance cost

Electronic water conditioner at Cooling Tower 1

Electronic water conditioner at Cooling Tower 2

Electronic water conditioner at Chiller

3.8 Productivity Improvement of Airtight Plastic Container Through Production Enhancement
Company: LCM Utara Sdn Bhd

4. SIWP (Solving Industry Wide Problem) – SIRIM-Fraunhofer Programme

4.1 Retrofitting SMEs Towards Industry 4.0: Product Tracking and Verification System (TrekPV)
Company: Siti Khadijah Apparel Sdn Bhd

4.2 Spurring SSL/LED SME Innovation through Best Lighting Project Management Practice
Company:
- KBioCorp Sdn Bhd
- Sunrich Biotech Sdn Bhd
- Jinshan Resources Sdn Bhd
- Ikhtiar Mentari Sdn Bhd

INDUSTRIAL CENTRE OF INNOVATION – SENSOR

HIGHLIGHTS OF 2020

5. Commercial

5.1 Permit Monitoring System (Assets) DBKU
Company: Dewan Bandaraya Kuching Utara (DBKU)

5.2 Security Card Printing with Monitoring System
Company:
- Department of Labour of Peninsular Malaysia (JTKSM)
- The People's Volunteer Corps (RELA)
- Valuation and Property Services Department (JPPH), Ministry of Finance Malaysia
- Parliament of Malaysia
- Malaysian Senators Council
- Petaling Jaya City Council (MBPJ)
- Department of Private Higher Education (KPT)
- Malaysian Rubber Board
- Ministry of Home Affairs

Development of web system

Development of mobile apps (smart phone)

5.3 Product Cert Encryption and Monitoring System
Company: SIRIM QAS International Sdn Bhd

5.4 Smart Manhole Management System
Company: Tumpat Solutions Sdn Bhd

RFID manhole tracking system

Development of web system for manhole monitoring

Due to the ongoing pandemic, ICI Sensor did not carry out any networking session for the year under review. However, patent development is ongoing for an on-chip molecular diagnostic system and application of the same, which is in the drafting stage. Articles published in the year under review included:

1. Encapsulation of acidified chitosan within partially cross-linked natural rubber matrices and their potential slow-release application. Muhammad Rahim, Mas Rosemal Hakim Mas Haris, Norhidayah Abu.
   – **Journal of Rubber Research volume 23, pages 245 – 256 (2020).**

2. Reliability of 2DEG Diamond FET by Harsh-Continuous Stress Voltage Approach. N.M.Nashaain, S. Falina, Y. Kitabayashi, D. Matsumura, A.A. Manaf, Z. Hassan, M. Syamsul, H. Kawarada.
   – **2020 4th IEEE Electron Devices Technology & Manufacturing Conference (EDTM), DOI: 10.1109 EDTM47692.2020.9117897**

New collaborations have been established in 2020 with Danapac Industries (M) Sdn Bhd, Delloyd C&C (M) Sdn Bhd, Polyparts Sdn Bhd, HAVVA Agrotech Sdn Bhd, Advance Network Industries, PPPL Trading Wilayah Utara Sdn Bhd, and Megamed Sdn Bhd.

Moving forward, ICI Sensor has identified several areas of growth for the section, focusing on intelligent sensor network supporting smart industry, infrastructure and track & trace solution, block chain foundation and cybersecurity, and IoT application for precision farming.

INDUSTRIAL CENTRE OF INNOVATION – BIOMEDICAL

REPORT BY:
DR. ROSDI BIN IBRAHIM
Director, Industrial Centre of Innovation – Biomedical

The Industrial Centre of Innovation in Biomedical (ICI Biomedical) initiates and delivers innovative applications and solutions within the medical sector. These include bioceramics for both dental and orthopaedic applications, wound management products, Metal Injection Moulding (MIM) process for cranio and maxillofacial application, and a focus on clinical trial and production of carbon fibre.

FACTS AT A GLANCE

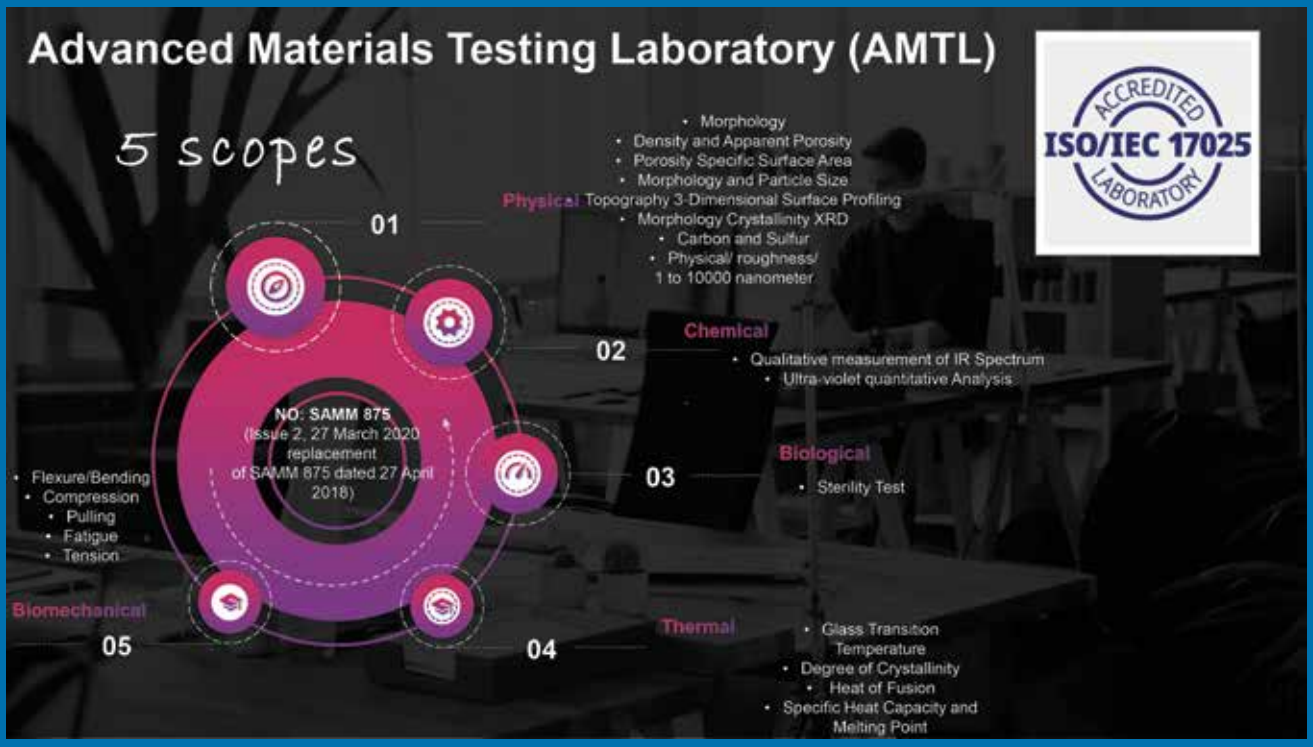
5	Scopes and
21	Tests added for Accreditation
2	Major Events Organised
4	Research Projects
20	Technology Audits
14	SIMF Projects Completed
30	New Projects Approved
1	RMK-12 Project Approved
6	Publications

HIGHLIGHTS OF 2020

The year 2020 has been a very challenging year for ICI Biomedical due to the ongoing pandemic. We focused on specific areas of high relevance for the industry, international research organisations, universities and business entities. The business activities include Technical Services & Consultancy, contract research, marketing and business development, technology transfer and commercialisation, and non-government industrial research including the SIRIM-Fraunhofer Programme.

Advanced Materials Testing Laboratory Accreditation

ICI Biomedical managed to get the ISO/IEC 17025: 2017 accreditation under Advanced Materials Testing Laboratory for chemical and physical fields of testing with SAMM no. 875. In addition to that, the Advanced Materials Testing Laboratory also managed to extend two scopes under mechanical and another 14 tests. ICI Biomedical has offered 10 ISO/IEC 17025 accredited chemical and physical tests since 2018, and other scopes of thermal, sterility and biomechanics testing has been be offered since Q3 this year. There are about 14 new testing methods which fall under the scopes of physical, chemical, mechanical, microbiology and thermal, and these tests are expected to cater to about 30% of the medical device companies located in the northern region.



INDUSTRIAL CENTRE OF INNOVATION – BIOMEDICAL

HIGHLIGHTS OF 2020

SIRIM-Fraunhofer Programme

ICI Biomedical has actively participated in the SIRIM-Fraunhofer Programme, with 20 small and medium companies audited for technology audit, 14 companies for post-technology audit and six companies for post-project audits. In addition, 14 technology uptake projects were completed in 2020 and 30 proposals were approved for technology uptake.

Projects Completed

No.	Company	Project Title
1	3D Instrumentation Sdn Bhd	Productivity improvement of orthopaedic nail implants through enhancement of 2-axis turning machine for high performance deep hole drilling process
2	SNT Dhuha Industry	Improvement of drying and packaging system for the production of Dhuha Instant Noodles
3	UWHM Sdn Bhd	Design and fabrication of automated leak test device for productivity improvement of prefilled humidifier
4	Sley Enterprise	Design and development of curing oven for honeycomb and carbon fibre applications
5	Hana Medic Sdn Bhd	Development of systematic piping, mixing, filling and packaging system for disinfectant production line
6	Epsilon Medical Devices Sdn Bhd	Development of saline water sachet packing machine to produce saline water sachets for hydrophilic intermittent catheter packaging
7	Noor PNI Indah Sdn Bhd	Development of a biscuit mould production system as a downstream product from excess aluminium waste
8	Ikhwan Food Industries	Productivity enhancement of fish ball and fish cake production through the development of a semi-automatic packaging system
9	Green Aquatic Feed (M) Sdn Bhd	Capacity and quality enhancement of kenaf core powder production through kenaf grinder system innovation
10	Powerista Technologies Sdn Bhd	Productivity improvement for production of 3D Digital Dental Aligners through real time design verification and smart product tracking system
11	Broadex Food Sdn Bhd	Improvement of extraction and filtration machines, cooking machines and refrigeration machines in soft tofu product processing systems
12	Selia-Tek Medical Sdn Bhd	Development of automated tube arranger systems for VacTube Blood Collection Tube (BCT) Manufacturing Line
13	CK Ingredient Sdn Bhd	Development of integrated multilayer dryer and grinder system for grain production line
14	MF Precision Engineering	Upgrading the efficiency of CNC machine for better accuracy on the production parts

Research Projects

- **Product Enhancement of Producing Local Formulation of Intermediate Grade Carbon Fibre**

  ICI Biomedical embarked on this research project to develop SIRIM's very own carbon fibre facilities for the production of intermediate grade carbon fibre. The project is underway and progressing well, leveraging internal SIRIM expertise to develop a pilot plant to produce polyacrylonitrile (PAN)-based fibre and carbon fibre with low modulus strength.

INDUSTRIAL CENTRE OF INNOVATION – BIOMEDICAL

HIGHLIGHTS OF 2020

Research Projects (Cont'd)

- **Clinical Trials of Titanium Alloy Metallic Implants for Oral Maxillofacial Produced by Metal Injection Moulding Technique for Medical Trauma Cases**

  SIRIM conducted clinical trials of the locally produced titanium alloy metallic implants fabricated by metal injection moulding technique in response to the urgent need to establish locally manufactured prostheses implants as a significantly more affordable substitute for costly imports. The osteosynthesis are intended for use in maxillofacial surgery in medical trauma cases. The establishment of locally produced prostheses implants manufactured according to ISO 13485 and Good Manufacturing Practice (GMP) regulations is of high importance as they are expected to be more cost effective in providing moderate coverage to local patients from all walks of life.

- **Transforming Orthotic and Prosthetic Industry towards Digital Manufacturing using 3D Imaging and Additive Manufacturing Technologies**

  The goal of this project is to strengthen the medical device industry through the implementation of 3D Digital Imaging and Additive Manufacturing technology in the production of orthotic and prosthetic devices. Currently, SIRIM is working with Bumi Medik Artificial Limb Center Sdn Bhd, Teh Lin Prosthetic & Orthopaedic Co Sdn Bhd and Nusa Prosthetic & Orthotic Center Sdn Bhd to custom design and develop below-knee prosthesis (socket) using 3D scanning, 3D computer-aided-design (CAD) and 3D printing (additive manufacturing) technologies.

Clinical Trials will include protocol development (Regulatory and Ethics Committee Approval, Pre-study Assessment) Conduct of Trial (screening, recruitment, randomization, inform consent, medical history, sign/symptoms, site assessment, study handling, study treatment expenditure)

Polyacrylonitrile (PAN) solution preparation tank for producing PAN fibre in production of carbon fibre

3D printed (additive manufacturing) below knee socket (the white socket)

New RMK12 Project

In supporting the development of the medical devices industry as one of Malaysia's high growth potential sectors, ICI Biomedical has approved one new project under RMK-12 in 2020, valued at RM3,965,000. The project, bearing the code DF-21-0001-330, was on Strengthening the Medical Device Industry through upgrading of testing facilities and product development facilities (Physical).

The programme, which consists of four projects, was approved on 9 November 2020 and is expected to be completed in December 2024. As one of the approved projects under ICI Biomedical, the development of Ethylene Oxide (EtO) sterilisation facility at SIRIM Penang is intended to provide sterilisation and validation testing services according to ISO/IEC 13485 and ISO 11135 standards for medical device product manufacturing companies in Malaysia. This project was acquired to support SME companies in realising EtO sterilisation and validation processes at a cost efficient scale and with fast service provision.

INDUSTRIAL CENTRE OF INNOVATION – BIOMEDICAL

HIGHLIGHTS OF 2020

The second project under ICI Biomedical aims to upgrade the existing additive manufacturing innovation incubator facility through SIRIM's new Additive Manufacturing System. This 3D printing system produces engineering-grade thermoplastic (Nylon) prototypes and functional parts with optimal mechanical properties. The 3D printer can achieve fine detail and high dimensional accuracy for small features. It is mainly applied for producing visual aids and presentation models, functional prototyping, and end-use parts.

Ethylene Oxide (EtO) sterilisation

3D Printer (HP Jet Fusion 580 Colour)

3D-printed hand wrist brace (Nylon - PA12)

Publications

Realising the importance of the publication of scientific work in refereed journals, ICI Biomedical has also successfully published six refereed articles in 2020:

1. **Properties Evaluation of Injection Moulded Gas and Water Atomised 316L Stainless Steel Powder,** Mohd Afian Omar and Istikamah Subuki
   – Saudi J Eng Technology, Scholars Middle East Publishers, 5(8): 310-315, ISSN 2415-6272 (Print) lISSN 2415-6264 (Online)
2. **Solvent Extraction Study of Injection Moulded M2 High Speed Steel Using Palm Stearin/Waste Rubber Based Binder,** M.A.Omar and N. Wahab
   – International Journal of Scientific Research & Engineering Trends, IJSRET , Volume 6, Issue 6, Nov-Dec-2020, ISSN (Online): 2395-566X
3. **Post Corona Architecture Processing of Metallic Implants using Metal Injection Moulding Process: Mechanical Properties, In-vitro and In-vivo Evaluations,** M.A. Omar, N.H.M. Jan and A.H. Zulkifly
   – European Journal of Advances in Engineering and Technology, 2020, 7(11):1-6
4. **Powder Characterization, Mixing Behaviour and Rheological Properties of Magnesium Powder Feedstock for Metal Injection Moulding Process,** M. A. Omar and N. Zainon
   – Saudi Journal of Engineering and Technology, Scholars Middle East Publisher, Volume-5, Issue-12 (December, 2020) ISSN 2415-6264 (Online), ISSN 2415-6272.
5. **Evaluation of Chemical Composition, Heat Treatment, Mechanical Properties and Electro Chemical Polishing for Additively Manufactured Stent using ASTM F75 Cobalt-based Superalloy (CoCrMo) by Selective Laser Melting (SLM) Technology,** M. Asnawi Omar, B.T.H. Baharudin, S. Sulaiman, M.I.S. Ismail and M. Afian Omar
   – Advances In Materials And Processing Technologies, Taylor and Francis

Events Organised

Throughout the year 2020, ICI Biomedical has successfully organised two major events: Industry Engagement for Kenaf Based Industry in Kulim on 23 June 2020, and Innovation Management Workshop under the SIRIM-Fraunhofer Programme on 5 and 6 August 2020 in Seberang Jaya, Penang, with good turnouts that saw the participation of 20 industry members and 17 SMEs for the respective events.

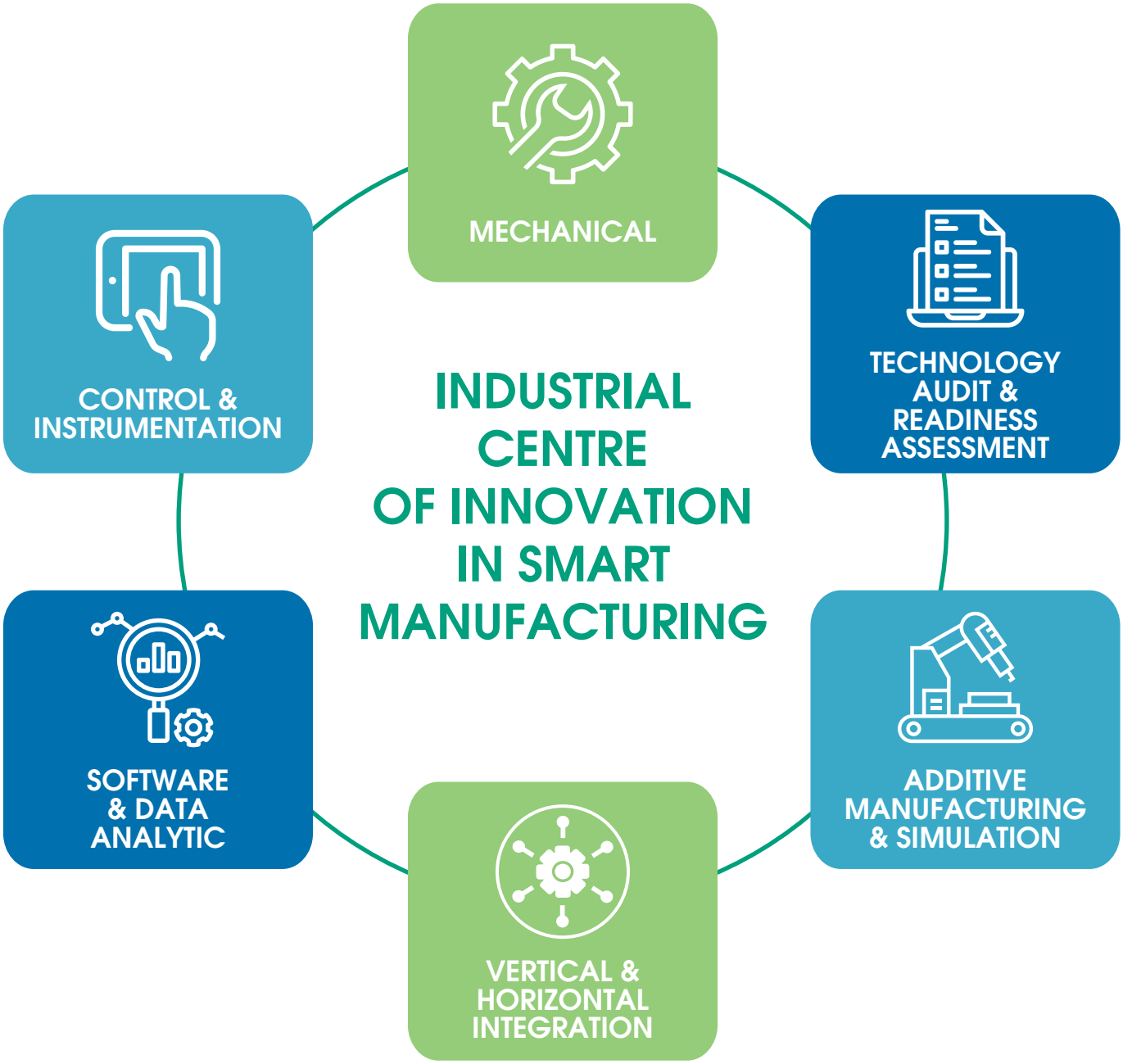
Participants of Innovation Management Workshop under SIRIM-Fraunhofer Programme, held on 5-6 August 2020 at The Light, Seberang Jaya, Penang

INDUSTRIAL CENTRE OF INNOVATION – SMART MANUFACTURING

REPORT BY:
DR. MOHD SHAHRUL AZMI MOHAMAD YUSOFF
Director, Industrial Centre of Innovation – Smart Manufacturing

Bringing the gap, transforming the future of us.

The Industrial Centre of Innovation in Smart Manufacturing (ICI-SM) offers a broad range of services catered to the utmost advantages of national development, industries and societies in catching up with the government agenda in implementing National Industry4WRD Policy. Prioritising dynamic interchange culture and savoir faire enhancement, ICI-SM works closely with government agencies, industry players and academia to tighten the gap between these entities in creating valuable output through 6 main clusters:



INDUSTRIAL CENTRE OF INNOVATION – SMART MANUFACTURING

HIGHLIGHTS OF 2020

In 2020, ICI-SM has completed five Post Project Audits,10 Technology Audits, 62 Readiness Assessments, nine Post Technology Audits, one Innovation Workshop.

Other significant high-worth projects undertaken by ICI-SM in 2020 are as follows:

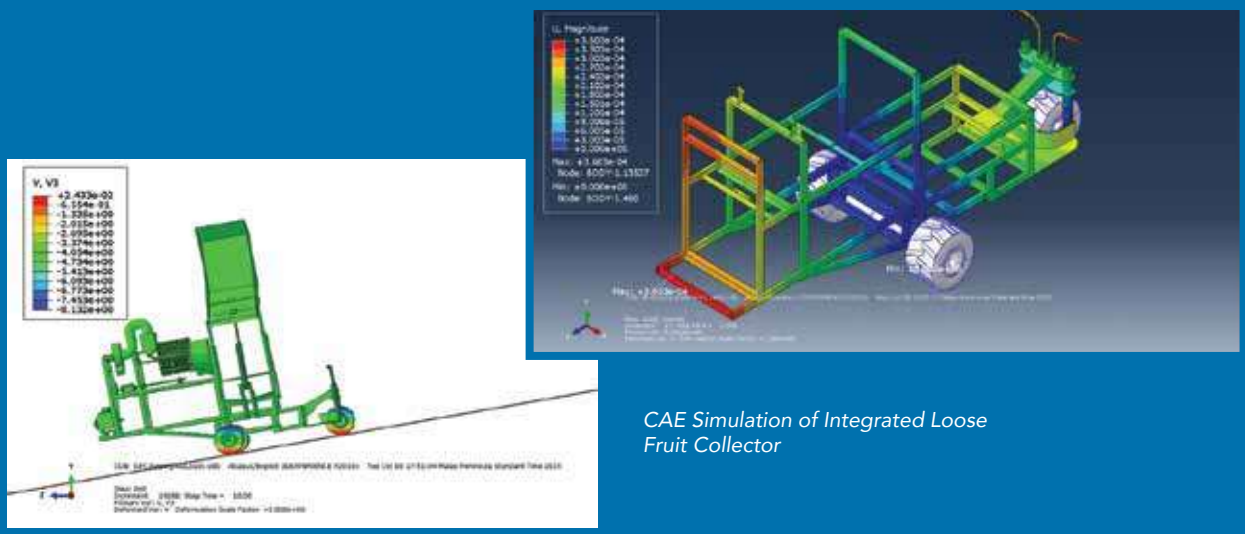
1. **TVET Train the Trainer Programme**

   To bridge the gap between academic education and industrial needs for Industry4WRD implementation policy in Malaysia, ICI-SM, in collaboration with SIRIM STS, conducted the TVET Train the Trainer Programme with MITI as the funder. A total of 17 modules were formulated and rolled out for 340 trainers/ lecturers from institutions throughout the nation to equip them with the required Industry 4.0 skills and knowledge with the aim of developing industry-ready quality graduates to work in the Industry 4.0 environment. Pillars of Industry 4.0 including IoT, Data Analytics, Additive Manufacturing, Artificial Intelligence, Cloud Computing, Autonomous Robot, and System Integration were covered under this programme.

2. **CAE Simulation and Analysis of Mechanical Buffalo Scissor Lift and Integrated Loose Fruit Collector for Sime Darby Plantation Research**

   The oil palm industry is a labour-intensive industry. As the oil palm industry grows, demand for labour has increased and the shortage of labour resulted in an exploration into the area of mechanisation. Advancement in this field over the years, however, involves an introduction of various machinery suitable for local Malaysian terrain. Mechanical Buffalo with Scissor Lift (MBSL) and Mechanical Buffalo with Integrated Loose Fruit Collector are among the machines designed and developed by Sime Darby Plantation Research to cater for these needs.

   To endorse the design of these vehicles, Computer Aided Engineering (CAE) was performed by ICI-SM. Firstly, the structural integrity of the vehicles was assessed by applying the maximum load including the vehicles' auxiliary equipment such as the scissor lift system. Secondly, these vehicles were tested by simulating its movement at certain dynamic criteria defined by the Sime Darby Plantation Research. The criteria are obtained from the standard testing method done in actual experimental test.



CAE Simulation of Integrated Loose Fruit Collector

INDUSTRIAL CENTRE OF INNOVATION – SMART MANUFACTURING

HIGHLIGHTS OF 2020

3. Development of Cloud-based Metering System Prover Approval System e-PROVE

In contrast to the traditional method of prover calibration and the overall process to obtain the official volume for oil and gas industry billing, e-PROVE was developed by ICI-SM to facilitate the process by using a cloud-based system that can be accessed by the intended parties involved in prover calibration activities. The system is a digital, comprehensive, integrated solution for Metering System Prover rectification approval system in compliance with the American Petroleum Institute (API) guidelines of the Manual of Petroleum Measurement Standards.

The system was conceived as a first step for Petronas, National Metrology Institute of Malaysia (NMIM), surveyors and Petronas' clients to adopt Industry 4.0 in their workplace. Adoption of Industry 4.0 technology will enable the process of certification to be monitored online and for approval/ rejections to be quickly issued, which can contribute to cost saving and better efficiencies. The approval will consequently enable the metre to be commissioned and operated seamlessly.

The objective of the system development is to automate the prover certification process and to create a data repository for the information/ data collected from the reading taken during the metre validation or calibration. It allows all the parties involved to manage the activities online and NMIM to subsequently approve or certify the metre. Data and information taken during the validation or calibration are readily available online to users based on their access rights. Ultimately, it enables systematic, efficient and fast-enough certification process for the relevant stakeholders.

The innovative invention was awarded a Silver Medal at the International Invention, Innovation & Technology Exhibition 2020 (ITEX 2020).

e-PROVE (ProVEN) login page


ITEX

Certificate of Award

This is to certify that

NUTUL AMRI BIN ZAKARIA,
MOHD AMIN BIN SAID, ANITA BINTI AKHTIN, RAFIDAH BINTI ALI,
RAJA ZURINA BINTI RAJA MOHAMED ALI, PETRONAS,
GROUP TECHNICAL SOLUTIONS (GTS),
NATIONAL METROLOGY INSTITUTE OF MALAYSIA (NMIM)

SIRIM

MALAYSIA

has been awarded the

ITEX 2020 SILVER MEDAL

for the invention

PROVER VOLUME ELECTRONIC NETWORK (PROVEN)

at the

31ST INTERNATIONAL INVENTION, INNOVATION & TECHNOLOGY EXHIBITION 2020
KUALA LUMPUR, MALAYSIA
20 – 22 NOVEMBER 2020

e-PROVE - ITEX 2020 Silver medallist

INDUSTRIAL CENTRE OF INNOVATION – SMART MANUFACTURING

HIGHLIGHTS OF 2020

4. 100 Products Champion

ICI-SM continued its support of 100 Products Champion, successfully assisting Xno of products and Xno of co-operations in improving the competitiveness of their products by providing exposure on product branding, labelling and packaging as well as guidance and monitoring advisory services throughout 2020.

The purpose of this Co-operative Product Enhancement and Development Programme is to ensure that the products manufactured by cooperative entrepreneurs under the auspices of Malaysia Co-operative Societies Commission of Malaysia (SKM) can be competitive and resilient, so as to be able to penetrate the market not only domestically but also internationally. It is also in line with the government's intention to improve the people's economy through co-operative entrepreneurship-oriented programmes.

The target of 100 product types is based on several specific criteria required to upgrade the quality of the selected products through participation in this programme.

MOVING FORWARD

For 2021, ICI-SM will pursue its aspiration to thrust the Industry4WRD towards a more viable future by engaging in the development of key industrial sectors through firm association with government, industry and academia. Towards that end, the following projects are already in the pipeline:

- Data Digitalisation and Customisation for Micro and Small F&B Manufacturers with Replication Model for SMEs Manufacturers In Malaysia
- Consultation on Halal-MeSTI for SMEs
- Development and Fabrication of Bar Soap Production Line
- Development and Fabrication of a New Robust Lifting and Rotating Mechanism for Tank Trailer Production Line
- Design, Build and Retrofitting of an Ice Cream Production Line
- Development and Fabrication of Coconut Milk Production for a Virgin Coconut Oil Processing Line
- Retrofitting Sealing and Sterilization System for RTD Dairy Production Line
- Development of Semi-Automatic System for Herbs Drink Production Line
- Real-Time Production Line Monitoring System
- Enhancement of Frankfurter Production Line
- Upgrading Filament Winding Process from partially Automated to Fully Automated for Product and Productivity Improvement
- Retrofitting and Upgrading Plastic Manufacturing System Towards Digital Production Management
- Development of Digital Warehouse Management System
- Modification and Upgrading of Plastic Injection Moulding Machine for Productivity Improvement
- Development of Lightweight Corrugated Composite Panels and Beams for IBS Construction

INDUSTRIAL CENTRE OF INNOVATION – BioNG

REPORT BY:
AZHAR ABDUL RAOF
Director, Industrial Centre of Innovation – BioNG

The Industrial Centre of Innovation in Bio-Natural Gas (ICI BioNG) serves to enable innovative solutions in the production, distribution and utilisation of Compressed Bio Natural Gas (CBG). Its key purpose is to integrate activities involved in improving efficiency and productivity of the Bio-Natural Gas supply chain as a sustainable energy source. These include providing solutions for bulk transportation, assessment of new technologies, and innovative utilisation methods for CBG.

FACTS AT A GLANCE

ICI BioNG successfully delivered:

2 Technology Uptake (SIIMF) Projects

10 Readiness Assessment (RA) Report

1 Cost Estimation Report

1 PDP Project for RMK-11

with 4 New Technology Uptake Projects Secured

HIGHLIGHTS OF 2020

ICI BioNG successfully delivered two Technology Uptake Projects under the SIRIM Industrial Innovation Model Fund (SIIMF) in the year under review. The completed projects resulted in the increased productivity and production quality of liquid detergent products with improvements in mixing and packaging systems for Oxichem Resources, and the improvement of Integrasi Global's tablet production line.

Additionally, four Technology Uptake Projects were secured in 2020 and have begun implementation in phases. These include a project to increase liquid detergent production through improvement of Maypreen Sdn Bhd's product filling system, an engineering design and consultation project of process equipment for a complete gelato ice cream production system for Joshafa Sdn Bhd, and undertaking the improvement of a liquid detergent production system for Fizrul Pelangi Sdn Bhd. ICI BioNG was also tasked with enhancing the productivity and production quality of Sari Tani Desa Sdn Bhd's herbal products through improvements in its mixing and packaging systems.

Despite the challenges posed by the pandemic, ICI BioNG successfully completed 10 Readiness Assessment (RA) Reports to support industry preparedness for Bio-Natural Gas adoption towards cleaner emissions for a more sustainable future.

Fabrication of Liner by Blow Mould technique

Liner Prototype

Liner with insert

Fabrication of cylinders by filament winding process at STV Permatang Pauh

Further efforts to drive industry adoption sees ICI BioNG delivering an Independent Third Party Cost Estimation Report of Selected Main Equipment for Kulim Green Energy Venture Sdn Bhd's KGEV Biomethane Plant Project at Sedenak, Kulai, Johor Darul Takzim. It demonstrated the commercial viability of Bio-Natural Gas production as an alternative fuel source for industrial users.

Arguably, the feather in the cap for ICI BioNG in 2020 was the successful securing and implementation of a Product Development Programme (PDP) Project as part of the RMK-11: High Value Added and Complex Program. The Fabrication of Smart & Lightweight Mobile Storage CNG Composite Cylinders for Alternative Distribution of Compressed Natural Gas (CNG) / Compressed Bio-natural Gas (CBG) project was kicked off during the year, with Liner prototypes successfully fabricated by Blow Mould technique, and cylinders fabricated by Filament Winding process at STV Permatang Pauh.

These achievements are the culmination of ICI BioNG's commitment to spearhead innovations in Bio-natural Gas utilisation, technologies and solutions despite the setbacks presented by the unprecedented coronavirus pandemic. It demonstrates the determination and resilience of ICI BioNG team in playing a critical role towards realising the nation's green growth aspirations.

INDUSTRIAL CENTRE OF INNOVATION – ENERGY MANAGEMENT

REPORT BY:
MOHD FAUZI ISMAIL
Director, Industrial Centre of Innovation – Energy Management

The core competency of the Industrial Centre of Innovation in Energy Management (ICI-EM) is centred on developing total solutions to industries in the areas of energy efficiency, renewable technology and energy storage, collaborating on consultancy and research projects to find ways to promote greater acceptance of renewable energy in the marketplace.

FACTS AT A GLANCE

12 SIIMF Projects	**2** Innovation Workshops
18 Technology Audits	**3** SIWP Projects
17 Readiness Assessment Audits	

HIGHLIGHTS OF 2020

ICI-EM has made significant achievements and delivered key milestones in 2020 in terms of advancing Research, Technology Development and Innovation. Under the SIRIM-Fraunhofer Programme, ICI-EM has successfully completed 12 SIRIM Industrial Innovation Model Fund (SIIMF) projects, carried out 18 Technology Audits, 17 Readiness Assessment Audits and conducted two Innovation workshops in Shah Alam and Melaka respectively.

In addition, a total of three Solving Industry Wide Problem (SIWP) projects were initiated to address common industrial issues faced by local SMEs.

These relate to:

1. **Increased cost of drying by the timber industry;**
2. **Energy Management and peak saving during maximum demand; and**
3. **Solar Powered Compound lighting system for off grid application.**

ICI-EM has secured its first ever funding from the Malaysian Timber Industry Board (MTIB) to carry out a project on "Hybrid Green Energy Kiln Drying of Malaysian Timbers for Sustainable Future". The project aims to demonstrate the utilisation of Hybrid Green energy, both thermal and electrical energy, to solve the high cost of kiln drying operation of the timber industry. Three technology interventions would be applied, involving Energy Efficient Devices, Solar Thermal Technology with boiler feedwater integration, and Solar Photovoltaic rooftops.

After nearly eight years of spearheading Solar Thermal Technology Research, ICI-EM can proudly claim to have delivered more than 12 Industrial scale projects that showcased the utilisation of green energy for process heating in various industry sub sectors. The projects are proven sustainable and provide a business case for other industries to emulate.

SIRIM Industrial Innovation Model Fund (SIIMF) Projects

Throughout 2020, a total of 12 SIIMF Projects have been successfully completed and handed over to SME clients. The projects involved technology intervention that relates to improved energy efficiency, automation and mechanisation, productivity improvement, and green energy solution.

INDUSTRIAL CENTRE OF INNOVATION – ENERGY MANAGEMENT

HIGHLIGHTS OF 2020

Solar Process Heating for Scalding Process at NB Poultry Processing Sdn Bhd

This project marked a significant milestone for Solar Thermal Technology deployment in Malaysia, when SIRIM put up the biggest Solar Thermal System ever for industrial use. The total system comprises 500 square metres of flat plate solar collectors and thermal storage tanks with a total capacity of 25,000 litres for scalding process in a poultry processing plant in Pontian, Johor. The overall system is capable of delivering enough hot water at 60°C for processing nearly 40,000 birds daily. This green energy supply partially replaces 40% of the diesel fuel consumption used in the boiler and diesel burner for providing hot water for the scalding process. This project is supported by both SIRIM Fraunhofer and UNIDO.

25,000L thermal storage tanks

Hot and cold water piping

Solar collectors on rooftop

Innovation Workshop

Two sessions of Innovation Management Workshops were carried out in 2020. These interactive sessions involved the application of 10 management tools for SMEs to cultivate innovation cultures in the industry. These management tools cover technology/ market portfolio, technology profile and market radar, technology decomposition, value curves, brainstorming, brainwriting 6-3-5, analogies, morphological box, lead user involvement and innovation fair. Participants were exposed to case studies and interactive exercises to fully appreciate the application of these innovation tools in real-world business scenarios, with the aim to increase productivity and business growth.

Innovation workshop in Melaka, December 2020

Industry4WRD Readiness Assessment

ICI-EM successfully carried out 17 Industry4WRD Readiness Assessment, an initiative by MITI. The objective is to transform Malaysian manufacturing industry and its related services to be smarter, more systematic, and resilient. It is a comprehensive programme to help firms assess their capabilities and readiness to adopt Industry 4.0 technologies and processes. The Readiness Assessment (RA) uses a pre-determined set of indicators from three shift factors – people, process, and technology – that will steer the transformation and help enterprises in the following:

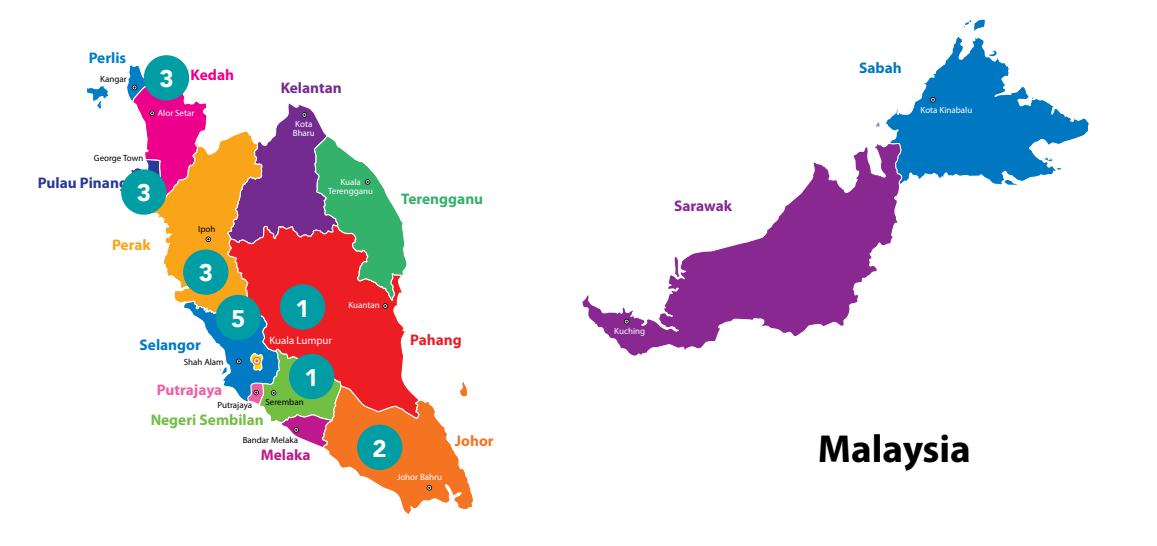
1. Determine their state of readiness in the adoption of Industry 4.0 technologies;
2. Identify the gaps and areas of improvement for Industry 4.0 adoption as well as opportunities for productivity improvement and growth; and
3. Develop feasible strategies and plans to perform outcome-based intervention projects to move towards Industry 4.0.

INDUSTRIAL CENTRE OF INNOVATION – ENERGY MANAGEMENT

HIGHLIGHTS OF 2020

Technology Audit (TA)

As of 31 December 2020, qualified auditors from ICI-EM have performed 18 technology audits at various location in Malaysia. The customer location profile as shown in the map below shows that most of ICI-EM's customers are concentrated in the Klang Valley region, followed by the northern region. In terms of the number of audits broken down by percentages, the regions contributed to 28% and 50% respectively.



The SMEs represent a diverse range of industrial segmentation that includes food and beverages (F&B), poultry, wood furniture, textile and metal. The number of audited companies for each industrial segment is tabulated in the table below, marking the F&B industrial segment as the highest contributor at 31%.

Industrial Segmentations	No. of Company	Products
Food & Beverages	6	Dried noodles, noncarbonated drinks, chicken & beef burgers, chicken & meat balls, jelly, fruit drinks, flavoured milk
Plastic Industry	3	Plastic products
Machinery & Electronic	6	Cables and electrical products, automated machine & tester machine Electrical & electronic
Oil & Gas	1	Oil & Gas component
Furniture	1	Tabletop
Rice mill	1	Rice
Total	18	

The technology audit provides companies with an understanding of their strengths and weaknesses in technology management and the potential area for productivity improvement. ICI-EM will continue to explore potential technology uptake projects that will contribute to the productivity improvement. Among the areas identified for potential projects are mechanisation and automation of manual process steps, fuel savings through energy efficiency, alternative processes using renewable energy-based solutions, minimisation of waste via recycling and efficient operation and system.

INDUSTRIAL CENTRE OF INNOVATION – ENERGY MANAGEMENT

HIGHLIGHTS OF 2020

Solving Industry-Wide Problem (SWP) Projects

Project 1:
Vendors Development for Production of Smart Solar-Powered Compound/ Streetlight System

Objectives:
This project is proposed to develop the ability of local industrial streetlight players to produce smart, greener and more efficient solar-powered street lighting system to widen its application into rural and remote areas. The project comprises three technology interventions:

- To use pultrusion method to produce the mass quantity of composite poles, with the flexibility of producing poles of various lengths.
- To employ a simulation software for composite design and analysis to achieve a product which complies with local regulations as the quality of the current approach is not consistent and may require on-site repair.
- To develop a remote smart control, maintenance and monitoring system through the establishment of technical competencies of the SMEs with suitable facilities, system and know how to undertake the complete assembly, installation and monitoring of the SSL.

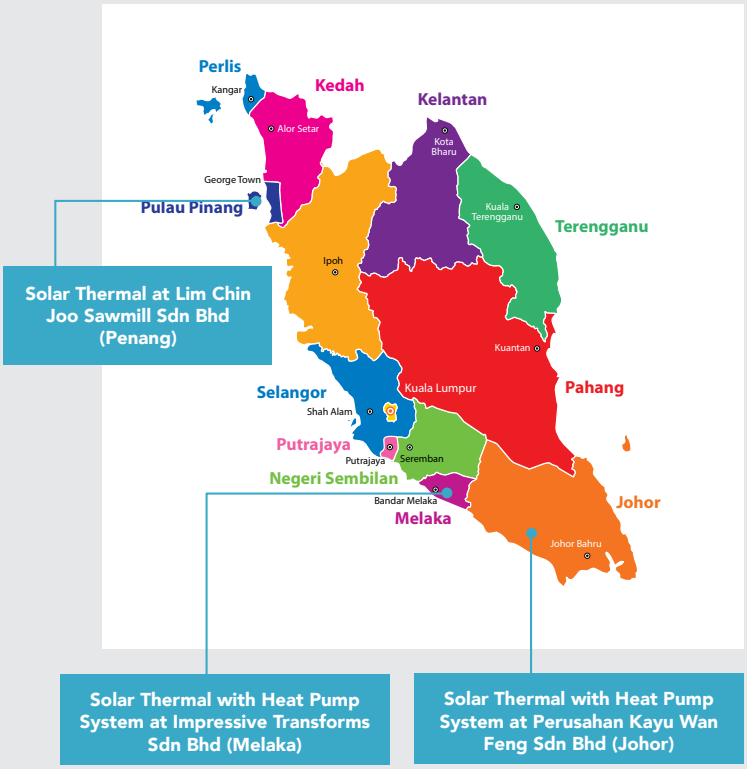
Outputs:
The development of local vendors capable of producing energy-efficient smart streetlight.

Smart solar-powered streetlight system

Project 2:
Design and Development of Hybrid Solar Thermal Kiln Drying System for Wood Based Industry

Objectives:
The objectives of the project are to investigate thermal energy consumption patterns at kiln drying plants and thereafter, design and develop a hybrid solar thermal kiln drying system to reduce the fuel cost at kiln drying operations of the timber industry.

Outputs:
The project involved two demonstration plants that are based on the integration of solar thermal system with heat pumps at new kiln dryers and one demonstration plant based on the integration of solar thermal system at an existing kiln drying plant. The proposed intervention to kiln dryer are able to provide savings in terms of fuel cost and drying fees to companies.



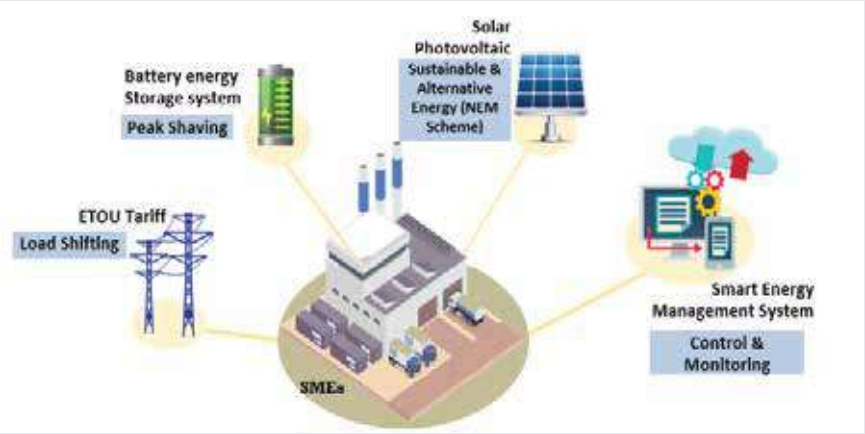
INDUSTRIAL CENTRE OF INNOVATION – ENERGY MANAGEMENT

HIGHLIGHTS OF 2020

Project 3:
Design and Development of SIRIM Intelligent Energy Management System (SIEMS) for Electricity Peak Shaving

Objectives:
Design and Development of SIRIM Intelligent Energy Management System (SIEMS) for Electricity Peak Shaving Project is proposed to foster sustainable growth and productivity in industries. The goal is to help industries to reduce energy cost as a means to cut operational costs and improve profit margin. It aims to reduce the maximum electricity demand charges and operating cost, and manage the factory load demand and multiple energy sources (TNB, Solar PV and Energy Storage) through a single SIRIM Intelligent Energy Management System (SIEMS).

Outputs:
Design of Electricity Peak Shaving method that integrates the new Enhanced Time of Use (ETOU) scheme tariff, Solar Photovoltaic and Energy Storage system which will be controlled and monitored through an IoT-based energy management system. This project will become a game charger for the industry, benefiting the whole supply chain including the user, manufacturer and energy provider.



SIRIM Intelligent Energy Management System

SIRIM MTIB Project

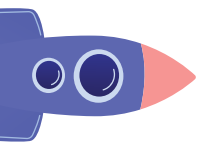
The Hybrid Green Energy Kiln Drying of Malaysian Timbers for Sustainable Future project's main objective is to overcome the high energy consumption from both thermal and electrical energy at kiln drying plants via the implementation of three main activities:

A. Conducting energy efficiency audit and implementing the energy efficiency measures at Kiln dryer and Boiler
B. Installation of Solar PV system
C. Installation of Solar Thermal systems

The project involved the installation of high efficiency motor (HEM) and variable speed drive at kiln dryer and boiler units, as well as the installation of Solar PV system, to reduce the plant's electricity consumption. Meanwhile, insulation of bare hot pipes/steam and solar thermal system aims to reduce the biomass fuel cost. The proposed intervention to kiln dryer are be able to provide cost savings to the company.

Malaysian timbers produced at local kiln drying plants utilising hybrid green energy systems

SUBSIDIARIES & BUSINESS UNITS



SYNERGISING STRENGTHS, BETTERING OUR FUTURE

SIRIM QAS INTERNATIONAL SDN BHD

REPORT BY:
NUR FADHILAH MUHAMMAD
Chief Executive Officer, SIRIM QAS International Sdn Bhd

SIRIM QAS International Sdn Bhd (SIRIM QAS) is Malaysia's leading testing, inspection and certification (TIC) body and the partner of choice for some of the world's biggest brands.

As a one-stop solutions provider for their conformity assessment needs, SIRIM QAS helps brands achieve greater market acceptance of their products in Malaysia and abroad, providing market access to over 37 countries around the world via the International Certification Network.

2020 ACHIEVEMENTS

10,000
customers served

550
certificates issued
under Management System Certification Schemes

630
new licenses approved
under SIRIM Product Certification Scheme

15,000
test reports issued

1,300
remote audits conducted

HIGHLIGHTS OF 2020

MANAGING PANDEMIC CHALLENGES TOGETHER

The year 2020 posed unprecedented challenges, with the COVID-19 pandemic heavily affecting people and economies worldwide. It was also a very challenging time for businesses all-around, including for SIRIM QAS and its customers.

Most of the workforce at SIRIM QAS transitioned to work from home, and remote audits and inspections were implemented as alternatives to on-site audits/ inspections. The staff of SIRIM QAS, especially the auditors, demonstrated great resilience and agility in adapting to the new work norms. Around 1,300 remote audits were conducted that year, involving more than 4,000 auditor days in addition to on-site audits. Besides helping mitigate COVID-19 health risks and overcoming travel and work restrictions in certain geographic regions, customers gained some cost savings from remote audits.

Putting the safety of its staff and customers as a high priority, SIRIM QAS also implemented SIRIM safety protocols at the workplace, which are in line with the Ministry of Health and government guidelines.

Due to the pandemic restrictions, SIRIM QAS began providing mobile consignment testing services for imported electrical appliances, including inspection, sampling, testing, and issuance of security labels at the port of entry or their warehouses. This service was well received by the importers eager to minimise travel and sample handling by their staff while also benefitting in terms of timesaving and convenience.

Mindful that many businesses were facing unforeseen hardships during the time, SIRIM QAS also offered a significant rebate on its services for the year.

In addition, SIRIM QAS further enhanced the digitalisation of its testing, inspection and certification offerings, enabling customers to apply online for its services. An online application for Special Approval clearance letter for multimedia and communication products was introduced, with approval turnaround time within 24 hours.

SIRIM QAS also took the opportunity to improve its business processes during the business slowdown. Efforts were made to streamline its Product Certification process which significantly reduced the turnaround time on the issuance of new Product Certification licenses by more than 60%.

Despite the challenges, SIRIM QAS served more than 10,000 customers from all economic sectors in 2020, enabling them to compete globally and achieve business sustainability. Around 550 certificates were issued under our management system certification schemes, and 630 new licences were approved under SIRIM Product Certification Scheme. A total of 15,000 test reports were issued.

Forum on Breaking the Chain of Corruption through ABMS for Economic Sustainability

Courtesy visit to MCMC Chairman

SIRIM QAS INTERNATIONAL SDN BHD

HIGHLIGHTS OF 2020

CONTINUED IMPROVEMENTS IN TESTING, INSPECTION AND CERTIFICATION SERVICES

In line with the positioning of SIRIM QAS as the regional fire protection testing hub in Southeast Asia, Assessment Test Report for passive fire protection products were added to its wide range of fire protection testing services in 2020. By applying expert knowledge, the Assessment Test Report caters to design variations of products, comparing it against tested samples to establish whether variations from tested details are acceptable, as opposed to retesting the product, which is impractical and costly.

In light of the COVID-19 pandemic and the recommendation to wear face masks by the World Health Organization (WHO) to protect against the spread of the virus, SIRIM QAS introduced testing and product certification for medical face masks to ensure that the quality and performance of the face masks sold in Malaysia are upheld and in compliance with standards.

Besides that, SIRIM QAS has also expanded its testing services to include testing of geotextiles and slow bend test for rails, and enhanced its cosmetics testing services.

In addition, SIRIM QAS also introduced the IPv6 Compliant Product Certification programme in 2020. The Malaysian Communications and Multimedia Commission (MCMC) mandated that all IPv6 capable equipment directly connected to the service provider shall be certified.

Through collaboration with the Turkish Standards Institution (TSE), the national standardisation and certification body in Turkey, SIRIM QAS can now assist local medical device manufacturers to obtain CE Mark for their devices.

Next year, SIRIM QAS plans to offer the IECEx 02 Certified Equipment Scheme once it is accepted as an Ex Certification Body by the IECEx. Another certification scheme in the pipeline is the AS 9100 Quality Management System certification for the aerospace industry.

Face mask donation to Hospis Malaysia

Engagement session with wire mesh industry

SIRIM QAS takes great pride in being a nationally and internationally accredited and recognised testing, inspection and certification body. The accreditations and recognitions provide assurance to clients of SIRIM QAS' complete competence and impartiality.

This year, SIRIM QAS achieved yet another accreditation when the Department of Standards Malaysia accredited its fully equipped Photovoltaic Testing Laboratory. Its Photovoltaic Testing Laboratory is expected to get listed under the IECEE CB Scheme next year to further enhance the global acceptance of SIRIM QAS' photovoltaic test report.

Besides commitment to customers and stakeholders, the team at SIRIM QAS are also deeply aware of their responsibility to give back to society in this time of crisis. To that end, SIRIM QAS has donated 96,000 medical face masks and hand sanitisers to four not-for-profit organisations in the healthcare sector, including the National Cancer Society of Malaysia and the National Kidney Foundation Malaysia. The face masks and hand sanitisers were used by personnel and volunteers in these organisations as part of their personal protective equipment (PPE) to keep them safe during the COVID-19 pandemic. SIRIM QAS also provided financial assistance to 15 diploma students from underprivileged B40 category families under its Program Dermasiswa.

SIRIM QAS continued to educate consumers on the importance of standards, testing and certification to ensure product quality and safety through social media and advertisements. One highlight of its media activity was the continuation of the Safety Awareness Campaign. Led by SIRIM QAS and in collaboration with the Energy Commission (ST), Malaysian Electrical Appliances Distributors Association (MEADA), and Federation of Malaysian Electrical Appliances Dealers' Association (FOMEDA), the campaign, with the tagline "Ada SIRIM, baru beli", aimed to raise awareness among consumers and industry players on the importance of the SIRIM-ST label on E&E appliances.

Besides that, SIRIM QAS and the Malaysian Institute of Integrity (IIM) also jointly organised a thought leadership forum on the topic of corruption and anti-bribery management system (ABMS) entitled "Breaking the Chain of Corruption through ABMS for Economic Sustainability".

SIRIM STS SDN BHD

REPORT BY:
RAJA YAHYA RAJA ARIFFIN
Chief Executive Officer,
SIRIM STS Sdn Bhd

SIRIM STS Sdn Bhd (SIRIM STS) is the leading one-stop resource centre for services relating to SIRIM Industry Standards (SIS), Malaysia's WTO/TBT Enquiry Point, Standards Training and Consultancy, SIRIM Technical Library, and Sales of Standards. These services are provided by SIRIM STS's Standards Research and Development Department (SRDD) and the Training and Consultancy Department (TCD).

Our established facilities and vast expertise help businesses adopt internationally recognised standards to improve processes, enhance quality of products and services, increase competitiveness and access new markets.

HIGHLIGHTS OF 2020

STANDARDS RESEARCH AND DEVELOPMENT DEPARTMENT (SRDD)

SRDD is the standards arm of SIRIM STS. SRDD develops SIRIM Industry Standards (SIS), organises seminars on standards and industrial related matters, organises training on standards implementation, technology training, soft skills and management, and at the same time, provides standards related consultancy. On behalf of SIRIM Berhad, SRDD carries out the function of Malaysia's Enquiry Point for the World Trade Organisation's Agreement on Technical Barriers to Trade (WTO/TBT). SRDD also assists businesses and organisations in getting access to industry, foreign and international standards through its SIRIM Technical Library Membership Scheme and SIRIM Standards Store.

- **SIRIM Industry Standards (SIS)**
  As a service provider on the development of industry and organisation standards and consultancy since 2014, SRDD has been establishing collaborative efforts in industry standards development for various organisations. Among them are Public Works Department, Nano Verify Sdn Bhd, Ministry of Agriculture and Agro-based Industry, Universiti Malaysia Terengganu (UMT), Malaysia Design Council (MRM), Perbadanan Kemajuan Kraftangan Malaysia and E-Idaman Group of Companies.

Overall, SRDD developed a total of 23 SIS in 2020. Out of those, a total of nine SIS developed are SIRIM's own standards to keep ahead of changes predominantly in IR4.0 adoption and pandemic prevention, as well as other industry standards. These are SIRIM 34:2020 Guidelines for Technology Commercialisation; SIRIM 35:2020 Specification for Joint Plates and Shoes for Precast Concrete Piles; SIRIM 36:2020 Industry 4.0 Organisations – Maturity Level; SIRIM 37:2021 Industry 4.0 – Criteria – Guidelines for Adoption by Organisations; SIRIM 38:2020 Industry 4.0 – Industry Application/ Use Case for Food and Beverage (F&B) and Chemical Industries; SIRIM 40:2020 Non-medical Face Masks – Specification; SIRIM 41:2020 Face Shields – Specification; SIRIM 42:2020 Alcohol-based Hand Sanitisers for General Hand Hygiene – Specification; and SIRIM 43:2021 Upcycling – Requirements for Key Processes.

SRDD also collaborated with Malaysian Public Works Department (JKR) for the development of JKR/SIRIM 2:2020 Green Rating (pHJKR) for Residential and Non-Residential Building Facilities and JKR/SIRIM 3:2020 Environmental Protection and Enhancement Works for Projects; and partnered with the Department of Agriculture Malaysia (DOA)for SIRIM/DOA 2:2020 Requirements for Malaysian Phytosanitary Certification Assurance (MPCA) Scheme.

Standards development specifically for other agencies include UMT 1:2020 Universiti Malaysia Terengganu (UMT) – Diving Safety Manual 2020; MRM 01:2020 Specification for Competence of Industrial Designers for Malaysia Design Council

FACTS AT A GLANCE

23
SIRIM Industry Standards developed in 2020

SRDD provides standards related consultancy services on behalf of SIRIM.

SIRIM STS SDN BHD

HIGHLIGHTS OF 2020

(MRM); ILSAS 1:2020 Module on Training and Assessment for Certified Assessor Programme for TNB Integrated Learning Solution (ILSAS); and PUSPAKOM 1:2020 Inspection Activities and Practices for Commercial Vehicles as well as PUSPAKOM 2:2020 Inspection Activities and Practices for Private Vehicles for Puspakom Sdn Bhd (PUSPAKOM).

SRDD has also completed six SIS for the National Water Service Commissions (SPAN), which are SPAN TS 3001:2021 Disinfection of Water – Electro-chlorination Systems; SPAN TS 3002:2021 Equipment for Sludge/ Residuals Treatment (Sludge Thickening and Dewatering); SPAN TS 3003:2021 Manhole Tops – Specification; SPAN TS 3004:2021 Water Taps – Single Taps and Combination Taps – Specification; SPAN TS 3005:2021 Shower Outlet for Sanitary Tapware for Water Supply System – Specification; and SPAN TS 3006:2021 Washing Machines – Water Efficiency Performance and Related Testing Methods.

For environmental standards, a total of 14 standards were developed in the same year, on par with 2019. Among them, nine are eco-labelling standards bearing the titles ECO 027:2020 Eco-labelling Criteria for Luminaires for Indoor Lighting; ECO 031:2020 Eco-labelling Criteria for Glass; ECO 032:2020 Eco-labelling Criteria for Steel Products; ECO 087:2020 Eco-labelling Criteria for Non-Chemical Steriliser; ECO 088:2020 Eco-labelling Criteria for Biopesticides; ECO 089:2020 Eco-labelling Criteria for Personal Protective Equipment (PPE); ECO 090:2020 Eco-labelling Criteria for Outdoor Lighting; ECO 091:2020 Eco-labelling Criteria for Ironmongery; and ECO 092:2020 Eco-labelling Criteria for Remanufactured Toner Cartridge. Another five are Product Carbon Footprint (CFP) standards, which take into account the GHG emissions of the entire life cycle of the product.

The CFP Standards developed in 2020 are CFP 10:2020 Product Category Rules – Carbon Footprint – Reinforcing Material for Construction; CFP 16:2020 Product Category Rules – Carbon Footprint – Telecommunication Site; CFP 017:2020 Product Category Rules – Carbon Footprint – Intermediate Aluminium and Aluminium Alloys; CFP 018:2020 Product Category Rules – Carbon Footprint – Ultra-High Temperature (UHT) Coconut Milk; and CFP 019:2020 Product Category Rules – Carbon Footprint – Event Management.

- **Market Access Consultancy**

  SRDD has been engaging with companies to provide technical knowledge and support to reduce technical barriers to market access through Market Access Consultancy Programme (MACP). This service aims to guide companies on product compliance to standards requirements, ensuring product acceptance by regulators and consumers.

  The journey on MACP promotion continued when SRDD established a collaboration with MIDA and organised its first webinar on 21 July 2020 for SME companies under MIDA Negeri Sembilan. The webinar recorded an impressive number of 78 participants and gained 550 Facebook live views. SRDD also organised visits to 14 companies to promote MACP, from which eight companies participated in the programme.

FACTS AT A GLANCE

14 **ECO Standards** developed in 2020

FACTS AT A GLANCE

SUMMARY OF SRDD'S 2020 ACTIVITIES

5 Standards Implementation Training

10 Seminar and Webinars

18 Technology Trainings

10 In-house Trainings

36 Management & Soft Skills Training

SIRIM STS SDN BHD

HIGHLIGHTS OF 2020

- **New Services Offered by SRDD**

The year 2020 has seen the growth of training programmes managed by SRDD. Besides managing standard implementation training, seminars/ webinars, technical and soft skills public and in-house trainings, SRDD also kickstarted training programmes on managing technology.

1. **5 training on Standards Implementation**
2. **10 Seminar and Webinars**
3. **18 Technology Training**
4. **8 In-house Training**

Webinar on Anti-Bribery Management Systems (ABMS) and Business Continuity Management System (BCMS) Documentation Development Guide for Syarikat Air Malaysia

Webinar on Occupational Health and Safety (OHS)

An Integrated Management Systems (IMS): Awareness Training course was held from 21 to 23 September 2020.

The ISO 37001:2016 Anti-Bribery Management System Lead Auditor training course organised by SIRIM STS from 25 to 29 July 2020 aimed to help attendees establish, plan, implement and supervise the ABMS activities of an audit team.

SIRIM STS conducted a two-day Anti-Bribery Management Systems (ABMS) Internal Auditor training course for the Road Transport Department Malaysia (JPJ) held at Heritage Hotel Cameron Highlands.

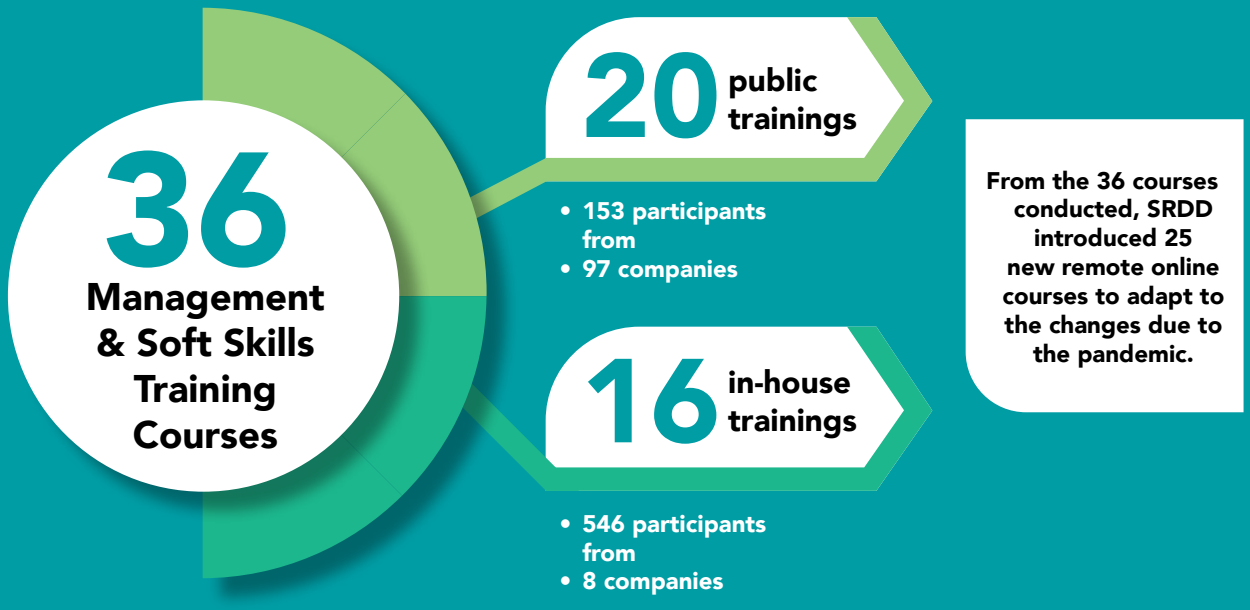
SIRIM STS SDN BHD

HIGHLIGHTS OF 2020

- **New Services Offered by SRDD (Cont'd)**

5. Management and Soft Skills Training

Kickstarted in 2019, the management and soft skills training activity by SRDD in 2020 showed commendable increase in terms of new and existing customers participation, despite the challenges caused by the COVID-19 pandemic. Details on the types of training conducted are as below:



During 2020, several courses were carried out more often due to increased demand. Apart from Digital Marketing, which was conducted nine times for public training and once in-house, the other courses sought after by participants were the English Communication and Writing at Workplace course conducted online twice for public training and once in-house, and Handling Difficult Customers. The latter was also conducted twice online for public training.

REMOTE ONLINE TRAINING COURSES

13 public trainings

- Digital Marketing
- Digital Marketing for Business
- Stress Management
- Effective Workplace Communication
- Digital Marketing – Fundamentals
- Creative Thinking
- English Communication and Writing at Workplace
- Empowering Impactful Performance Coaching
- Embrace Big Data and Data Science to Grow Your Business for SMEs, non-SMEs and SIRIM Fraunhofer
- Handling Difficult Customers
- Training Needs Analysis

3 in-house trainings

- Effective Workplace Communication
- KPI Cascading
- Digital Marketing – Strategy

SIRIM STS SDN BHD

HIGHLIGHTS OF 2020

- **Standards Consultancy Services**

  SRDD continued to promote the SIRIM-Fraunhofer Programme on Productivity Improvement Through Best Practices and Standards Compliance: Innovation Management (SIRIM 8:2016, Guidance towards becoming an Innovative Organisation) throughout 2020. As a result, an additional four companies have agreed to participate in the programme.

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

  The national WTO/TBT enquiry and notification point had administered the circulation of 3,352 notifications throughout the year from other WTO member economies through E-ping alert system to the relevant national stakeholders including regulators, industries and exporters. Currently, there are 281 registered users who receive timely notifications on proposed changes to regulations and standards of foreign countries.

  On the home front, four regular notifications and two notifications on corrigenda on Malaysian food regulations had been forwarded to WTO. Two notifications were issued on amendment of the food regulations (Food Safety and Quality Division, Ministry of Health), with another two on telecommunication system (Malaysian Communications and Multimedia Commission, MCMC). As for enquiries, a total of 23 enquiries (22 enquiries from local stakeholders and one foreign enquiry) were received and answered accordingly.

  FACTS AT A GLANCE

  3,353

  WTO/TBT notifications circulated

  IMS legal awareness online training

  As at end 2020, the SIRIM Library Membership Scheme sees a membership of 235 companies, organisations and government agencies reaping the benefits of access to the most comprehensive collection of International, Foreign, Association and Malaysian Standards.

- **Sales of Standards**

  SRDD is an agent for the sale of standards including International Standards (e.g. ISO, IEC and ITU) and Foreign Standards (e.g. British Standards and Australian Standards). Apart from that, the SRDD also sells Association and Organisation Standards (e.g. NFPA, AASHTO, ASTM and AIAG) and SIRIM Industry Standards (SIS) including SIRIM ECO standards.

  SRDD recorded sales of 738 copies of International and Foreign Standards in 2020. An online platform managed by SRDD to facilitate online purchase of standards, in particular, SIRIM Industry Standards (SIS), SIRIM Standards Store had recorded sales of 212 copies of standards.

  SRDD also managed to secure an agreement with MDC Publisher Sdn Bhd in 2020 to become an agent, selling publications on Malaysian Acts & Regulations. A total of 50 copies were sold through SRDD.

SIRIM STS SDN BHD

HIGHLIGHTS OF 2020

TRAINING AND CONSULTANCY DEPARTMENT (TCD)

TCD complements SRDD's standardisation activities through the provision of courses, seminars, workshops, conferences, in-house trainings, packaged training programmes and consultancy services to upgrade the technological skills and capabilities of local industries.

- **Focus Areas**

  TCD continues to focus on core advisory and training services related to quality, technology, and best practices. These include advisory and training for Standards Based Management Systems such as ISO 9001, MS 1900, MS 2058, ISO 14001, ISO 45001, ISO/IEC 17025, ISO/IEC 17020, ISO/IEC 17021, ISO/IEC 17065, ISO 15189, ISO 13485, HACCP, ISO 22000, ISO 27001, ISO 22301, ISO 37001, ISO 50001, ISO 55001, ISO/TS 16949, Integrated Management System, GMP, GHP, and Halal (MS 1500).

  TCD also offers guidance and training for Tools and Techniques for Quality, and Best Practices such as TQM, Green 5S, 7 QC Tools, SPC, QCC, Kaizen, Customer Service Management, TPM, and Lean Management. TCD has also implemented technology-related training such as Certified Welders-AWS, Certified Welding Engineers-AWS, Certified Welding Inspectors-AWS, and Certified NDT Programmes on UT and RT (approved by the Department of Skills Development or JPK).

- **Training and Consultancy Services**

  For 2020, TCD had successfully organised 581 training courses for 646 organisations, involving a total of 8,483 participants. Of these organisations, 156 were made up of SMEs.

  In terms of advisory and consultation, TCD had secured 84 new consulting or collaborative projects and 43 of them are with SMEs, which are funded by SIRIM-Fraunhofer Programme.

  Overall, the number of training courses organised and number of participants for 2020 were lower than the previous year mainly due to the COVID-19 pandemic. TCD has started offering online consultation and training services in an effort to enhance service delivery during the movement control order. A total of 155 online public training sessions were organised.

- **TCD's New Products and Services**

  Several new products and services were introduced in 2020. Among them are the Personnel Certification Programmes such as Certified ISMS Lead Implementor, Lead Auditor courses such as ISO 39001 Lead Auditor, ISO 37001 Lead Auditor (PSMB), and Lean Assessor, and Standards Based Management Systems such as ISO 41001 and ISO 29993. In collaboration with MCMC, TCD has trained and qualified 20 individuals in Certified ISMS Lead Implementor. Through public and in-house training programmes, a total of 130 individuals have been qualified through the Certified Internal Auditor for Quality course during the year.

- **Guidance Achievements**

  A total of 34 organisations have been successfully guided towards obtaining various certifications, accreditations, and recognitions. Of those, 22 organisations were assisted for Standards Based Management Systems such as ISO 9001, ISO 45001, ISO 37001, ISO 27001, ISO 22301, ISO 28001, ISO/IEC 17025, GMP, and HACCCP, while 12 organisations have been assisted to achieve Best Practices Recognition Schemes such as Green 5S, TQM, Lean Management, and Customer Service Management.

FACTS AT A GLANCE

581
Training Courses

646
organisations

8,483
participants

84
new consulting or collaborative projects

FACTS AT A GLANCE

130
individuals qualified through the Certified Internal Auditor for Quality course

SIRIM STANDARDS TECHNOLOGY SDN BHD

REPORT BY:
DR. FARIDAH HUSSAIN
Chief Executive Officer, SIRIM Standards Technology Sdn Bhd

SIRIM Standards Technology (SIRIM SST) is a wholly owned subsidiary of SIRIM Berhad that provides services in measurement and calibration. With 25 years of experience since it was established in 1994, over 1.57 million calibration certificates have been issued and more than 13,000 companies have been served, both locally and internationally.

With our strong technical competency, high precision calibration equipment, accredited ISO/IEC 17025 laboratories, and value-added calibration and measurement services, SIRIM SST serves various sectors in Malaysia, such as oil and gas, manufacturing, aviation, utilities, food, semiconductors/ electronics, healthcare, education, agriculture, defense, automotive, telecommunications, government agencies and construction.

To serve its customers better and be closer to them, SIRIM SST continually enhances its laboratories' capabilities at all five facilities – the headquarter in Shah Alam, and other branches in Pulau Pinang, Johor, Pahang and Sarawak. Our accredited scope of calibration and measurement services ranges across major parameters used by the industries including Radio Frequency (RF), Electrical (Direct Current and Low Frequency (DCFL) & Time Frequency), Force & Pressure, Temperature, Dimensional, Mass and Volumetric.

FACTS AT A GLANCE

ISO/IEC 17025
accredited laboratories serving diversified market sectors

SIRIM SST currently serves
>3,069
companies per annum

SIRIM SST VALUE PROPOSITION
"Trusted and Reliable High Quality Measurement Services"

HIGHLIGHTS OF 2020

Despite the challenges of the global COVID-19 pandemic crisis ongoing since year 2020, SIRIM SST continues to serve the needs of the industries in ensuring their quality through accuracy of measurement that enhances the business competitiveness of SIRIM SST's customers.

In year 2020, SIRIM SST had served 3,069 companies locally and internationally and provided more than 37,000 calibration certificates. This achievement demonstrates SIRIM SST's value proposition in providing 'Trusted and Reliable High Quality Measurement Services'.

Besides that, SIRIM SST is back in providing calibration services in the fields of Radio Frequency (RF). The laboratory provides comprehensive calibration services on voltage, current, resistance, distortion, electrical-related parameters, time, frequency, radio frequency, and microwave measurement equipment. With these services, SIRIM SST aims to forge strong and strategic partnerships to support multinational companies utilising Electrical and RF technology in their field of work.

In addition, SIRIM SST had also started offering 3D measurement services through its Coordinate Measuring Machine (CMM) located at the facility in Shah Alam. This new capability will support automotive and aerospace sectors by providing accurate measurement for various components such as aircraft propeller blades, jigs, and fixtures.

ACHIEVEMENT

>37,000
calibration certificates issued

>3,069
companies
have been served locally and internationally

SIRIM STANDARDS TECHNOLOGY SDN BHD

HIGHLIGHTS OF 2020

Moving forward as a 'Best Partner for Innovation', SIRIM SST is committed to provide excellent calibration and measurement services to both local and international customers.

Alongside the measurement and calibration services, SIRIM SST is committed in providing additional level of services such as on-site calibration, collection and delivery, repair services, technical assistance, and consultancy services to support industries' competitiveness and sustainability in the global market. New services to be introduced in 2021 include the calibration of Industrial Infrared thermometer (IRT) and Thermography.

SIRIM SST also assists industries to understand and make use of their calibration results through its technology transfer programme, offering world-class customised technical training for groups and individuals at all levels on how to operate and manage the calibrated instruments to its fullest potential.

SIRIM SST conducts a wide range of measurement and calibration services

SIRIM TECH VENTURE SDN BHD

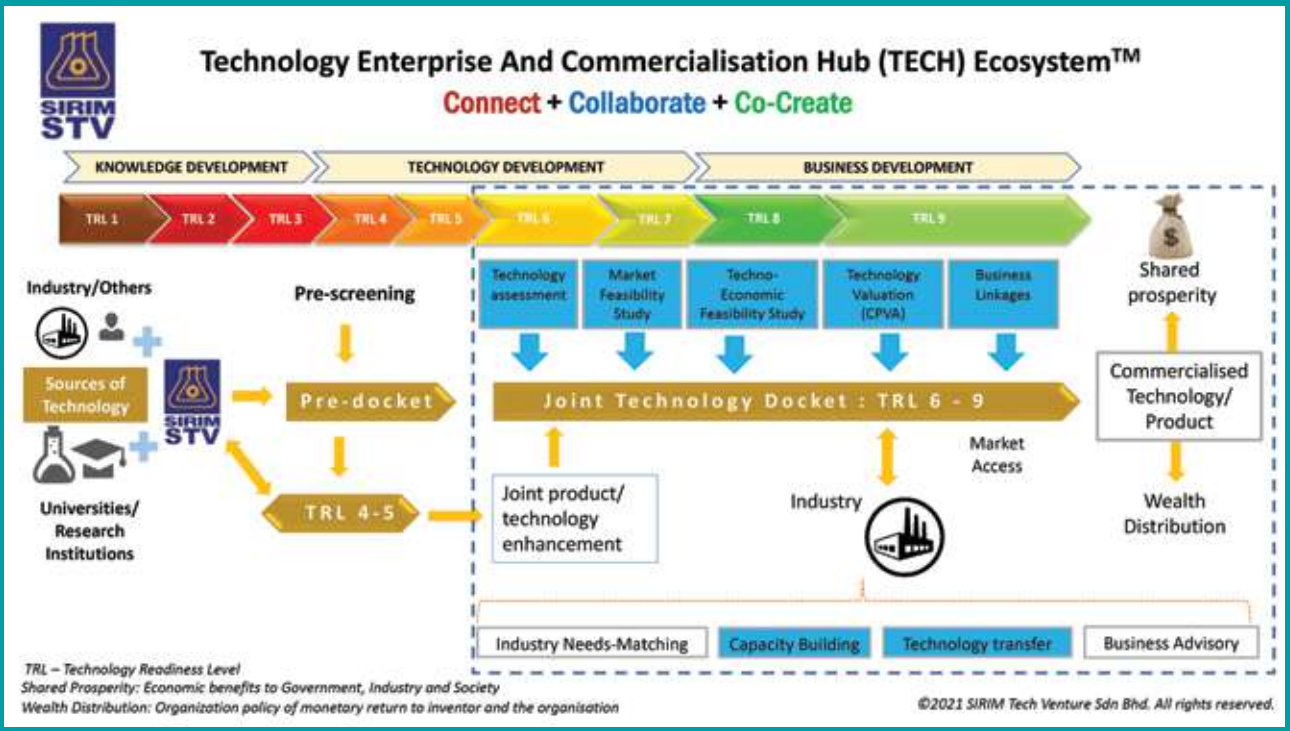
REPORT BY:
AJMAIN KASSI
Chief Executive Officer,
SIRIM Tech Venture Sdn Bhd

SIRIM Tech Venture Sdn Bhd (STV) is entrusted to accelerate the commercialisation of technology innovations generated from research and development (R&D) endeavours into sustainable businesses for introduction into the marketplace. Aside from serving SIRIM Berhad, STV's commercialisation services have now been extended to universities, intellectual property (IP) owners and private companies.

HIGHLIGHTS OF 2020

STV continues its value-centric 'Technology Enterprise and Commercialisation Hub' or TECH Ecosystem™ in the year of 2020 by establishing more collaboration with partners from universities, research institutes and industries. Being part of company's sustainability strategy, reaching out to more collaborators will bring more technology projects into its Technology Docket.

The TECH Ecosystem™ emphasises on both technology sources and technology takers – linking these two sectors to gain the best out of R&D investment and for the economic development of the country. The activities in TECH Ecosystem™ facilitate the progress of technology maturity, preferably from Technology Readiness Level (TRL) 4 and 5 to TRL 6 and above, until it is ready for industry adoption. TRL is a methodology of assessing technology maturity during the acquisition process. Advisory activities comprise of project screening, joint technology enhancement, technology assessment, techno-economic feasibility study, market validation, business linkages, technology valuation, industry-need matching, capacity building and funding advisory. This collaboration platform will benefit all parties in the long term period.



SIRIM TECH VENTURE SDN BHD

HIGHLIGHTS OF 2020

During the year under review, STV has increased its efforts to analyse appropriate partners and collaborators to be offered technologies in our Technology Docket. A virtual database was created, which holds ready technologies or products to be offered through various commercialisation pathways such as Licensing, Outright Sale, Market Trial, Joint Venture or Strategic Alliances.

The year 2020 further witnessed the successful commercialisation of 'Chytosponge Products' to Chitoplast Sdn Bhd through a Technology Licensing Agreement. This is part of a wound management series being developed by SIRIM that supports the medical devices sector.

STV had also signed a Trial and Evaluation Agreement for the 'Natural Based Fungal Inhibitor Cream' with Zarra Zafeena Resources for market evaluation. This effort represents SIRIM and STV's commitment to facilitate market access and market acceptance activities for the industry, by way of production assistance in Good Manufacturing Practices (GMP) certified lab and registration to the National Pharmaceutical Regulatory Agency (NPRA).

Additionally, STV successfully conducted two capacity building programmes in 2020, namely Commercialisation Workshops for Research and Innovation, one each for Monash University Malaysia and the National Institute for Occupational Safety and Health (NIOSH). This capacity building programme is customised for researchers, technology transfer officers and research management teams. The modules of Commercialisation Model, TRL, Feasibility Study, Market Study, Technology Portfolio, Technology Decomposition and Value Curves are assembled in an interactive approach and guidance is given to provide deeper understanding of commercialisation processes.

The release of industry standard 'SIRIM 34:2020 - Guidelines for Technology Commercialisation' in year 2020 provided a strong thrust for STV to strengthen its footing in technology commercialisation and its processes. The development of this industry standard was coordinated by SIRIM STS Sdn Bhd with the participation of MESTECC, TPM, UPM, UTEM, MIGHT, MyIPO, MTDC, MARDI and STV. It provides guidelines for the implementation of technology commercialisation and is applicable to all public and private organisations regardless of sector, size or type towards implementing technology commercialisation practices.

In year 2020, STV had led six Innovation Workshops for Small and Medium Enterprises (SMEs) under SIRIM-Fraunhofer Programme at various locations such as Shah Alam, Port Dickson, Kota Bahru, Melaka and Johor Bahru. A total of 120 business owners and personnel of SMEs have attended the sessions. The Innovation Workshop rendered technology management tools that are expected to accelerate SMEs' product innovation and for productivity enhancement. The topics covered include Technology Management, Technology Profiles and Technology Radar, Technology Decomposition, Value Curves, Analogies, Morphological Box and Lead User Involvement. These are best practices taught to SMEs which will assist them in creating more innovative products and processes for their businesses and in return, ensure their sustainability.

The Hypermarket/Supermarket Merchandising Programme and Business Matching for SMEs was implemented with the objective to give the SMEs bigger market penetration and to increase sales during the programme's campaign period. Year 2020 had witnessed the collaboration between STV and Mydin Mohamad Holdings Berhad in giving the opportunity for seven SMEs to implement the inaugural merchandising programme in 24 Mydin outlets throughout Peninsular Malaysia. Merchandising is an activity of promoting the sale of merchandises and services at retail floor, planned based on the principles of marketing the right merchandise or service, at the right place and time, in the right quantity, and at the right price. Product sampling/ground sampling is a quick and simple way to increase product awareness for both new and existing brand.

3-Day workshop for Commercialisation of Research and Innovation conducted for NIOSH in March 2020

SIRIM TECH VENTURE SDN BHD

HIGHLIGHTS OF 2020

STV continued to strengthen its culture of excellence by ensuring its human resources are fully equipped with the relevant certification in technology commercialisation. A total of nine staff of STV had undergone the training programme and received their recognition as a Certified Patent Valuation Analyst (CPVA). This is another milestone of capability building within SIRIM Group.

The spirit of knowledge sharing was not inhibited by the pandemic of COVID-19, where STV managed to undertake five webinars for various topics related to technology commercialisation and innovation.

Aside from that, STV had inked a Memorandum of Understanding (MoU) with three parties, namely, Universiti Sains Malaysia (USM) for technology commercialisation, UPM Holdings (UMPH) for technology commercialisation and capacity building, and BiON Sdn Bhd for bionatural gas-related technology. These MoUs marked another milestone for STV in expanding its services and value-centric TECH Ecosystem™ to its collaborators and partners.

STV has also expanded its services for fabrication and testing of composite cylinders by addressing the needs of industry in their product development process by providing an avenue for proof of concept (POC) development in high pressure composite cylinder, testing for high pressure in accordance with ISO 11439, testing for low pressure in accordance with BS EN 14427, and advisory in composite technology, as well as overall business commercialisation. Industries, research institutes and others are welcome to utilise the available facilities in STV.

PACKAGING AND SECURITY DESIGN CENTRE

REPORT BY:
RAFIDAH BINTI MOKHDAR
Chief Executive Officer,
Packaging & Security Design Centre

SIRIM Berhad's Packaging and Security Design Centre (PSDC) offers security solution for brand protection in safeguarding products and documents against counterfeiting, forgery and tampering. Aside from that, through its packaging design and entrepreneurship services, PSDC plays the role as a catalyst to help entrepreneurs and SMEs to elevate the quality of their products to be on par with global brands to boost the growth of the SME sector in the country.

HIGHLIGHTS OF 2020

Year 2020 has been a challenging year due to COVID-19 pandemic and economic slowdown. Nevertheless, Packaging and Security Design Centre (PSDC) continued to play an important role as SIRIM Business Unit (SBU) through its three key business lines, namely Security Design, Packaging Design and Entrepreneur Development.

Security Design

PSDC (SIRIM Berhad) is a registered and licensed security printer with the Ministry of Finance (MOF), Malaysia, offering **Security Design** and printing services. PSDC provides high quality and reliable services to its customers which cover a complete range from design of security features and advisory, to security printing of the product. The comprehensive and integrated solutions in its security product business comprises security design, security substrate, security ink and incorporated track and trace technology such as QR code and RFID applications. The track and trace technology application provides monitoring and tracking system for product authentication purposes.

Security Design services

Since its inception in 1977, Security Design has evolved from providing general printing to printing of security label, security document, security packaging and security card. Its services have been expanding from serving SIRIM's in-house customers to external customers consisting mainly of government ministries, government agencies, institutes of higher learning and the industry.

The Security Design products encompass the following:
a. Security Label
b. Security Document – Academic Transcript, Certificate, Exam Paper, Voucher, Permit, etc
c. Security Packaging
d. Security Card

In 2020, PSDC achieved revenue growth for Security Design by 7%, while the revenue from external customers recorded an increase of 62% as compared to previous year.

Packaging Design

Packaging Design offers product branding, enhancement and transformation through development of product packaging. Packaging Design has its own track records and established programmes that are well received by the funding agency as well as entrepreneurs. The services provided range from packaging design, training and workshop, advisory and consulting, trademark registration, nutrition testing and analysis, labelling, and development of the product packaging. Customers for packaging design are ministry, government agency, entrepreneurs and SMEs mostly from F&B sector.

The **Packaging Design** services include:
a. Innopack Programme
b. Innopack for SIRIM-Fraunhofer Programme
c. Green Blue Packaging
d. Biz Transformation Programme

PACKAGING AND SECURITY DESIGN CENTRE

HIGHLIGHTS OF 2020

Through the **Innopack Programme**, PSDC has successfully developed and enhanced a total of 261 products' branding & packaging for 148 entrepreneurs in 2020. The new packaging developed has helped entrepreneurs to upgrade their product quality and contributed to the increase in sales, revenue and market expansion of the entrepreneurs.

Innopack for SIRIM-Fraunhofer Programme recorded a tremendous achievement. It successfully completed all packaging projects for 81 companies which comprises 175 products. Through this programme, selected entrepreneurs received 80% of their packaging expenditure from the development grant, while the remaining 20% is contributed by the entrepreneurs.

The **Green-Blue (GB) Packaging** is a paper-based and innovative packaging which combine eco-innovation and environmentally friendly packaging. It is developed from a food grade paper material and soy ink for printing. It serves as an alternative to polystyrene or plastic-based packaging for food take away and dine-in. Since it was introduced in 2018, GB Pakaging provides different types and sizes of packaging such as single compartment, three compartment, bowl, noodle box, cup, etc that can be customised to accomodate customers requirements.

In 2020, GB packaging has shown an increase in revenue as compared to 2019, and received repeat orders from our customers.

Completed product branding and product packaging projects

Green-Blue (GB) Packaging

The **Biz Transformation Programme** offers customised entreprenuership training programme with the objective of enhancing participant understanding on the importance of branding, labelling and innovative packaging as well as entrepreneurial mindset and marketing. Though its performance was severely affected by the restrictions on classroom training because of the COVID-19 pandemic, the Programme has successfully trained about 100 entrepreneurs in 2020. PSDC continued to enhance its training contents which introduced an e-commerce online module to educate participants in penetrating e-commerce platforms.

Entrepreneur Development

PSDC plays a significant role in supporting the government agenda to enhance the socio-economic situation of B40 members and entrepreneurs in particular, through its **Entrepreneur Development** programme. The programme emphasises on entrepreneur transformation from level 1 & 2 (Pre & Micro) up to level 6 (Export Ready).

PACKAGING AND SECURITY DESIGN CENTRE

HIGHLIGHTS OF 2020

For year 2020, SIRIM-ECER Programme remained the key activity which focused on entrepreneurs in the East Coast Economic Region (ECER). The SIRIM-ECER Programme was started in 2013 (Batch 1) and continued in 2020 for the implementation of Quality Module (Batch 6) which involved 112 entrepreneurs.

Overall, the Programme has had a major impact on the economy. As of 2020, a total of 481 entrepreneurs have been nurtured, which had recorded an increase of 38% in total sales as well as a 27% growth in job creation.

Strengthening Relationships with Key Stakeholders

To establish close working relationships and enhance stakeholders' understanding of our services, a series of Stakeholder Engagements were conducted in 2020 as follows:

- Lembaga Peperiksaan Malaysia (LPM) on 12 August 2020
- ECERDC on 10 September 2020
- Chief Government Security Officer (CGSO) on 22 September 2020
- Dewan Usahawan Antarabangsa Malaysia on 25 September 2020

PSDC with CGSO on 22 September 2020

PSDC with Lembaga Peperiksaan Malaysia on 12 August 2020

SIRIM-ECERDC on 10 September 2020

PSDC with Dewan Usahawan Antarabangsa Malaysia on 25 September 2020

PSDC also participated in SIRIM Industry Engagement (SIE) organised by Group Marketing & Regional Offices, Group Strategic Planning, at the following dates and locations:

- SIE in Kuantan, Pahang on 21 July 2020
- SIE in Kundasang, Sabah on 27 August 2020
- SIE in Kuantan, Pahang on 17 December 2020

PSDC receiving the Malaysian Good Design Award for its winning product packaging design

Recognition for Malaysian Good Design Award (MGDA)

The recognition for our design is another significant achievement for PSDC in 2020. Being the Malaysian Good Design Award (MGDA) recipient and winner had enhanced our strengths in design and elevated the image of the product locally and internationally.

DEVELOPMENTAL & NATIONAL PROJECTS

GROWING CAPABILITIES, ELEVATING THE NATION

NATIONAL METROLOGY INSTITUTE OF MALAYSIA

REPORT BY:
DR. OSMAN ZAKARIA
Senior Director, National Metrology Institute of Malaysia

The National Metrology Institute of Malaysia (NMIM) is a statutory business unit operating under SIRIM Berhad to facilitate domestic and international trade as well as ensuring safety, health and the environment for Malaysians through measurement. NMIM is responsible for the coordination of the national measurement system for Malaysia, promoting recognition of Malaysia's metrological system by gaining full membership in international organisations in the field of metrology.

Improving quality infrastructure with metrology as one of its pillars enables Malaysia to overcome the barriers to trade and open access to global markets, but at the same time ensures environmental protection, product and food safety and access to information and knowledge. It will also facilitate the development of domestic trade and industry, which will strengthen the country's economy, contributing to the welfare of all its citizens.

HIGHLIGHTS OF 2020

Despite the COVID-19 pandemic situation in 2020, NMIM strived to fulfil the stakeholders' and customers' needs by providing its essential services as mandated under the Act 675. A key highlight of its achievement in 2020 is the four approved and published new Calibration and Measurement Capabilities (CMCs) for temperature and humidity scopes, increasing the total CMCs to 122 after remaining at 118 CMCs for two years since 2018.

NMIM had also successfully established 17 new capabilities for calibration, pattern approvals, and training courses, served 508 companies and calibrated 5,176 measuring instruments throughout the country as well as internationally. In fulfilling the Legal Metrology functions, NMIM approved 75 Pattern Approvals for regulated measuring instruments spanning from electrical, mechanical and flow scopes.

In prospering its networking and relationship with the Ministries and Government Departments, NMIM hosted the SIRIM Key Stakeholders Engagement on 9 March 2020, attended by 43 high ranking officers from 19 Ministries and Regulators. NMIM also organised a virtual session to deliver a special presentation on NMIM Roles and Functions to MITI Heads of Agencies, which were participated by nine Agencies: MIDA, MIDF, MPC, HDC, JSM, MARii, InvestKL, MSI and MRM, held on 22 December 2020.

SIRIM key stakeholders engagement at NMIM Sepang on 9 March 2020

FACTS AT A GLANCE

122
Total Calibration and Measurement Capabilities

17
New Capabilities

508
Companies Served

5,176
Measuring Instruments Calibrated

75
Pattern Approvals

NATIONAL METROLOGY INSTITUTE OF MALAYSIA

HIGHLIGHTS OF 2020

NMIM had also organised 34 metrology training courses and trained more than 250 personnel, and assisted 12 SME companies in improving their processes relating to measurements under SIRIM-Fraunhofer Programme projects, with four fully completed in 2020. The remaining eight projects are targeted to be completed by March 2021.

NMIM also organised more than 150 interlaboratory comparisons through the Proficiency Testing and Measurement Audit (PT/MA) programmes, and assisted more than 80 accredited calibration laboratories under Standards Malaysia's Skim Akreditasi Malaysia (SAMM), with the aim to improve their measurement and calibration techniques in order to build and maintain mutual confidence in their technical competence in the related field, and ensuring good quality services for their customers throughout the country.

As for international achievements, Malaysia through NMIM has been appointed as the President and Secretariat of Asia Pacific Legal Metrology Forum (APLMF) for the period of 1 January 2021 to 31 December 2023, upon approval by the Jemaah Menteri during the Cabinet Meeting held on 23 December 2020. It is hoped that this appointment will provide a strategic advantage to the country in leading the activities relating to legal metrology and in loosening technical barriers to increase trade, especially in strategic sectors that have the potential to contribute to the country's economic growth.

In terms of community projects, NMIM had arranged two CSR programmes as part of its COVID-19 pandemic prevention measures, providing calibration services for the body temperature infrared thermometers (IRTs) used by Klinik Kesihatan Salak and Nilai.

Training course on Gold Purity Measurement to Ar-Rahnu TEKUN Inspectors from 12 to 19 August 2020

Calibration of human body infrared thermometers (IRTs) at Klinik Kesihatan Nilai on 23 July 2020 as part of NMIM's CSR programme

MALAYSIA DESIGN COUNCIL

REPORT BY:
SULAIMAN ARSHAD
Director, Majlis Rekabentuk Malaysia/ Malaysia Design Council

The Malaysia Design Council or Majlis Rekabentuk Malaysia (MRM) was established in 1993 as a think tank and advisory body to spearhead the nation's design programmes and boost the industry's design expertise, capabilities and standards. Aside from nurturing innovation and creativity within the industry, MRM also guides manufacturers towards world class design sensibilities to elevate quality and give them a competitive edge at the international stage.

HIGHLIGHTS OF 2020

For the year 2020, MRM successfully carried out a series of industry empowerment programmes, focusing especially on managing business in the post pandemic era. These include talent training, competitions, seminars and award programmes, as follows:

- COVID-19 Creative Campaign Competition
- Certified Industrial Designer Certificate Launching
- Creating Own Design as Own Brand Seminar
- Malaysia Good Design Award
- TRANSEAT (MRT Putrajaya Line Underground Station Bench Design Competition)
- Asia Design Sharing Meeting

COVID-19 Creative Campaign Competition

The COVID-19 Creative Campaign was sparked last year when the pandemic hit our country. The main objective of this campaign was to educate the public on how design and good visual communication can create awareness and shift mindsets. MRM took this initiative to invite all Malaysians aged 18 and over to participate in a competition to create posters and short videos to provide awareness about COVID-19. Cash prizes totalling RM10,000 was offered together with certificates of participation to incentivise the creative industry. The winner of each category was celebrated in a ceremony held on 6 August 2020, with the Deputy Minister of International Trade and Industry YB Senator Datuk Lim Ban Hong as guest of honour.

Launch of the Certified Industrial Designer Programme

Certified Industrial Designer (CID) is a certification programme led by MRM to certify local industrial designers in an effort to establish credibility of Malaysian manufactured products and contribute to the nation's progress towards Industrial 4.0. The programme was launched by the Deputy Minister of International Trade and Industry YB Senator Datuk Lim Ban Hong on 6 August 2020.

MALAYSIA DESIGN COUNCIL

HIGHLIGHTS OF 2020

Malaysia Good Design Award Ceremony

The Malaysia Good Design Award (MGDA) ceremony is a yearly MRM highlight held to recognise products and companies who adopt good design for their products or services. The ceremony was held on 15 September 2020 at Tenera Hotel, Bangi, officiated by the Deputy Minister of International Trade and Industry, YB Senator Datuk Lim Ban Hong. A total of 62 products from 12 categories received the Malaysia Good Design Award during the event.

Creating Own Design as Own Brand Seminar

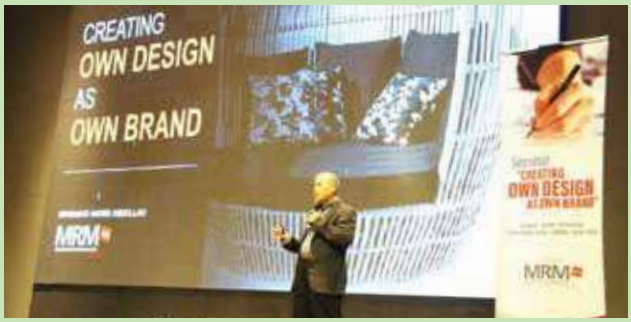
1ST SESSION:
5 & 6 August 2020, Bangi

2ND SESSION:
18 & 19 August 2020, Melaka

3RD SESSION:
22 & 23 October 2020, Johor Bharu

4TH SESSION:
17 & 18 November 2020, Kuantan

The main objective of this seminar is to educate local SMEs in the adoption of good design practices to increase sales, market share and brand equity, especially in facing post pandemic challenges. The seminar provided attendees an understanding of the design process to facilitate its adoption in businesses, helping to drive the competitiveness of Malaysian manufactured products globally. About 100 participants from various industries and business backgrounds attended each of the four sessions held. In total, 368 entrepreneurs from 163 SMEs attended the seminar for the year 2020.



TRANSEAT (MRT Putrajaya Line Underground Station Bench Design Competition)

The TRANSEAT MRT Putrajaya Line Underground Station Bench Design Competition was hosted by Mass Rapid Transit Corporation Sdn Bhd (MRT Corp) in collaboration with MRM. MRM was responsible as the design associate for the competition and advised on the preparation of prototype model for the shortlisted bench design. This competition was open to all Malaysians and a cash prize of RM20,000 was offered. Participants were tasked to come up with a bench design idea with a strong rationale for the design concept, to be placed at each MRT alignment station. The final evaluation was conducted on 29 September 2020 at MRM.

MALAYSIA DESIGN COUNCIL

HIGHLIGHTS OF 2020

Asia Design Sharing Meeting

Asia Design Sharing Summit is a design alliance meeting established since 2011 which consists of membership from seven design fraternities from six countries including South Korea, Thailand, Indonesia, Vietnam, Philippines and Malaysia. This meeting is a yearly programme conducted by Asia Design Sharing alliance. Last year, South Korea was the host of the meeting and it was the first time it was held online on 27 November 2020. The hosting of the summit was determined through votes nominated by the members. The meeting was intended to share current issues on the design of their respective countries, including issues faced by participating countries and how design may contribute to solving the issue.

2021 OUTLOOK

Going forward, MRM will focus on educating the design industry on how to sustain their business and face new normal challenges by adopting design as a tool. Efforts towards this end will be carried out through the provision of seminars, design consulting services for the industry, and to pursue the Certified Industrial Designer certification and Good Design Award Recognition.

UNIDO – MAEESTA

REPORT BY:
DR AZMI IDRIS
National Project Manager, UNIDO – MAEESTA

The United Nations Industrial Development Organization (UNIDO) is responsible for implementing the Malaysia Energy Efficiency and Solar Thermal Application Project (MAEESTA). MAEESTA's main objective is to reduce greenhouse gas (GHG) emissions by promoting and demonstrating sector-specific improvements in energy efficiency and application of solar thermal technology for Malaysia's industry. SIRIM Berhad is responsible as the executing agency that hosts the UNIDO MAEESTA Project Management Unit (PMU) that implements the project activities. The project has been ongoing since July 2014 and will end by December 2021.

FACTS AT A GLANCE

In the year 2020, MAEESTA project is focusing on the development of demonstration project, training and sustainability programme

HIGHLIGHTS OF 2020

Solar Thermal Demonstration Project

In February 2020, MAEESTA approved funding for solar thermal demonstration project proposals for five companies, namely:

1. FIMA Bulking Sdn Bhd, Port Klang, Selangor
   - Solar thermal system: To support the boiler for heating bulking storage tanks
2. KPFB Bersepadu Sdn Bhd, Kuala Terengganu, Terengganu
   - Solar thermal system: For palletisation process of animal feed
3. Encompass Sdn Bhd, Kerteh, Terengganu
   - Solar thermal system: For cleaning bath process of rubber based medical devices
4. Kerry Ingredient Sdn Bhd, Plentong, Johor
   - Solar thermal system: For hand cleaning process for manufacturing of food products
5. Damai Beach Resort, Santubong, Sarawak
   - Solar thermal system: For hot water shower system

All five projects are expected to contribute a total of GHG emissions reduction of 393 tonnes per year.

Due to COVID-19 restrictions, MAEESTA technical experts and consultants were not able to visit industries during Movement Control Order (MCO) periods, and a few demonstration projects were behind schedule. Despite the challenge, in the year 2020, two approved demonstration projects had completed the installation of the solar thermal system, i.e. at IOI Pan Century Oleochemical Sdn Bhd, Pasir Gudang, Johor, and NB Poultry Processing Sdn Bhd, Pontian, Johor. The Technical Committee (TC) meeting that was held in December 2020 agreed for another two potential solar thermal demonstration projects, i.e. at Ampang Hospital and Pusat Jantung Sarawak, to be tabled to the National Project Steering Committee (NPSC) for approval in early 2021.

IOI PAN CENTURY OLEOCHEMICAL SDN BHD

Solar thermal system installed at IOI Pan Century Oleochemicals Sdn Bhd

IOI Pan-Century Oleochemical Sdn Bhd (IOI Group) is one of the major palm oil producers in the world. At IOI, the solar thermal is used as a source of feed water pre-heating before turning it into steam. The solar thermal system is expected to contribute GHG emission reduction of 91 tonnes per year and achieve annual energy savings of RM56,514. The total number of collectors installed is 75 with a total area of 256 m^2.

NB POULTRY PROCESSING INDUSTRIES SDN BHD

Solar thermal system installed at NB Poultry Processing Industries Sdn Bhd

NB Poultry Processing Sdn Bhd is located at Pontian, Johor. The average production capacity is about 40,000 birds per day. At NB Poultry, the solar thermal is used as a source of hot water for the scalding process. Other than getting funding assistance from UNIDO MAEESTA, the company also received funding from SIRIM SME Development Fund. The solar thermal system is expected to contribute to GHG emission reduction of 258 tonnes per year and annual energy savings of RM236,814. The total number of collectors installed is 258 with a total area of 491 m^2.

UNIDO – MAEESTA

HIGHLIGHTS OF 2020

Training Programme

The training programme aims to create awareness and capacity-building relating to heating and cooling optimisation and solar thermal utilisation. Due to the pandemic, MAEESTA's training programmes were conducted online as Webinars using video conferencing applications.

- **User Training**
  The online user training programmes conducted by MAEESTA in 2020 are as below:

Date	Training	No. of Participants
9 April 2020	Reducing Boiler Main Energy Loss	15
21 April 2020	Introduction to Solar Thermal Technology	26
22 April 2020	Reducing Boiler Main Energy Loss	30
23 April 2020	Practical on Solar Thermal Design Simulation	33
	TOTAL:	**104**

- **Expert Training Programme**
  Batch 4 of the Expert Training Course 2 was held online from 18 November to 2 December 2020 via Zoom. A total of 30 participants including 11 host companies joined the training. The training was conducted by consultants from AEE INTEC Austria, supported by three technical experts from PMU.

Participants attending the Expert Training Course 2 – Batch 4

Solar Thermal Sustainability Programme

In order to ensure the sustainability of solar thermal technology in the country, UNIDO MAESTA PMU decided to implement the first phase (2020-2022) activities identified in the solar thermal deployment strategy document. Progress has been made in the areas of competency and certification, as well as the establishment of industry standards, as outlined below:

- **Competency and Certification**
  MAEESTA has been working together with Malaysia Green Technology and Climate Change Centre (MGTC) in identifying and forming a panel of experts from the industry and government agencies. MGTC is the Lead Agency appointed by Ministry of Human Resources (MOHR) for Energy Sector to come out with the National Occupational Skill Standards (NOSS) on Thermal Energy Efficiency and Solar Thermal Technology. A series of workshops were conducted to identify and develop the NOSS listed below:–

  1. Thermal Energy Efficiency Audit, approved by the Standard Technical Committee (JTS) on 11 November 2020;
  2. Thermal Energy Technology and Design, completed with expected approval by the JTS in early 2021; and
  3. Solar Thermal System Installer, completed with expected approval by the JTS also in early 2021.

- **Industry Standards**
  The proposal submitted by SIRIM STS Sdn Bhd to establish industry standards for the thermal Energy Efficiency and solar thermal technology has been approved in October 2020. The development is expected to start in early 2021 and is to be delivered by October 2021. The standards to be developed are:–

  1. Solar Thermal System Design Specification;
  2. Solar Thermal System Installation Guidance;
  3. Testing and Commissioning for the Solar Thermal System; and
  4. Operation and Maintenance for the Solar Thermal System.

Other activities to be carried out under the sustainability programme are the development of Solar Thermal Training Module and Online Data Monitoring System by Sustainable Energy Development Authority (SEDA), and the development of Energy Management System and Energy Audit Procedure and Requirement guidelines by Energy Commission (EC).

NATIONAL PRECISION TOOLING SDN BHD

REPORT BY:
IR. DR. MOHAMAD JAMIL SULAIMAN
Director,
National Precision Tooling Sdn Bhd

The National Precision Tooling Sdn Bhd (NPT) is a special purpose vehicle mandated by the Government as the lead collaborator in the implementation of the "Development of the Bumiputera Automotive Tool, Dies and Moulds (TDM) Industry" project (TDM Project). The main objectives of the TDM Project are to increase the capability and capacity development as well as enhancement of the Bumiputera automotive TDM industry clusters, and increase their participation in the TDM business of local manufacturing sectors for import substitution, as well as export potential.

The objectives are targeted to be achieved through the Equipment Acquisition Programme (EAP); Human Capital Development (HCD) Programme; and Technical Assistance-Expert Attachment Programme (TA-EP).

HIGHLIGHTS OF 2020

The Impact Study of the TDM Project 2009-2017 and Way Forward carried out by an external consultant company, Ernst and Young, was completed in 2019. The final report of the study was presented and agreed to by the Economic Planning Unit (EPU) which proposed for the continuation of the TDM Project with an improved programme approach called Engineering Capability and Capacity Development (ECCD) programmes or TDM Project 2.0, and will utilise the total balance of available funds within three (3) years for implementation.

The main objectives of the TDM Project 2.0 remains in assisting the TDM automotive Bumiputera companies, but the eligibility criteria has widened up to include machining-based engineering companies and opened up to other sectors such as medical devices, rail and aerospace industries. The selected beneficiary companies will have to undergo capability development before proceeding for capacity development programmes, comprising the Coaching and Certification Building programme; Design Capability Development programme; and Equipment Acquisition Programme.

The Memorandum of Understanding (MOU) of the TDM Project 2.0 between EPU and SIRIM is currently in-progress and once the MOU has been finalised and signed by both parties, the implementation of the TDM Project 2.0 will commence.

The TDM Pojrect 2.0 will continue assisting Bumiputera companies in automotive and other sectors to undergo capability and capacity development programmes.

CORPORATE

SOLIDIFYING OUR FUNDAMENTALS, SHARING OUR FUTURE

GROUP STRATEGIC PLANNING DIVISION

REPORT BY:
DR. ZANARIAH UJANG
Vice President,
Group Strategic Planning

Group Strategic Planning (GSP) is responsible for setting SIRIM's business direction for business growth and sustainability. Its three main functions in the organisation are:

i. Strategy and business development,
ii. Performance monitoring and risk management, and
iii. Marketing and promotion in local and international markets.

Supported by its five regional offices in Northern, Southern, and the East Coast of Peninsular Malaysia, as well as Sarawak and Sabah in East Malaysia, GSP also provides outreach services with value-added and innovative products and solutions. Concurrently, its regional offices also serve to strengthen SIRIM's relationship with the state governments and industries.

HIGHLIGHTS OF 2020

2020 has been a challenging year for GSP and SIRIM as a whole. As SIRIM adapts itself to the new norm of doing business, GSP continues to drive SIRIM's business direction for sustainability through the functions of its respective divisions.

Strategy and Business Development (SBD)

Despite all the limitations and constraints in the year 2020, SBD has been instrumental in advising, managing and strengthening relationships with SIRIM's key internal and external stakeholders. As part of the initiative to maintain effective networks and enhance rapport with external parties, SBD managed to carry out three physical engagement sessions before the implementation of MCO 1.0.

This includes a working session to discuss the collaboration between the Sabah state government and SIRIM for the RMK-12 Programme – Sustainable Rural Livelihood. Held on 29 January 2020 at Kota Kinabalu, Sabah, the session was chaired by YB Datuk Dr Haji Jaujan Haji Sambakong, Deputy Chief Minister of Sabah, while details of the collaboration were presented by SBD.

Following that, an engagement session was held with the World Bank on the issue of New IMP Talent, chaired by the Director of MITI Strategic Plannnig Division on 12 February 2020. To facilitate discussions in alignment with Malaysia's 4th Industrial Masterplan, Senior Economist for the World Bank Group for East Asia & Pacific Region, Ms Smita Kuriakose, gave a presentation on Malaysia's Skills Readiness for Competitiveness and Industry 4.0 Transformation.

Additionally, an engagement with regulators on NMIM roles and functions was held on 9 March 2020, informing them on the requirements and importance of the National Measurement System Act 2007 (Act 675) to all regulatory bodies and functions of NMIM. The session was participated by 43 stakeholders from 19 ministries, government agencies and regulators.

Sabah State government & SIRIM collaboration for RMK-12 Programme – Sustainable Rural Livelihood

Engagement with regulators on NMIM roles and functions

Engagement with World Bank on New IMP Talent

In fulfilling its advisory function to its internal and external stakeholders, SBD also conducted three in-person workshops prior to MCO 1.0, the first of which is a Sector Based Workshop with Malaysia Robotics and Automation Society (MyRAS) and the industry at MIDA on 3 January 2020, co-chaired with MIDA and SIRIM.

GROUP STRATEGIC PLANNING DIVISION

STRATEGIC BUSINESS DEVELOPMENT DEPARTMENT

HIGHLIGHTS OF 2020

SBD also conducted a three-day RMK-12 Workshops on 14, 20 and 21 January 2020, held at SIRIM Bukit Jalil and Holiday Inn Glenmarie, Shah Alam.

Later on, the MIDA-SIRIM collaboration was leveraged again on a Workshop on the Operationalisation of MMIC under IMA, held at Admiral Cove, Port Dickson on 10 to 12 March 2020. The workshop was facilitated by GSP, and saw the participation of eight MIDA officers (including two MIDA Directors) and 12 SIRIM officers (including the SGM of MTC and an ICI-SM Director).

Sector Based Workshops with MyRAS & Industry at MIDA

MIDA-SIRIM Workshop on operationalisation of MMIC under IMA

While the ongoing pandemic put an end to large-scale physical engagements and workshop sessions for the rest of the year, it did not dampen SBD's commitment to continue fulfilling its mandated functions. In powering the progress of exploring new opportunities for SIRIM, SBD orchestrated various coordination initiatives which involved SIRIM's strategic business units (SBUs) and subsidiaries (SUBs). The most notable achievement of the year was when SIRIM managed to secure RM32 million from the RMK-12 budget for seven projects to be implemented in 2021.

Manoeuvring through difficulties, SBD has successfully provided strategic inputs and consolidated proposals to MITI and other Ministries as part of SIRIM's future business sustainability strategy by portraying the organisation as a strategic asset of the country. The following are amongst the efforts that have been implemented:

- Strategic inputs and presentation for Trade and Industry Advisory Council (TIAC) meeting under MITI on the medical device ecosystem entitled "Strengthening The Medical Device Industry Ecosystem Through The Establishment Of Medical Device Innovation Centre (MDIC)", presented on 27 February 2020;
- Since 2018, SIRIM has embarked on its cultural transformation journey coordinated by GHR. In order to strengthen the new culture beliefs, GHR had appointed 64 Change Agents in 2020 as the catalysts for SIRIM Culture Beliefs initiatives.
- GHR conducted nine sessions of online refresher briefings related to SIRIM Culture Beliefs (ALEAD) in the year under review.
- Strategic input on the potential of economic generation from the medical device and pharmaceutical research and development to National Economic Reform Policy (NERP), presented to the Economic Planning Unit (EPU) on 21 April 2020;
- Strategic content input on the consolidation of research proposals on 'Preparation of The New Deal for Malaysia', provided on 27 June 2020;
- Consolidated proposals for Economic Cooperation on 'Bilateral Trade Agreement between Malaysia and South Korea' (MFTKA), presented on 3 July 2020;
- Strategic inputs for 'MITI Committee Level Briefing and Debate Session on the 2021 Supply Bill', delivered on 27 November 2020; and
- Strategic inputs for 'Malaysia – Investment Performance Report 2020', requested by MIDA and presented on 25 December 2020.

In weathering the impact of MCO 1.0, SBD was also tasked by Management to implement the Business Continuity Plan for SIRIM and also to perform survey analysis on COVID-19 and employee sentiment on 'Work From Home (WFH)' in April 2020. The outcome of these exercises has been translated into the Revised Business Plan 2020, approved by the Board on 17 July 2020.

GROUP STRATEGIC PLANNING DIVISION

- STRATEGIC COMMUNICATION SECTION OF STRATEGY AND BUSINESS DEVELOPMENT DEPARTMENT
- GROUP MARKETING AND REGIONAL OFFICE

HIGHLIGHTS OF 2020

PR and Marketing Campaign on SIRIM Services

On top of that, starting this year, an integrated PR and Marketing campaign on specific scope of SIRIM services are highlighted to the public, which are Medical Devices and Manufacturing and Engineering (M&E). Specific media contents were developed to publish and broadcast these services to the public. Corporate events were also organised to strengthen the SIRIM Brand, such as the launching of My3D Printing Marketplace on 6 August 2020 by the Deputy Minister of MITI.

Launch event of My3D Printing Marketplace

Cultivating SIRIM Ambassadors

SIRIM also cultivated its employees and SBUs/SUBs as Ambassadors for the organisation through SIRIM Media Spokesperson Training, conducted on 24 July 2020. It was participated by 20 spokespersons consisting of MC members, CEOs, and Technical experts. Performance report of each participant were given, and potential spokespersons have been identified.

SIRIM Media Spokesperson Training

Communications Secretariat for APEC 2020

In November, Strategic Communications was also given the opportunity to be involved as the Communications Secretariat in the virtual press conference for the Asia-Pacific Economic Cooperation (APEC) 2020. Two virtual media conferences were held with representatives from international media such as Reuters, AP, CNN, Kyodo News, Nikkei, NHK and AFP in attendance.

Industry Engagements by Group Marketing and Regional Office

Under Group Marketing and Regional Office, a total of six Industry Engagements were completed in 2020, which were carried out in Pahang, Sabah, Johor, Terengganu and Kelantan. A total of 61 networking and business talks were also carried out on standardisation, automation and IoT.

Group Marketing was also active in the participation of events and exhibition in 2020, such as MOSTI's MCY 2020, MIDA Industry 4.0 Seminar, INSKEN Business Outreach Seminar, Empowering Malaysia SME with An Adoption of Smart Manufacturing Webinar, and an Automation and IoT Workshop organised by MARA Sabah.

GROUP STRATEGIC PLANNING DIVISION

GROUP PERFORMANCE MANAGEMENT OFFICE

Group Performance Monitoring Office (Group PMO) serves to monitor and manage progress towards the achievement of Group goals and targets. This includes ascertaining the coordination among Champions, Key Result Managers and Working Committee members in driving the implementation of SIRIM's 10-Year Strategic Plan.

The progress of the 10-Year Strategic Plan is on the right track in the initial year of Phase II, 2020. This second phase strengthens the proven capabilities built up in Phase I, synergising with SIRIM's daily business operation. Predominantly, more business opportunities, integrated and innovative solutions, partnerships and new business initiatives have been nurtured along SIRIM business line.

SIRIM's 10-Year Strategic Plan

Phase I (2018 – 2019)

Build Solid Foundation
Solid operating and business model with people, processes, systems and infrastructure in place

Phase II (2020 – 2022)

Strengthen Capabilities
Proven operation and business model with admirable reputation in the market

Phase III (2023 – 2027)

Accelerate Growth
Established market presence with solid platform set for new ventures

HIGHLIGHTS OF 2020

Gallery Walk for YBrs. En. Hairil Yahri Yaacob

Gallery Walk for new SIRIM Board Member

A Gallery Walk for SIRIM's newly appointed Board of Director, YBrs. En. Hairil Yahri Yaacob, was organised in 2020. The guided tour on 7 February 2020 provided a visualisation of the 'New SIRIM' through the implementation of the SIRIM 10-Year Strategic Plan.

10-Year Strategic Plan Roadshows

10-Year Strategic Plan roadshows were conducted at various SIRIM outposts to generate excitement and educate internal stakeholders about the Group's goals. The roadshows were successfully carried out before the implementation of Movement Control Order 1 (MCO) which began in March 2020.

Roadshow at NMIM, Sepang on 27 February 2020

Roadshow at SIRIM Bukit Jalil on 6 March 2020

GROUP STRATEGIC PLANNING DIVISION

GROUP PERFORMANCE MANAGEMENT OFFICE

HIGHLIGHTS OF 2020

SIRIM Business Continuity Plan (BCP)

SIRIM's BCP, which is under the purview of Group PMO, was activated during MCO 1. The BCP outlines the specific alternative business processes to continue operating during the MCO era. A briefing of the BCP was presented during SIRIM's Online Townhall held on 17 April 2020 via MS Teams.

SIRIM Online Townhall on Business Continuity Plan (BCP) briefing

SIRIM Book Of Treasure Day (SIRIM BOT Day)

SIRIM BOT Day was successfully held on 24 September 2020. The objective was to generate excitement and provide the staff a clear understanding on the SIRIM 10-Year Strategic Plan, SIRIM IR FIRST and NMIM TRUST so that the transformation strategies and initiatives can be applied and mapped into SBUs/SUBs business planning.

Enthusiastic Participation from employees at SIRIM BOT Day

Progress Highlights of SIRIM 10-Year Strategic Plan

During the implementation of the SIRIM 10-Year Strategic plan, Group PMO has steered the transformation of SIRIM through the following activities in 2020 based on specific Strategic Thrust (ST).

ST 1 – Best Customers Experience

ST1 aims to help SIRIM become a customer focused organisation in everything we do. Hence, four initiatives were developed to achieve this. Periodic monitoring of customer perception on SIRIM service deliveries are conducted via Customer Satisfaction Survey, whereby Customer Satisfaction Index (CSI) of 81% was achieved for the 2018-2019 survey. In 2020, actions to improve the CSI score for the next periodic monitoring are currently in progress by the respective SBUs/Subs. An internal survey to gauge Customer Centric Mindset within the organisation has been conducted in September 2020. Inputs obtained from the survey on how SIRIM and its staff can be more customer centric shall be used for planning next year's programmes. The Centralised Customer Service Centre (CCSC) was planned and sourcing of manpower was completed by end of the year.

GROUP STRATEGIC PLANNING DIVISION

GROUP PERFORMANCE MANAGEMENT OFFICE

HIGHLIGHTS OF 2020

ST2 – Integrated and Innovative Solution

Focus areas for ST2 are digital transformation and thought leadership by leveraging new technologies to develop new offerings. This is in line with SIRIM's role as a recognised national Centre of Excellence for technology and innovation in National Commercialisation Hub; an Industry 4.0 Leader for Malaysia; the Calibration, Measurement and Metrology Training Hub for Asia; the National Entrepreneur Business Transformation Hub and a National Champion of Design in Malaysia.

Pilot Projects on Leveraging New Technologies to Develop New Offerings

Remote Sampling Labelling of Motorcycle Helmet (SQAS)

Remote sampling of helmet can now be conducted through communication via teleconference and CCTV system. Renovation for the room where remote sampling is conducted in Block 25 was completed in December 2019 and is fully operational by Q2 2020.

iVENTURE (STV) Apps

iVENTURE is a mobile application with STV services and offerings of new innovations and technologies from IHLs, RMC/TTO, IP Owner and Industry. It was developed as an integrated and innovative platform for connection, collaboration and co-creation to accelerate business commercialisation, acting as a bridge to connect between technology developer/inventor and market/technology taker. It provides a valuable database of potential users which enables wider client outreach.

ST3 – Industry Driven Serving Market Needs

In supporting the national agenda in shifting Malaysian manufacturing to Industry 4.0, continuous engagement sessions with government and industry stakeholders were conducted. A list of programmes continues to be carried out to support the industry despite the coronavirus pandemic:

Pilot Projects on Industry 4.0 Retrofitting

SIRIM Industry Research has successfully completed four pilot projects in supporting SMEs in Industry 4.0. The pilot projects are: Automated Trolley Flow Management System using Auto Guided Vehicle, Product Tracking and Verification System, Water Treatment Plant Health Monitoring, and Inculcating New Culture of Maintenance for SMEs through Reliability Management & Predictive Based Maintenance.

GROUP STRATEGIC PLANNING DIVISION

GROUP PERFORMANCE MANAGEMENT OFFICE

HIGHLIGHTS OF 2020

SIRIM Industry Standard

One SIRIM Industry Standard was successfully published in 2020: the Industry Standard - Industry 4.0 Organisations - Maturity Level, published as SIRIM 36:2020. Following that, a Live Webinar on Industry 4.0 Organisations - Maturity Level was conducted on 25 August 2020. This webinar aimed to assist manufacturing and manufacturing-related organisations in gauging their Industry 4.0 readiness and maturity level, and provided guidance for implementing Industry 4.0.

Live Webinar on Industry 4.0 Initiatives

With the new norm of using online platforms for learning engagements, SIRIM also conducted a webinar titled 'Webinar Technology Platform: Towards Affordable & Cost Effective Digitalisation Process' on 14 July 2020 with distinguished panellists featuring Datuk Ir. Dr. Ahmad Fadzil Mohamad Hani, President & Group Chief Executive of SIRIM, who also served as the event Moderator; Mr. Royce Tan, Director at Bosch Rexroth Sdn Bhd; Mr. Chew Huat Seng, Managing Director of Hitachi Asia (M'sia); and Mr. Lim Chee Siong, VP of Cloud & AI Business Group at Huawei M'sia. During the webinar, SIRIM addresses keynotes to push local SMEs to embrace digitalisation for Industry 4.0.

MoU between SIRIM and Hitachi Asia (M) Sdn Bhd

On 14 December 2020, SIRIM and Hitachi Asia (M) Sdn Bhd teamed up to offer Industry 4.0 digital solutions to SMEs and signed an MoU. Under this MoU, SIRIM would introduce a computerised maintenance management system as well as an inventory analysis solution to the SME manufacturers. A digital supply chain quality control solution would also be introduced to the SME manufacturers, based on Hitachi's global supply chain-related know-how and technologies.

Malaysia – Japan Collaboration on Smart Manufacturing

In 2020, SIRIM has completed the programme on 'Malaysia – Japan Collaboration on Smart Manufacturing' which started in 2019. Ten seminars have been conducted on Smart Manufacturing Adoption in Industry on best practices covering eight technology areas and use cases. The technology areas and use cases are Connected Industry, Lean Automation E-Factory, IoT/Robotic Process Automation (RPA) Application, Value Expectation Digitalisation of Manufacturing, Digital Innovation for Smart Factory, Automating Your Mould Asset Management, and Smart-FAM (Smart Facility and Asset Management System). This programme reached 1,177 personnel from SMEs and solution providers from 261 SMEs, with the involvement of 12 Japanese companies.

ST4 – Greener SIRIM for Greener Malaysia

ST4 - Greener SIRIM for Greener Malaysia is an initiative to help SIRIM reduce its environmental footprint and participate in a sustainable Malaysia. In 2020, ST4 successfully implemented and monitored two pilot projects of Government Green Procurement (GGP) where 12 contractors have been awarded under these Green Initiatives. Both GGP implementation are on Certified MyHIJAU marked products for painting services and environmental-friendly gas (R410A) for air-conditioner refrigerant.

MyHIJAU

GROUP STRATEGIC PLANNING DIVISION

GROUP PERFORMANCE MANAGEMENT OFFICE

HIGHLIGHTS OF 2020

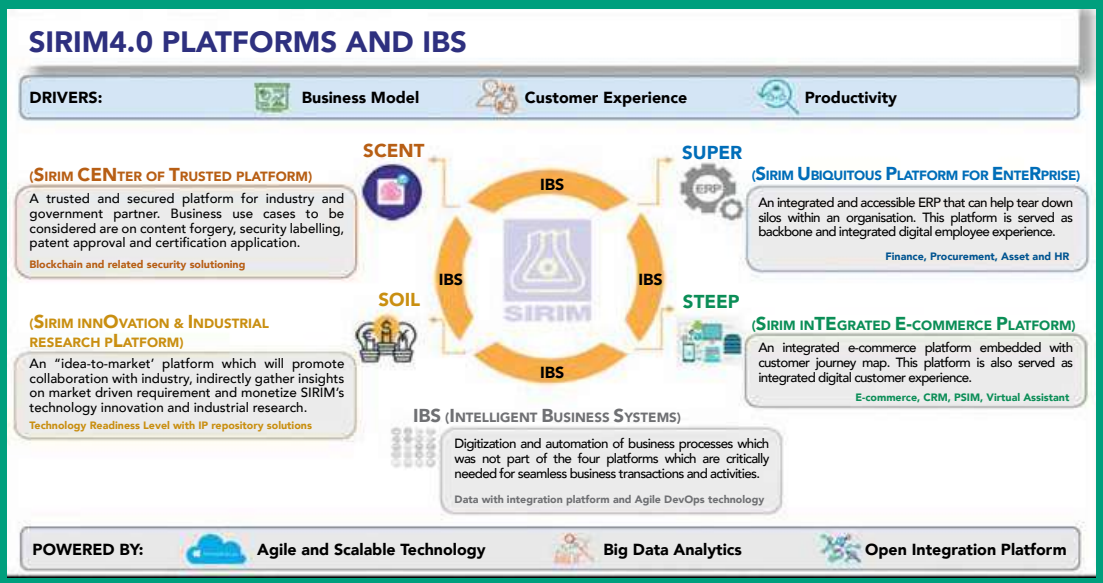
ST5 – Group Synergies

ST5, which comprises six initiatives, focuses on the extraction of synergies between SBUs and SUBs. Throughout 2020, ST5 has successfully achieved a few key milestones that have contributed to the realisation of the objective of ST5 Initiatives – Group Synergy.

These included the establishment and institutionalisation of the Group Wide Business Development hybrid approach which enhanced business development effectiveness to strengthen the customer base and create new business opportunities. In addition, the SIRIM Digital Transformation Plan (DigitS) was approved by the SIRIM Board in March 2020 to enhance business efficiencies by integrating and streamlining processes between various SBUs/SUBs digitally.

On top of that, a Group-wide Market Intelligence (MI) team was established and institutionalised the initiative to build up market intelligence expertise for the SIRIM Group.

Finally, SIRIM successfully secured a total of RM28.3 million worth of projects across regional initiatives.



SIRIM Digital Transformation Plan (DigitS) 2020-2022

ST6 – High Performance Organisation

This strategic thrust is under the purview of the Group Human Resources Division, which aims to cultivate a high-performance team culture that is conducive to staff growth and employee engagement within the organisation to deliver business plans and targets.

ST7 – Partnership

By forging networks with external parties, SIRIM is becoming the catalyst for the growth of industrial, technology, standards and conformity assessment in Malaysia in areas such as Industry 4.0, Medical Devices and Rail, among others. In 2020, multiple partnerships have been established with external parties such as Telekom Malaysia, Mesiniaga, KISMEC, DIDR Sabah and Institute Integrity Malaysia, resulting in new IR 4.0 capabilities developed for 31 staff and approximately RM14 million in revenue being generated.

GROUP STRATEGIC PLANNING DIVISION

GROUP PERFORMANCE MANAGEMENT OFFICE

HIGHLIGHTS OF 2020

ST8 – SIRIM Brand

In this strategic thrust, SIRIM needs to revamp its brand in order to appeal to the newer generation and increase public awareness. With only one initiative under this strategic thrust, ST8 aims to improve SIRIM Brand by raising public awareness and perception of SIRIM achievements. The following activities were carried out in 2020 to further strengthen SIRIM's brand appeal:

SIRIM Brand Promotion through Social Media

Among the significant activities of ST8 in year 2020 was the bold step taken to engage social media influencer and Youtuber Hazeman Huzir to talk about SIRIM's services. Strategic Communications Section produced two videos in collaboration with the influencer which resulted in 507k views and 268k views respectively. Indirectly, publicity gained from the social media influencer's video resulted in 43 enquires and potential business leads on SIRIM cosmetic products via social media.

The COVID-19 Pandemic prompted SIRIM to fully leverage on its online platform to continue promoting SIRIM services.

In addition to engaging a social media influencer, SIRIM has also ensured that its social media platforms such as Facebook, Twitter and Youtube were given a verified status. Having an authenticated account allows audiences to place their trust in the content shared on SIRIM's channels, improving interaction and helping to build a following for SIRIM's social media accounts.

Engaging social media influencer to promote SIRIM products and services in 2020

Delivery of SIRIM PPEs to Frontliners for CSR

During the Movement Control Order (MCO), Strategic Communications also coordinated a series of 13 PPE deliveries to frontliners throughout the country under the Group's Corporate Social Responsibility programme with the cooperation from the SBUs and subsidiaries. The PPEs were produced by SIRIM, namely hand sanitizers by IBRC team, and 3D-printed visor (transparent face shield), Y-Splitter and face mask tie clip by ICI - Smart Manufacturing.

SIRIM produced 3D printed visor, hand sanitizers and face mask tie clip

GROUP HUMAN RESOURCE DIVISION

REPORT BY:
NIK JULIAH NIK JAAFAR
Senior Vice President, Group Human Resource

Group Human Resource (GHR) is responsible to build the organisation capabilities of SIRIM Berhad in partnership with SIRIM's business leaders and workforce operating under its ambit. Its activities for the year under review are reported according to its three operating sections:

TALENT PERFORMANCE AND DEVELOPMENT SECTION

HR PLANNING, PERFORMANCE AND CULTURE SECTION

ENGAGEMENT AND INDUSTRIAL RELATIONS SECTION

HIGHLIGHTS OF 2020

SIRIM'S EFFORT DURING COVID-19

In April 2020 during the initial COVID-19 breakout, as one of the agencies under the Ministry of International Trade and Industry (MITI), SIRIM supported MITI's services by providing additional manpower to assist with the processing of company applications to operate as well as to respond to companies' inquiries during the Movement Control Order (MCO). A total of eight staff were assigned to the Call Centre at Menara MITI and Malaysia Government Call Centre (MyGCC), Cyberjaya.

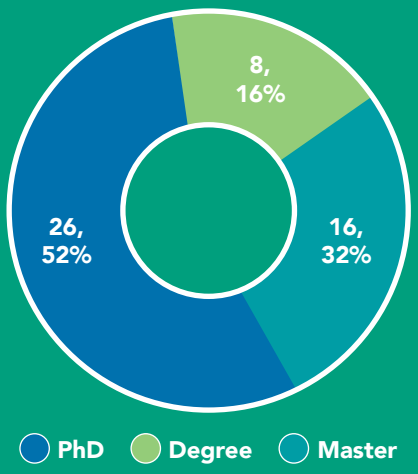
I. TALENT PERFORMANCE AND DEVELOPMENT SECTION

1. ENHANCE EMPLOYEE CAPABILITIES

A. Higher Education

The objective of Higher Education is to promote human capital development and provide opportunities for SIRIM employees to enhance their skills so that they can excel in their professions and field of expertise in order to support SIRIM's business needs.

By the end of 2020, a total of 50 staff would be pursuing their studies under SIRIM scholarship consisting of eight staff pursing their Bachelor's Degree, 16 staff pursuing Masters, and 26 staff are pursuing their Doctorate programmes.

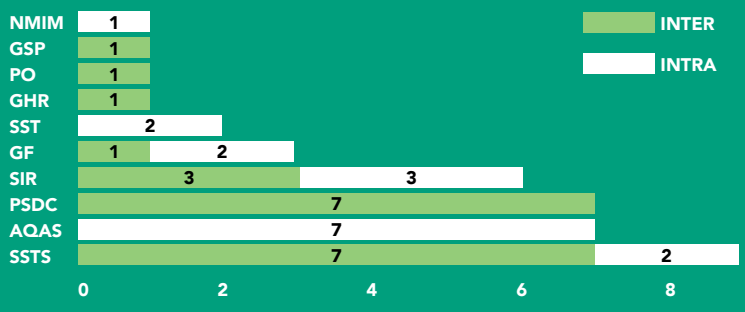


B. Job Mobility

Job Mobility is an annual programme with the following objectives:

(i) to enhance staff's competencies;
(ii) to help staff gain new skills and exposure;
(iii) to widen staff's knowledge;
(iv) to increase productivity;
(v) to avoid boredom and complacency

In 2020, a total of thirty eight (38) staff were mobilised within and between departments, which is 1.8% of SIRIM's population. The breakdown of staff mobility is shown below:



HIGHLIGHTS OF 2020

C. Talent Council

Talent Council was estabilised in 2020 as a standing committee which is tasked with the ongoing development of talents within the organisation, aimed at helping individual talents to develop the knowledge, skills and attributes needed to serve as effective leaders.

D. Technical Talent Development Committee

In September 2020, Technical Talent Development Committee was formed. Under its arm, three sub-technical committees were established, namely:

- Digital Talent
- Business Acumen
- Industry 4.0

The aims for the committees are to build talents capabilities and development in digitalisation areas, business development, customer service, marketing and sales, as well as to build talents' competencies in Industry 4.0 to support SIRIM's business goals.

2. STRENGTHEN LEADERSHIP PIPELINE

A. SIRIM Talent Management Programme (StaMP)

The categories and number of talents under management are as follows:

Leadership Talents – 10 staff
Potential successors to the leadership/ senior management team within a one to five year timeframe. Leadership team (job grades 26 & above) have broad spans of control and are directly involved in the strategic planning of the company/ key business functions.

Management Talents – 102 staff
Individuals with the ability, agility, aspiration and engagement, and are ready to assume, or who have the potential to be developed within 6-10 year timeframe to assume one of the leadership/ senior management roles.

Emerging Talents – 37 staff
Individuals early in their careers who have begun to demonstrate the potential to assume broader job responsibilities and/ or advance to senior level positions. They are ready to assume leadership/ senior management roles beyond 10 year timeframe.

B. SIRIM Programme on Accelerated Career Enhancement (SPACE)

SPACE is a new programme initiated in 2020 which is tailored to enhance employees' leadership skills and competencies. The objectives of the programme are to accelerate talents' career path and provide career development for employees, as well as to develop employees' management and leadership skills to support SIRIM's goals and strategies.

The criteria for enrollment in SPACE are:

- Recommendation by supervisor
- Grade 20-23
- Not more than 45 years old
- PDA mark 100 and above
- Aspire to be a leader or hold any management role
- Must undergo assessment programmes to assess competencies.

SPACE candidates will undergo two online assessments, consisting of:

- Online Psychometric Assessment
- Virtual Assessment Smart Business Simulation

In 2020, a total of 15 SPACE candidates have completed their assessments. Based on both assessment results, participants will undergo identified development programmes.

GROUP HUMAN RESOURCE DIVISION

HIGHLIGHTS OF 2020

C. Motivational Talks

One motivational talk session was conducted in 2020 involving an external speaker. The online talk was conducted as a motivation for staff under the SIRIM Talent Management Programme (STaMP) to continuously enhance their leadership skills.

Speaker : Associate Professor Dr. Mohd Nor Mamat,
Academy of Contemporary Islamic Studies Universiti Teknologi MARA (UiTM)
Topic : Leadership and Current Challenges
Date : 18 November 2020

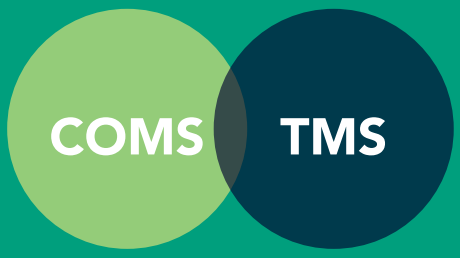
II. HR PLANNING, PERFORMANCE AND CULTURE SECTION

1. Program Subsidi Upah PERKESO 2020

GHR managed to get RM529,200 in subsidy for staff salary under the government's PRIHATIN Economic Stimulus Package 2020 – PERKESO Wage Subsidy Programme (Pakej Rangsangan Ekonomi 2020 – Program Subsidi Upah PERKESO).

2. Competency Management System (COMS)

GHR successfully completed the integration of Competency Management System (COMS) and Training Management System (TMS). The main purpose for the integration was to facilitate the 2nd cycle of competencies assessment for all staffed ranked as Heads and above.



3. Culture Beliefs (ALEAD)

Highlights of activities carried out in 2020 under Culture Beliefs (ALEAD) are as follows:

- A SIRIM Berhad Culture and Strategy Integration Meeting 2020 was held at Hotel Tenera, Bangi, Selangor on 16 and 17 January 2020.
- Since 2018, SIRIM have embarked on its cultural transformation journey coordinated by GHR. In order to strengthen the new culture beliefs, GHR had appointed 64 Change Agents in 2020 as the catalysts for SIRIM Culture Beliefs initiatives.
- GHR conducted nine sessions of online refresher briefings related to SIRIM Culture Beliefs (ALEAD) in the year under review.

HIGHLIGHTS OF 2020

3. Culture Beliefs (ALEAD) (Cont'd)

A **Achieve Sustainability**
I shape SIRIM for our sustainable future

L **Lead Innovation**
I drive innovation for market competitiveness

E **Engage Teamwork**
I embrace differences and build high performance teams

A **Act Fast**
I take ownership to exceed R2

D **Deliver Excellence**
I partner to deliver excellent service

FOCUS ACCOUNTABILITY

FOCUS FEEDBACK

FOCUS STORYTELLING

FOCUS RECOGNITION

4. Internship /Practical Training

In the year 2020, SIRIM Berhad has hosted 235 university students for their practical trainings.

5. Training

A total of 32 in-house Developmental Training sessions were conducted in 2020. Among those, 16 sessions were conducted online due to the COVID-19 Pandemic. The total number of staff involved in the trainings is 886.

6. SIRIM Toastmasters Club

The main objective for establishing SIRIM Toastmaster Club is to provide an additional platform for our staff with a supportive and positive learning experience in which the club members are empowered to develop communication and leadership skills, resulting in greater self-confidence and personal growth, which will ultimately assist SIRIM in achieving business sustainability.

During the year under review, SIRIM Toastmaster club carried out both face-to-face meetings, as well as virtual meetings during the MCO period. SIRIM Toastmaster Club had also hosted the International Speech and Table Topics Contest on SIRIM's premises on 7 March 2020.

SIRIM Toastmasters Club meeting on 13 August 2020

A committee was also set up for SIRIM Toastmaster Club, comprising:

PRESIDENT:
MOHD RASHIDIBIN HASPAR

VPE:
JAYANTHI A/P M.SELLAMUTHU

VPM:
NUR FARHANA BINTI AHMAD FUAD

VPPR:
MOHAMMAD FARID JEFRIE BIN JAAFAR

TREASURER:
NAGYB SHAH BIN ABDUL RAHIM SHAH

SAA:
MUHAMMAD SYUKRI BIN MUHAMAD ZURAIDI

SECRETARY:
NORSAKIRAH BINTI ABDULL SHAFFAR

GROUP HUMAN RESOURCE DIVISION

HIGHLIGHTS OF 2020

7. Total Reward Statement (TRS)

The TRS is a statement that provides personalised information about the value of the employment package which includes the details of remuneration and benefits provided by employer. It is important to show staff their total rewards and compensation package so that they have a better understanding of what they earn and what benefits they are entitled to that the company has provided to them.

For 2020, GHR had distributed the January to June 2020 TRS statement to all staff in October 2020.

8. Performance Driven Culture

- **Increment**
  Performance based merit increment for 2020 was given to all staff in July 2020. The backdated payments for the increment were paid in July (for January – March backdated payment) and August (For April – June backdated payment) 2020.
- **Bonus**
  Performance based bonus was paid to all staff in September 2020 after the approval from the Ministry of Finance (MoF) on 10 September 2020.

III. ENGAGEMENT AND INDUSTRIAL RELATIONS SECTION

1. WORK-LIFE BALANCE AT SIRIM

SIRIM as the Best Partner for Innovation is always looking for ways to achieve "work-life balance" which inspires images of healthy staff who wisely spend eight hours working in the office, getting another good eight hours of sleep and the remaining eight hours chasing their personal passions.

In order to achieve this, SIRIM provides:

a) Surau
Praying in a congregation with staff of SIRIM foster stronger relationships and may diffuse the fire of enmity and hatred that could have been developed during the course of work and daily interactions, and fill our hearts with *rahmah* or mercy, and *ihsan* or empathy & sympathy towards one another. SIRIM therefore provides a good surau named Al Falah for staff prayers, and it was given a new facelift during the pandemic such as new carpets which provide a more comfortable environment for the daily five times prayers.

b) Cafeteria
Cafeterias provide staff the opportunity to socialise over food. Hence, GHR made the decision to undertake the enhancement of SIRIM's Cafeteria which introduces an Exclusive VIP Dining Room and was completed in November 2019. Starting from January 2020, the Cafeteria is operated by SD Impex Sdn Bhd, which is also known as 'The AsianTaste', providing a better dining ambience and new menu variety to staff and visitors.

c) Game Room
Located at the 1st floor, Multipurpose Hall, SIRIM Shah Alam with a space of 67 m^2, the Game Room was inaugurated on 6 December 2019 by President and Group CEO of SIRIM. It provides a refreshing environment for staff to hang out and offers a few indoor games such as darts, carrom, pool table, foosball table, and some board games such as chess, checkers and scrabble as alternative recreational options.

GROUP HUMAN RESOURCE DIVISION

HIGHLIGHTS OF 2020

2. CULTIVATE HIGH PERFORMANCE TEAM CULTURE

- **Salute to Our Frontliners**
  Since the day Malaysia was hit with the COVID-19 pandemic until now, SIRIM's security personnel has devoted themselves to staying in SIRIM, performing their duties to protect SIRIM premises and its staff without compromise. Their roles have increased to not only control the number of staff and customers entering SIRIM, but also involves temparature checking, and assisting the management to ensure the government-mandated social distancing protocols are adhere to without issues.

- **Company wide COVID-19 Swab Test Programme**
  On Monday, 2 November 2020, GHR and HSE coordinated a company-wide COVID-19 Swab Test for 644 SIRIM staff under the SOCSO subsidised Program Saringan Prihatin and none was detected positive.

- **Staff Engagement and Satisfaction Survey (EES)**
  The Management of SIRIM considers the EES survey as one of its principal tools to understand and measure staff engagement, satisfaction, affiliation and commitment to SIRIM. It provides insights into staff views and has provided opportunities for both the management and the company to improve.

  In 2020, the participation rate was 98.7%, an increase of 13.7% from the previous year, while at the same time, staff satisfaction index has also gone up to 79% in 2020 as compared to 73% in 2019. The increase in both participation rate and satisfaction index was a result of various initiatives planned and implemented by the management at both group and SBU/SUBs levels.

FACTS AT A GLANCE

Staff Engagement and Satisfaction Survey:

98.7%
Participation

79%
Satisfied

Besides its annual engagement and satisfaction survey, GHR has also taken the initiative to understand how the employees felt during the pandemic when it first hit the country, and also how they feel about coming back to the office.

The staff readiness survey was conducted in 10 days and participated by 1,721 staff. From the survey, 93% of the staff were confident that SIRIM has taken necessary measures to protect its employees from COVID-19, and they are ready to work from the office whenever required.

- **SIRIM Dinner**
  This year, SIRIM Berhad organised a dazzling night playing with wonderful bold colours to bring out the fun and exciting side of the Bollywood and Hollywood theme. The dinner was held on 21 February 2020 at Shah Alam Convention Centre (SACC) and attended by 1,000 guests, including Board members and staff.

  The event was packed with staff performances, lucky draws, and a best dressed award. A photo booth was also set up outside the hall for guests to have their photos taken before and after the event.

GROUP HUMAN RESOURCE DIVISION

HIGHLIGHTS OF 2020

2. CULTIVATE HIGH PERFORMANCE TEAM CULTURE (CONT'D)

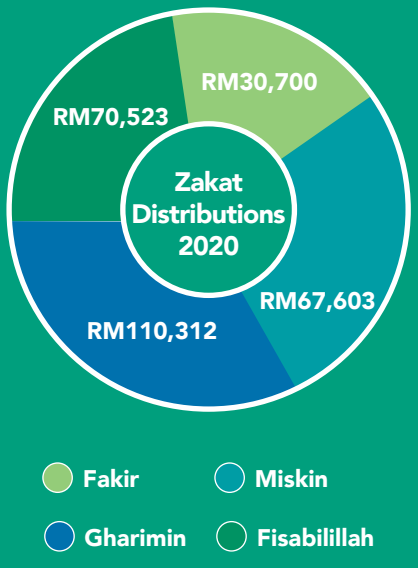
- **CNY, Kurma, Hari Raya and Deepavali Hamper Distribution**
  The government's COVID-19 directive on mass gatherings has given GHR an opportunity to be more creative in reaching out to SIRIM staff. Activities such as Majlis Iftar and Sambutan Majlis Aidilfitri are now replaced with dates and hamper distributions.

  GHR also prepared and distributed cookies and hampers to Chinese and Hindu staff during Chinese New Year and Deepavali respectively.

- **Anugerah Akademik**
  Acknowledging how well-rounded students can shape the future through positive impacts, on 3 to 7 December 2020, SIRIM awarded 33 children of its employees with academic rewards comprising cash, certificate and souvenirs for their excellent results in the Ujian Pencapaian Sekolah Rendah (UPSR), Pentaksiran Tingkatan 3 (PT3), and Sijil Pelajaran Malaysia (SPM) national exams in 2019. The ceremony was celebrated differently this year as the rewards were given away to successful students by their proud parents at home.

- **Zakat Distribution**
  SIRIM also supported various zakat programmes such as Kasihku with Lembaga Zakat Selangor (LZS), participated in an online Webinar organised by LZS, and supported programmes/ activities such as Back To School, living assistance (Bantuan Sara Hidup) for the needy, higher education fee assistance for under privileged students, as well as contributions to external organisational bodies in need, internal applicants and under privileged children.

  A total of RM278,598.00 were distributed under the Fakir, Miskin, Gharimin and Fisabillah categories, with the breakdown as shown below:



- **25 Years Service Award and Compulsory Retirement Ceremony**
  Recognising employees for their tenure is an excellent way for SIRIM to show that they value the ongoing dedication and contribution of individuals. GHR has organised a closed ceremony on 10 December 2020 for 13 staff who achieved 25 years of service. Each staff received a Sijil Simpanan Premium BSN worth RM500, a certificate and a bouquet of flower.

  In appreciation of the service and devotion of staff who retired at the age of 60 in 2020, GHR has organised a programme known as 'Jelajah Jasamu DiKenang', where each of the retirees will be visited by HR representatives, either at their respective home or office. Each retiree received a Sijil Simpanan Premium BSN or gold coins worth RM2,000, a certificate of appreciation, a bouquet of flowers and *pulut kuning*.

- **SIRIM Special Incentive Award**
  SIRIM Special incentive Award is a reward programme for SIRIM Employees who are award recipients of state/ national/ international recognised bodies. Participations at the International Level will be awarded with Certificate of Appreciation and RM500 cash; National Level will receive Certificate of Appreciation and RM300 cash; and State/Agency Level will receive RM200 and Certificate of Appreciation.

HIGHLIGHTS OF 2020

2. CULTIVATE HIGH PERFORMANCE TEAM CULTURE (CONT'D)



- **TASKA**
  Employees need help balancing work demands with their family responsibilities. A total of 125 children aged from two month until six years old were placed under the care of SIRIM Taska. SIRIM child care programme covers all aspect of child development and school readiness by providing valuable educational and social experiences.

  During MCO, all nursery and kindergarten, including SIRIM Taska, were instructed to close their operation, and during that time, no fee is charged to the parents. The management of Taska also worked very closely with the Ministry of Woman, Family and Community Development and SIRIM Management to get feedback on strict guidelines to be imposed when Taska resumes its operation. Among initiatives undertaken by Taska were the expansion of its capacity to 'Ruang Legar Dewan Serbaguna SIRIM' to ensure the ability to maintain one metre distance between the children under its care upon reopening.

  In addition to that, GHR has also allocated some budget to upgrade Taska facilities, including installation of curtain, notice board, auto-gate, CCTV and additional mattress, panel board, toys and hands-on learning materials.

  Due to pandemic COVID-19, Taska practices new norm activities such as:
  - sanitising rooms and common work area;
  - thrice body temperature check (staff, children and parents);
  - encouraging children to regularly wash their hands;
  - use of hand sanitiser;
  - mandatory mask wearing and maintaining social distancing.

- **Healthy Activities**
  To keep its staff healthy and help them stay active, GHR also organises a series of zumba and aerobic sessions every week.

- **Tabung Dana Kebajikan**
  Tabung Dana Kebajikan is a Corporate Social Responsibility (CSR) initiative by SIRIM Berhad which was established in 2012 to help any members in its community to fund their medical costs on chronic or critical illness. The fund is raised through the salary deduction of 1,153 staff who contributed between RM1.00 to RM100.00 or RM2,782.00 every month. In 2019 and 2020, 56 families received RM1,000 each to cover some of their medical expenses.

3. INDUSTRIAL RELATION ACTIVITIES

In order to enhance Industrial Relations (IR) in SIRIM, one of the initiatives undertaken by Engagement and Industrial Relations Section under GHR is to conduct IR workshops. The nine workshops conducted in 2020 were as follows:
- One Workshop on Being an Investigating/ Prosecuting Officer in a Domestic Inquiry
- One Workshop on Poor Performance Monitoring in the Workplace
- Two Workshops on Non-Compliance with Workplace SOPs
- Two Workshops on Managing Your Staff under s17A MACC Act 2009
- Three workshops on Prevention of Absenteeism and Malingering

The Engagement and Industrial Relations Section will continue to conduct such IR Workshops in years to come, helping to ensure that SIRIM supervisors are knowledgeable in IR matters related to their work.

GROUP FINANCE DIVISION

REPORT BY:
SABARINA HARUN
Vice President, Group Finance

Group Finance Division is responsible for all financial and fiscal management aspects of SIRIM's operations. The core functions of the group are carried out via its two departments: the Strategic Finance & Operations Department, which handles strategic and tactical planning for project funding, and the Asset Management Department, which is responsible for monitoring and managing SIRIM's business assets including buildings, plant machinery and equipment tools for enhanced productivity and efficiency savings.

HIGHLIGHTS OF 2020

Strategic Finance & Operations Department

1. A **seminar on Digital Tax Services** was held by the Royal Malaysia Customs on 18 February 2020 to brief the department on the implementation of service tax on digital services for foreign service providers.

2. A **knowledge sharing session by the Operations Sector of Government Procurement Division** in the Ministry of Finance Malaysia (MOF) was held on 26 February 2020, with Pn. Norismalinda Taarif and Pn. Rogayah Yunus of the MOF and Pn. Nik Rohaida Wan Daud of the Research, Innovation and Strategic Direction Unit (STRIDE) speaking on the topic of Procurement Best Practices. The event was attended by SIRIM Group's Central Department Technical Committee.

3. A **knowledge sharing session with Bank Muamalat Malaysia Berhad** was held on 5 March 2020 to discuss and share insights on due diligence process and procedures.

4. **Preparation of SIRIM's Business Plan 2021-2023** was carried out on 3 September 2020 with input from all departments.

5. A **budget screening session** was held with the various business units and subsidiaries of SIRIM to discuss the Business Plan 2021-2023 from 16 to 18 October 2020.

GROUP FINANCE DIVISION

HIGHLIGHTS OF 2020

Asset Management Department

1. **Disposal of Equipment Activities** were carried out throughout the year based on the recommendation by Asset Disposal Committee.


2. **The Auditorium SIRIM Kulim** received a facelift in the year under review to provide a better ambience for staff and event attendees. The interior décor of the stage panel and signage at the main entrance was done by internal staff and was completed in April 2020.


3. **Renovation of the Multipurpose Hall SIRIM Berhad Shah Alam** was carried to ensure that the facilities are always in good condition and to increase the value of the hall and building. This includes the installation of new acoustic wall panel, completed on 31 December 2020.

4. **Renovation of Auditorium Datuk Yahya Ahmad, SIRIM Berhad Shah Alam** was done to increase the value of the hall and to ensure that any official SIRIM event will take place in a beautiful and comfortable space. Hall chairs and carpets were replaced and repair work on the floors and facilities in the hall were carried out to that end. The project was completed on 14 October 2020.


5. **Repainting of the Exterior Surface of Phase 1 Laboratory Building and Boundary Fence and the Repainting of SIRIM Kulim Complex Road Signage** was implemented in an effort to beautify the environment so that employees feel comfortable when they arrive at work. The repainting works were completed on 20 and 13 October 2020 respectively.


Repainting Building Laboratory Phase 1 and Boundary Fence



Repainting Road Signage.

GROUP FINANCE DIVISION

HIGHLIGHTS OF 2020

6. **Cladding Cleaning Project at the SIRIM Complex Penang** was undertaken as part of the regular upkeep of SIRIM buildings. It was completed on 5 November 2020, ensuring a clean and beautiful work environment for the comfort of employees.

7. **Construction of a Covered Motorcycle Parking at SIRIM Jalan Beremban**, Section 15, Shah Alam was completed on 10 October 2020. This provided a designated parking space for staff's motorcycles at the SIRIM building while keeping the vehicles protected from direct sunlight and rain at the covered carport.

8. **Daily Sanitation and Decontamination Service** has been carried out at SIRIM Berhad Complex to protect employees and customers from the COVID-19 virus as well as to comply with government directives. Asset Management Department runs the service on a daily basis and as needed if and when there are Covid-positive cases in the workplace.



9. **Continuous Maintenance Activities** are conducted throughout the year, which covers inspection, identification of breakdown or repair needs, and implementation of remedial work. The scope of work includes electrical maintenance works, as well as civil and structural works.


Electrical Maintenance Works


Civil and Structure

10. **Replacement of a new cooling tower** at Block 25, SIRIM Shah Alam was completed on 25 February 2020. It was done as a preventive effort to ensure the upkeep and reliability of the air conditioning systems.


11. **Replacement of Variable Refrigerant Volume (VRV) air conditioning to split units** for the Server Room, Meeting Room and VIP Waiting Room at the administrative building of SIRIM AMREC Kulim was initiated to provide better temperature control and ensure the creation of comfortable working spaces for employees. The project was completed on 13 March 2020.

12. **Replacement of mini chiller** at SST Jalan Beremban and the Replacement of M(AC) Fan Coil Unit at Pilot Plant Jalan Beremban, SIRIM Shah Alam was done as part of the upkeep of SIRIM buildings' air conditioning systems. Both projects were completed on 13 March 2020.


Fan Coil Unit


Mini Chiller

13. **Replacement of the old HT Panel at Substation No 2**, SIRIM Shah Alam was completed on 10 July 2020 as a preventive effort to upkeep the reliability and safety of the electrical system.

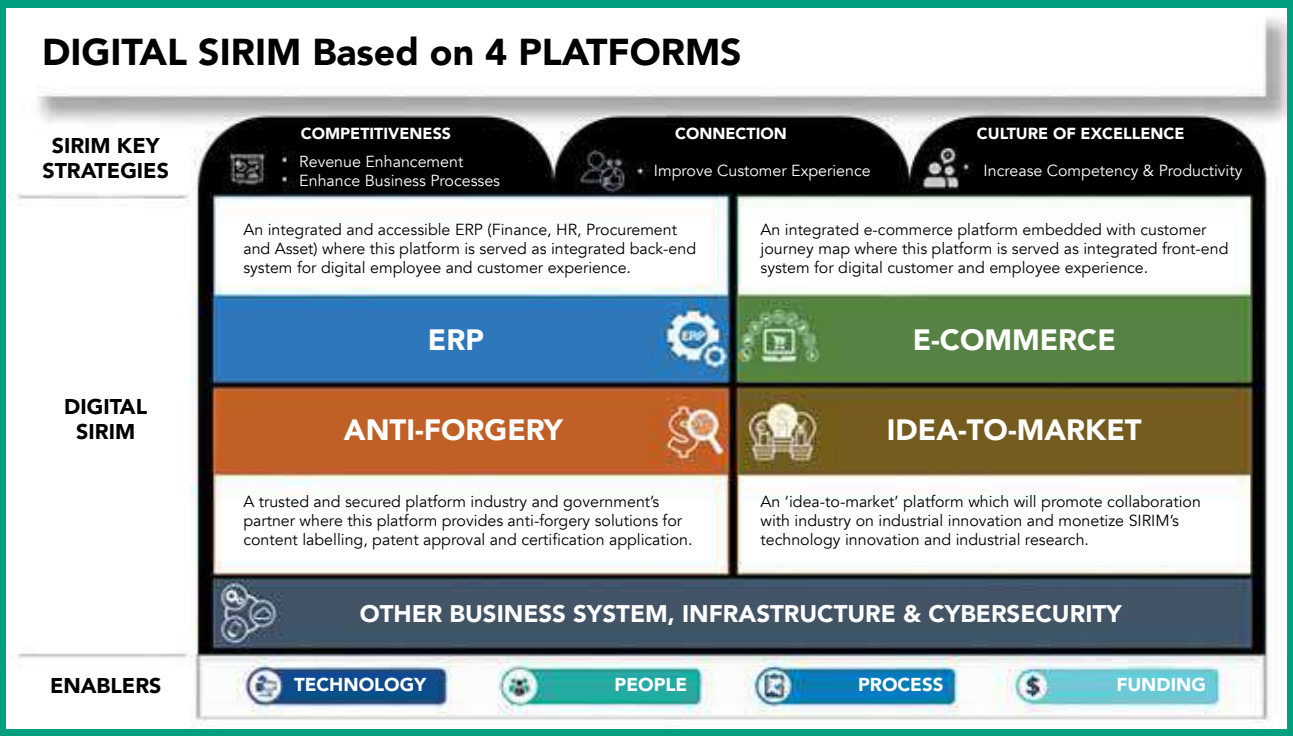

GROUP DIGITALISATION & INFORMATION TECHNOLOGY

REPORT BY:
YM TENGKU INTAN NARQIAH TENGKU OTHMAN
Chief Digital & Information Officer, Digitalisation & Information Technology

The Group Digitalisation and Information Technology (GDIT) division is mandated by SIRIM's 10-Year Strategic Plan to champion SIRIM's digitalisation mission towards enhancing and improving customer and employee experiences by simplifying and innovating its business processes through digital technologies.

HIGHLIGHTS OF 2020

The SIRIM digital transformation plan, better known as Digital SIRIM, has been approved by SIRIM's Board of Directors in March 2020. Since then, SIRIM has marched on with activities and initiatives revolving around enhancing **PEOPLE** capabilities, business **PROCESSES** improvement and **TECHNOLOGY** adoption in implementing Digital SIRIM's aspirations.



Despite the movement control order (MCO), SIRIM has progressed extremely well in its digitisation efforts in 2020. In fact, it was due to the MCO that SIRIM uncovered internal talents within the organisation who could provide innovative solutions and rapid digitisation services. It was a historic moment for SIRIM, where the GDIT team managed to **remotely** develop a mobile application within **1 week**, automate simple business processes within **1 day**, and build a dashboard within **2 hours** during the lockdown period. This demonstrates that, with the right technology and the right attitude, the impossible becomes possible.

GROUP DIGITALISATION & INFORMATION TECHNOLOGY

HIGHLIGHTS OF 2020

As a result of these successes, SIRIM embarked on a Group-wide effort to digitise and automate business processes by democratising the IT application development and empower SIRIM non-IT personnel to be able to automate their manual forms and simple business processes.

Thanks to the growth mindset portrayed by SIRIM staff, GDIT further organised the **SIRIM Hackathon 2020** event, where 87 non-IT SIRIM staff redesigned and developed 19 minimum viable products (MVP) on digital applications as homegrown SIRIM Citizen Developers within two days!

It is undeniable that the COVID-19 pandemic has also played a pivotal role in promoting the digital adoption in SIRIM. The usage of online meeting and collaboration tools have exponentially increased to 3,500% and are now becoming a new normal way of working. Secured electronic digital signature was adopted to accelerate approval process in some business transactions. Virtual desktop was introduced with the aim to enable accessibility while working from home, and numerous internal online trainings and workshops on collaboration tools were conducted to assist SIRIM workforce in transitioning to working remotely.

By leveraging on disruptive technology (i.e. non-code application development platform and cloud computing) and continuously cultivating SIRIM Digital Citizens, SIRIM has delivered tangible business results such as RM1.5 million in cost avoidance by not engaging third party service providers to develop the application, gains in productivity ranging from 50% to 100%, and an opportunity to enhance revenue by enabling the services online.

These promising results reflect the growing importance of digitalisation and information technology in SIRIM's way forward and GDIT stands ready to support the organisation in the next phase of its growth.

EVENTS IN 2020

ENHANCING COMMUNITIES, TOUCHING LIVES

EVENTS IN 2020

10/01/20

INTERVIEW WITH SUARA KONSUMER, TV3

SIRIM QAS International was featured on Suara Konsumer, TV3, in a segment on safety tips and precautions when using gas cylinders and gas stoves with Head of Product Certification and Inspection, Md Adha Katni @ Rahmat.

14/01/20

MOU BETWEEN SIRIM BERHAD AND BANK MUAMALAT MALAYSIA BERHAD

The MoU between SIRIM and Bank Muamalat Malaysia Berhad enabled both organisations to help businesses and SMEs in Malaysia adopt technology to drive productivity and growth. The MoU aims to explore ways to assist SMEs, particularly those in the manufacturing sector, to participate in the SIRIM-Fraunhofer Programme and reap the opportunities and benefits to improve productivity and enhance their competitiveness.

16/01/20

STEM PROGRAMME AT SK AIR MERAH KULIM, KEDAH

SIRIM RoboKit® was demonstrated to students from Songhwa Elementary School, and Chuncheon Dochon Elementary School Yanggu of South Korea, and Malaysia's SK Air Merah in Kulim, Kedah, under the Science, Technology, Engineering and Mathematics Programme or STEM. The programme is a collaborative initiative between SIRIM Kulim and SIRIM Bukit Jalil, with the objective of increasing students' awareness and understanding in the fields of science, technology, engineering and mathematics.

20/01/20

INTERVIEW WITH RTM REGARDING SOLAR POWERED LED STREET LIGHTING SYSTEM PROJECT USING COMPOSITE POLE TECHNOLOGY AND LITHIUM ION BATTERY

RTM featured SIRIM's Solar Street Light project in an interview with Mohd Fauzi Ismail, Director of ICI Innovation in Energy Management, on its Sains Teknologi programme on TV1. The street lighting system is powered by renewable solar energy, capable of reducing carbon dioxide emissions by using stainless composite materials.

EVENTS IN 2020

17/02/20

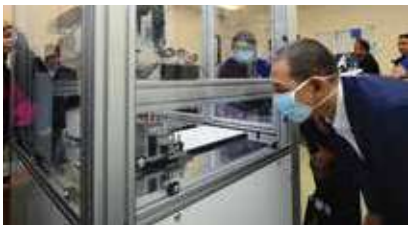
VISIT FROM TURKEY'S AMBASSADOR TO MALAYSIA

HE Dr Merve Safa Kavaćhi and a delegation from Turkey's Embassy in Malaysia paid a visit to SIRIM, where a discussion on cooperation with SIRIM was held, led by Academician Tan Sri Dr Ir Ahmad Tajuddin Ali, FASc, SIRIM Chairman.

21/02/20

MOU BETWEEN SIRIM AND UITM

SIRIM signed an MoU with UiTM to establish collaborations in research and development projects, such as strategic collaborations covering technology readiness programmes. The MoU was signed by Datuk Ir Dr Ahmad Fadzil Mohamad Hani, President and Group Chief Executive.



09/03/20

SIRIM KEY STAKEHOLDERS ENGAGEMENT PROGRAMME

SIRIM Engagement Session with Stakeholders was attended by 43 stakeholders comprising 19 representatives from Ministries and Agencies, and also Enforcement Bodies. The session was held to inform all regulatory bodies (regulators) about the need for and importance of the National Measurement System Act 2007 (Act 675) while strengthening bilateral relationship between SIRIM and its stakeholders.

20/02/20 – 22/02/20

SIRIM WON FIVE MEDALS AT MALAYSIA TECHNOLOGY EXPO 2020

SIRIM won two gold medals and three silver medals as well as a Special Award from the Association of British Inventors and Innovators at the Malaysian Technology Expo (MTE) 2020. SIRIM also bagged first place for MTE 2020 Best Exhibition Site Design Award.

06/04/20

SIRIM DONATED PPE EQUIPMENT TO SELANGOR STATE HEALTH DEPARTMENT

SIRIM donated personal protective equipment (PPE) to the Selangor State Health Department consisting of items such as face shields, Y-splitter for ventilators and sanitisers, and hand sanitisers. The face shields and Y-splitters were produced by ICI Innovation in Smart Manufacturing using 3D printing, while sanitisers containing 70% alcohol were produced by Industrial Biotechnology Research Centre, in compliance with regulatory requirements set by the National Pharmaceutical Regulatory Division (NPRA).

EVENTS IN 2020

08/05/20

PPE TO SARAWAK GENERAL HOSPITAL

SIRIM Sarawak delivered 250 units of face shields to Sarawak General Hospital, which were received by Dr Muadzam Mohamad, representative from the Radiology Department of Sarawak General Hospital.

21/07/20

SIRIM-INDUSTRY ENGAGEMENT PROGRAMME AT KUANTAN, PAHANG

The SIRIM-Industry Engagement (SIE) was officiated by YAB Menteri Besar Pahang, Dato' Sri Haji Wan Rosdy Wan Ismail with participation from state agencies such as PKNP, YP Plantation, KUIPSAS, PAIP, SUK and Perbadanan Kemajuan Pertanian Pahang. This half-day event enabled SIRIM researchers and experts to directly meet with the industries and SMEs and identify their needs and requirements.

14/05/20

DELIVERY OF PPE EQUIPMENT TO MOF AND MITI

SIRIM provided PPE to the Ministry of Finance Malaysia (MOF) and the Ministry of International Trade and Industry (MITI) in an effort to combat the COVID-19 virus.

A total of 156 bottles of hand sanitisers and 25 boxes of face masks were handed to Dato' Othman Semail, Deputy Secretary General of Treasury – Management, at MOF.

Another 157 bottles of hand sanitisers and 25 boxes of face masks were handed to Mohd Ezuwan Hassan, Director of Management Services Division, at MITI.

06/08/20

SIRIM AND MRM LAUNCHED THREE INITIATIVES TOWARDS INDUSTRY 4.0

Three initiatives were launched to prepare the industry towards Industry 4.0, which focused on the development of design industry, namely Certified Industrial Designer (CID) certification; COVID-19 Creative Campaign Competition; and SIRIM 3D Printing Market Place digital portal.

EVENTS IN 2020

27/08/20

SIRIM-INDUSTRY ENGAGEMENT PROGRAMME AT KUNDASANG, SABAH

A total of 80 participants from the small and medium industries around Ranau attended the SIRIM-Industry Engagement (SIE) Programme, which is a platform for industry and SIRIM experts to meet and share experiences in facing current challenges.

20/11/20

STRATEGIC COMMUNICATION SECTION AT APEC 2020

Strategic Communications Section of the Group Strategic Planning had the opportunity to be part of the Communications Secretariat in organising the Asia Pacific Economic Cooperation (APEC) 2020, which involved the Virtual Media Conference of the APEC Ministers' Meeting (AMM), chaired by the Senior Minister of International Trade & Industry, YB Dato' Seri Mohamed Azmin Ali, and also a Virtual Media Conference of the APEC Economic Leaders Meeting (AELM) chaired by YAB Prime Minister, Tan Sri Muhyiddin Yassin.

11/09/20

SIRIM HACKATHON

The two-day programme aimed to promote SIRIM Digital Citizen to non-IT employees of the Group. An online office process workflow application was developed without coding to improve the day-to-day operations of the department.

A total of 19 groups with 81 participants competed and 'The Numbers' Group from Group Finance Department won with their entry, 'Form Digitalise – TRAXMILES', an online travel claim process.

01/12/20 – 04/12/20

SIRIM'S INNOVATION WON GOLD AT THE SEOUL INTERNATIONAL INVENTION FAIR 2020

SIRIM was announced as the Gold Winner at the Seoul International Invention Fair (SIIF). The team, comprising of Dr Jamuna Thevi, Shirin Ibrahim, Nor Shahida Kader Bashah, Salin Sabudin, Abdul Yazid Abdul Manaf and Syed Mohamad Syakir Syed Abd Rahman won through their invention, "Multifunctional Biocomposite Membrane for Guided Bone Regenerative Therapy in Dentistry and Orthopaedics".

This innovation is intended to be used for guiding bone regeneration in dentistry and orthopaedics while promoting bone growth, preventing soft tissue invasion into bone defect and repelling bacterial infection in animal study.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