

**KERATAN AKHBAR-AKHBAR TEMPATAN**  
**TARIKH: 16 NOVEMBER 2013 (SABTU)**

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## MOSTI Belanja RM498.26 Juta Untuk Penyelidikan

GEORGE TOWN, 15 Nov (Bernama) -- Kementerian Sains, Teknologi dan Inovasi (MOSTI) sudah membelanjakan RM498.26 juta setakat Ogos tahun ini bagi membiayai 1,256 projek penyelidikan.

Timbalan Menteri berkenaan Datuk Dr Abu Bakar Mohamad Diah berkata daripada jumlah itu 54 projek sudah siap, sembilan di peringkat prototaip, paten (69), hak cipta (8), penjenamaan (19), tiga di peringkat reka bentuk industri, manakala baki dalam pelbagai peringkat lain.

"Daripada jumlah projek yang diluluskan itu sebanyak 29 berjaya dikomersialkan dengan hasil RM18.28 juta dan menyediakan 2,817 peluang pekerjaan," katanya kepada pemberita, di sini Jumaat.

Menurut Abu Bakar, kerajaan juga berjaya mewujudkan 58.2 peratus saintis daripada 10,000 pekerja di negara ini, dan yakin sasaran 70 peratus saintis diwujudkan bagi setiap 10,000 pekerja menjelang 2020 dapat dicapai.

Selain itu katanya sebanyak 99 harta intelek berjaya dihasilkan manakala 107 penyelidikan yang dijalankan sudah diterbitkan dalam jurnal antarabangsa dan 12 dalam jurnal tempatan.

"Kita juga amat berbangga apabila 13 hasil produk dan penyelidikan yang dijalankan turut mendapat pengiktirafan daripada badan antarabangsa dan 28 yang lain mendapat pengiktirafan di peringkat nasional," katanya.

Terdahulu beliau merasmikan Festival Space Universiti Sains Malaysia (USM) 2013 yang berlangsung di kampus universiti itu di sini selama tiga hari bermula Khamis, membabitkan 32 buah sekolah dari wilayah utara.

Festival anjuran Muzium dan Galeri Tuanku Fauziah (USM), Bahagian Jaringan Industri dan Masyarakat USM, Northern Skills Development Centre (NSDC), Jabatan Mufti Negeri Pulau Pinang dan Jabatan Pendidikan Pulau Pinang itu turut menyediakan aktiviti seperti ceramah, bengkel, permainan dan persembahan.

-- BERNAMA



## UniMAP Menangi Anugerah Kualiti Organisasi Anjuran Sirim

KANGAR, 16 Nov (Bernama) -- Universiti Malaysia Perlis (UniMAP) merangkul Anugerah Kualiti Organisasi kategori agensi kerajaan pada Anugerah Kualiti Sirim sempena Majlis Industri Sirim 2013 di Subang, Selangor pada Jumaat.

Anugerah itu merupakan inisiatif [Sirim Malaysia Berhad](#) bagi mengiktiraf organisasi yang mencapai tahap pengurusan kualiti dan produk cemerlang serta pengeluaran barangan dan perkhidmatan yang menepati tahap piawaian kebangsaan dan antarabangsa.

Naib Canselor UniMAP Profesor Datuk Dr Kamarudin Hussin, ketika mengulas kejayaan itu, berkata anugerah berprestij berkenaan merupakan pengiktirafan terbaik bagi UniMAP kerana pengukurannya dibuat berlandaskan aspek kualiti.

"Pengukuran kualiti adalah sesuatu yang amat kompleks namun saya percaya kejayaan UniMAP turut berdasarkan kepada pelbagai pencapaian yang telah diraih UniMAP baik di peringkat nasional serta global," katanya.

Beliau berkata meskipun baru berusia 11 tahun, kejayaan yang diraih UniMAP membuktikan usia bukanlah penghalang bagi sesebuah organisasi atau agensi untuk menawarkan perkhidmatan ataupun barangan berkualiti.

"UniMAP selepas ini akan memberi tumpuan yang lebih bagi memastikan setiap unit dan jabatan universiti ini menerima pengiktirafan kualiti daripada Sirim," katanya.

**[Anugerah itu disampaikan Menteri Sains, Teknologi dan Inovasi Datuk Dr Ewon Ebin pada majlis yang turut dihadiri Pengerusi Sirim Datuk Jamaliah Kamis.](#)**

-- BERNAMA

BERITA ONLINE  
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TARIKH: 16 NOVEMBER 2013 (SABTU)



## Gempa Sederhana Gegar Flores, Indonesia

KUALA LUMPUR, 15 Nov (Bernama) -- Gempa bumi sederhana berukuran 5.0 pada skala Richter menggegarkan wilayah Flores di Indonesia pada 7.32 pagi Jumaat.

Menurut kenyataan [Jabatan Meteorologi Malaysia](#), gempa itu berpusat di 123 kilometer dari timur laut Bima, Indonesia dan 1,251 km dari tenggara Sarikei, Sarawak.

Gempa itu tidak membawa ancaman tsunami.

--BERNAMA

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TARIKH: 16 NOVEMBER 2013 (SABTU)



## Gempa Bumi Sederhana Gegar Pulau W.Caroline, Micronesia

KUALA LUMPUR, 15 Nov (Bernama) -- Gempa bumi sederhana berukuran 5.0 pada skala Richter menggegarkan Pulau W.Caroline, Micronesia, pada 9.09 pagi Jumaat.

Menurut kenyataan [Jabatan Meteorologi Malaysia](#), gempa itu berpusat di 1,400km timur laut Bandaraya Tagum di Filipina dan 2,576km timur laut Kinabatangan, Sabah.

Menurut kenyataan itu, jabatan akan mengeluarkan maklumat tambahan mengenai gempa itu.

-- BERNAMA



## **Pendekatan Terhadap Keselamatan Jalan Raya Perlu Diubah - Suret Singh**

MELAKA, 16 Nov (Bernama) -- Pendekatan terhadap usaha menjamin keselamatan jalan raya di negara ini perlu diubah bagi memastikan kemalangan jalan raya terutamanya yang mengorbankan banyak nyawa tidak lagi berulang, kata bekas ketua pengarah Jabatan Keselamatan Jalan Raya Datuk Suret Singh.

Beliau yang kini penasihat kepada Pengerusi Suruhanjaya Pengangkutan Awam Darat (SPAD) berkata melalui pengalaman lebih 30 tahun terlibat dalam bidang itu amat banyak usaha telah dilakukan melibatkan pendidikan, penguatkuasaan dan kejuruteraan kenderaan serta jalan, namun kemalangan terutamanya membabitkan kematian masih berada pada tahap yang agak sama sejak dahulu lagi.

"Ada sesuatu yang tidak kena dengan cara kita mengendalikannya...pada pandangan saya semuanya sudah ada, semua kita sudah buat tetapi mengapa kemalangan maut mengorbankan banyak nyawa masih berulang...kita kena tengok diri sendiri dan tanya soalan itu," katanya.

Beliau berkata demikian ketika membentangkan kertas kerja bertajuk 'Safety Management for Transport Operators' pada Seminar Keselamatan Jalan Raya sempena mesyuarat agung tahunan ke-54 Majlis Keselamatan Jalan Raya Malaysia di sini Sabtu yang dihadiri kira-kira 300 peserta dari seluruh negara.

Katanya perubahan mentaliti di kalangan pemandu, pelaksana dan penguatkuasa keselamatan jalan raya merupakan perkara paling utama dalam melaksanakan pendekatan baharu untuk mengurangkan kematian di jalan raya.

Suret berkata peraturan, undang-undang atau arahan kerajaan tidak bermakna dalam menjamin keselamatan di jalan raya sekiranya mentaliti semua pihak terbabit termasuk pemandu, masih berdegil untuk melanggar peraturan, masih berada di takuk lama dan enggan berubah kerana terlalu selesa di tahap itu.

Beliau berkata selain pemandu, pihak pelaksana perlu mengambil langkah agresif melaksanakan arahan diberikan kerajaan dengan pantas dan penguatkuasa perlu bertindak tegas terhadap sesiapa sahaja yang enggan mematuhi peraturan itu tanpa mengira pangkat atau latar belakang.

"Semua perlu ambil pendekatan baharu kerana keselamatan jalan raya adalah tanggungjawab berantai semua pihak di mana setiap pihak memainkan tanggungjawab yang amat kritikal...kita tidak boleh mempunyai sebarang hubungan yang lemah," katanya.

Perunding Majlis Keselamatan Jalan Raya Malaysia (MKJR) Melaka, Mohamed Salleh Yunos pula berpendapat cadangan menukar pendakwaan terhadap pesalah trafik yang daripada Akta Pengangkutan Jalan (APJ) 1987 kepada jenayah di bawah Kanun Keseksaan merupakan pendekatan baharu yang perlu diambil perhatian.

Mohamed Salleh yang membentangkan kertas kerja bertajuk 'Four Way Stops and Others' berkata pandangan itu tidak seharusnya dipandang secara negatif kerana ada negara di dunia telah meletakkan kes langgar hingga menyebabkan kematian di bawah kategori pembunuhan tanpa niat sedangkan Malaysia masih di bawah APJ.

"Daripada segi hukuman pula kita lihat Kanun Keseksaan lebih berat berbanding APJ di samping sabitan terhadap Kanun Keseksaan akan memberi rekod lebih buruk terhadap profil pemandu itu, ini boleh mendatangkan perasaan takut kepada pengguna jalan raya untuk melakukan kesalahan," katanya.

**Pegawai Bahagian Mekanikal dan Automatif Sirim, Kamaruzzaman Mohd Junos** berkata persijilan ISO 39001 Sistem Pengurusan Keselamatan Lalu Lintas terhadap agensi kerajaan, syarikat dan organisasi lain di negara ini mampu meningkatkan tahap keselamatan jalan raya di negara ini.

"Prosedur di bawah persijilan ini memberikan alat untuk sesebuah organisasi itu mengurangkan kematian atau kecederaan akibat kemalangan jalan raya antaranya pemeriksaan ketat ke atas pemandu supaya sentiasa layak untuk memandu dan kenderaan itu selamat di atas jalan raya," katanya ketika membentangkan kertas kerja mengenai persijilan itu.

Mempunyai empat organisasi perintis yang sedang dalam proses persijilan iaitu Polis Diraja Malaysia, Shell Malaysia Trading, Puspakom dan Century Total Logistic, persijilan itu diluluskan Kementerian Pengangkutan untuk dilaksana pada 9 Okt lepas.

-- BERNAMA

**KERATAN AKHBAR**  
**BERITA HARIAN (INSPIRASI) : MUKA SURAT 7**  
**TARIKH : 16 NOVEMBER 2013 (SABTU)**



# Penghantaran KFC mesra alam

» *Motosikal elektrik memudahkan pesanan*

**K**FC Delivery menerajui industri sektor Restoran Perkhidmatan Segera (*Quick Service Restaurants*), yang menggunakan skuter elektrik, 100 peratus mesra alam tanpa karbon dioksida, pencemaran asap dan bunyi.

Murah daripada kos pengendalian, di samping reka bentuk yang kukuh dan menarik, kenderaan mesra alam terbaru ini bakal meningkatkan kepantasan khidmat penghantaran.

Pelaksanaan itu juga dapat mempertingkatkan kualiti perkhidmatan bagi memastikan pelanggan menerima makanan segar dan panas, dan pada masa sama, mengurangkan pencemaran karbon.

"Selari usaha dan komitmen kerajaan mengurangkan pencemaran, kami mengambil kesempatan ini menjadi peneraju utama dalam sektor Restoran Perkhidmatan Segera di Malaysia menggunakan skuter elektrik mesra alam.

"Kami berbangga kerana dapat memainkan peranan kami di setiap peringkat operasi syarikat, dalam menyokong ke arah usaha menjaga alam sekitar," kata Pengarah Urusan QSR Brands (M) Holdings, Sdn Bhd, Datuk Ahmad Zaki Zahid pada majlis menandatangani perjanjian dengan Eclimo Sdn Bhd (Eclimo), baru-baru ini.

Hadir sama, Ketua Pegawai Eksekutif Perbadanan Pembangunan Teknologi Malaysia (MTDC), Datuk Nurhalim Yunus, turut hadir menyaksikan pemeteraian antara KFC (Semenan-

jung Malaysia) Sdn Bhd dan Eclimo Sdn Bhd, syarikat kenderaan elektronik teknologi hijau.

**Bina kesetiaan pelanggan**  
 Ahmad Zaki berkata, selain menjadi pilihan pelanggan bagi hidangan ayam goreng, pihaknya berhasrat membina kesetiaan pelanggan berdasarkan integriti dan nilai murni. Pihaknya sentiasa berusaha meningkatkan kualiti hidangan dan perkhidmatan.

Inisiatif mesra alam itu, katanya, sejajar dengan komitmen menangani masalah pencemaran alam.

Skuter elektrik Eclimo ES11 menggunakan kuasa elektrik plug tiga pin yang biasa. Penyelenggaraan skuter mudah dan murah kerana sahaja kawasan yang mempunyai sumber elektrik.

Pengguna juga tidak perlu tunggu sehingga bateri lemah untuk dicas semula kerana kuasa boleh disimpan

dalam satu atau lebih motor untuk pergerakannya.

Pengarah Eclimo, Chung Peng, berkata skuter ini bergantung sepenuhnya kepada kuasa elektrik, dan bersifat sifar karbon dan pelepasan asap menjadikan skuter paling mesra alam.

**Visi**

"Visi kami untuk melihat semua orang memiliki kenderaan elektrik, justeru, membawa kepada masa depan lebih sihat dan selamat. Kami gembira dengan kerjasama ini bagi memastikan penghantaran dilakukan tanpa mencemarkan alam sekitar," katanya.

Sehingga hari ini, 41 restoran KFC Delivery di Lembah Klang menggunakan skuter mesra alam dan sembilan buah lagi dalam perancangan untuk akhir tahun ini. Penghantaran dengan skuter mesra alam ini akan digunakan dengan lebih meluas sehingga ke negeri-negeri lain pada masa akan datang.



Chung Peng (kiri) bertukar dokumen perjanjian dengan Ahmad Zaki sambil diperhatikan Nurhalim.

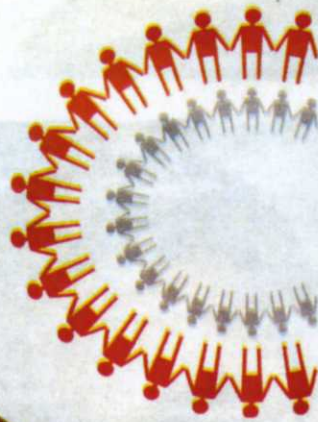


**“ KAMI BERBANGGA KERANA DAPAT MEMAINKAN PERANAN KAMI DI SETIAP PERINGKAT OPERASI SYARIKAT, DALAM MENYOKONG KE ARAH USAHA MENJAGA ALAM SEKITAR ”**

**Ahmad Zaki Zahid**  
 Pengarah Urusan QSR Brands



KERATAN AKHBAR  
NEW STRAITS TIMES (SPECIAL) : MUKA SURAT 7  
TARIKH : 16 NOVEMBER 2013 (SABTU)



# GENERATING PROSPERITY THROUGH HUMAN CAPITAL



SIRIM Industry   
Night **2013**

Officiated by:  
YB Datuk Dr Ewon Ebin  
Science, Technology and Innovation Minister  
November 15, 2013  
Sunway Resort Hotel and Spa

KERATAN AKHBAR  
 NEW STRAITS TIMES (SPECIAL) : MUKA SURAT 2  
 TARIKH : 16 NOVEMBER 2013 (SABTU)

GENERATING PROSPERITY  
 THROUGH HUMAN CAPITAL

## SIRIM ON A ROLL

**ZAIDI ISHAM ISMAIL**  
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**S**IRIM Berhad, the country's premier standards, research and technology institute, is on a roll.

Its President and Chief Executive, Dr Zainal Abidin Mohd Yusof, says the agency is well known among industries for its quality and standards services.

"We have the reputation in quality testing and standards certification. But not many know about our industrial research division and industrial process services which can help industries enhance their services through research and development.

"We have a strong set-up in research and development, technology, innovation, design and engineering, standards and quality and technology transfer. And we want businesses to know that there is a lot more that we can offer."

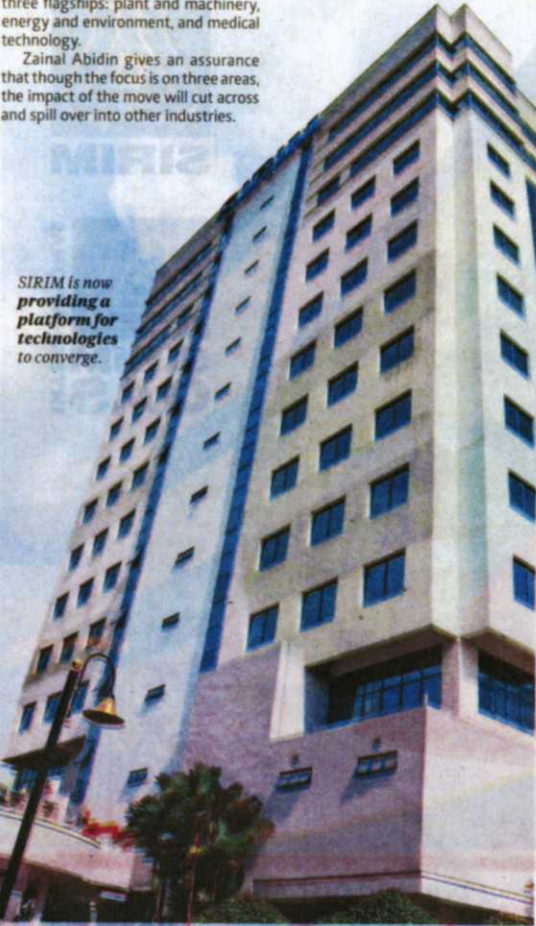
SIRIM is in the midst of a transformation drive launched last year. The goal is to reinvent the agency within five years.

Rather than doing everything under the sun, it has decided to focus on three flagships: plant and machinery, energy and environment, and medical technology.

Zainal Abidin gives an assurance that though the focus is on three areas, the impact of the move will cut across and spill over into other industries.

*"We have a strong set-up in research and development, technology, innovation, design and engineering, standards and quality and technology transfer. And we want businesses to know that there is a lot more that we can offer."*

*Dr Zainal Abidin Mohd Yusof  
 President and Chief Executive*



SIRIM is now providing a platform for technologies to converge.



Pressure vessels for storing compressed natural gas in natural gas vehicles.



Prime Minister Datuk Seri Najib Razak has given the transformation drive his blessings, with the rejuvenation already bearing results.

Zainal Abidin says one benefit of the transformation is that technologists and professionals such as engineers, surgeons, metallurgists, computer systems analysts, bio-technologists and scientists and researchers no longer work in isolation.

The drive enables doctors, surgeons and bio-technologists to talk to industrial designers and metallurgist to come up with a better design of implants for accident victims.

"We are looking at compatibility and convergence of technologies.

Previously, metallurgists didn't talk to the scientists, the scientists didn't talk to bio-technologists, the latter didn't talk to the surgeons, and the surgeons didn't talk to the computer systems."

SIRIM now provides a platform for the technologies to converge.

Under the three flagships, its scientists and researchers brainstorm for bigger projects.

Zainal Abidin says an awareness campaign to promote its technology services has been given more bite. The key word is to promote research and innovation services as well as work with industries and boost commercialisation.

SIRIM's aspiration, he says, is to be

on a par or perform better than some of the top research organisations in Japan, South Korea and United States.

"We also want to be self-sufficient and reduce our dependence on the government. We want to operate like any other commercial entities and generate income, such as through royalties."

At present, SIRIM is 70 per cent self-sufficient, receiving only RM70 million in government grants.

On its future plans, Zainal Abidin

KERATAN AKHBAR  
 NEW STRAITS TIMES (SPECIAL) : MUKA SURAT 3  
 TARIKH : 16 NOVEMBER 2013 (SABTU)



**COLLABORATION KEY TO SUCCESS**

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PEOPLE should put competing motives aside and work to produce the best solutions because when innovation comes out top, everyone wins.

SIRIM president and chief executive Dr Zainal Abidin Mohd Yusof says this is the message that the country's premier research and development organisation wants to convey to industries.

"It is time for technologists and professionals to talk to each other. Malaysia has some of the best scientists and researchers in their fields, which are equipped with the best infrastructure in the world.

"Unfortunately, they all work in isolation. SIRIM wants to change all this by providing the platform for technologies to converge."

More often than not, Zainal Abidin says, metallurgists, bio-technologists, computer experts, scientists and engineers don't communicate with each other.

This negative trait, he adds, is a common problem that exists everywhere, even at SIRIM.

Hence, the time has come for a change, with everyone converging under a single platform.

"We at SIRIM want to play that convergence role," says Zainal Abidin. SIRIM is in the midst of transforming itself to do business in a new way.

Launched over a year ago, the transformation exercise, which was the brainchild of Zainal Abidin, saw SIRIM focusing on three flagships.

The aim is to transform the agency into a technology service provider, focusing on plant and machinery, energy and environment, and medical technology.

Zainal Abidin says the agency's new way of doing business has received positive feedback, with clients excited about being able to get complete solutions to their technology challenges under one roof.

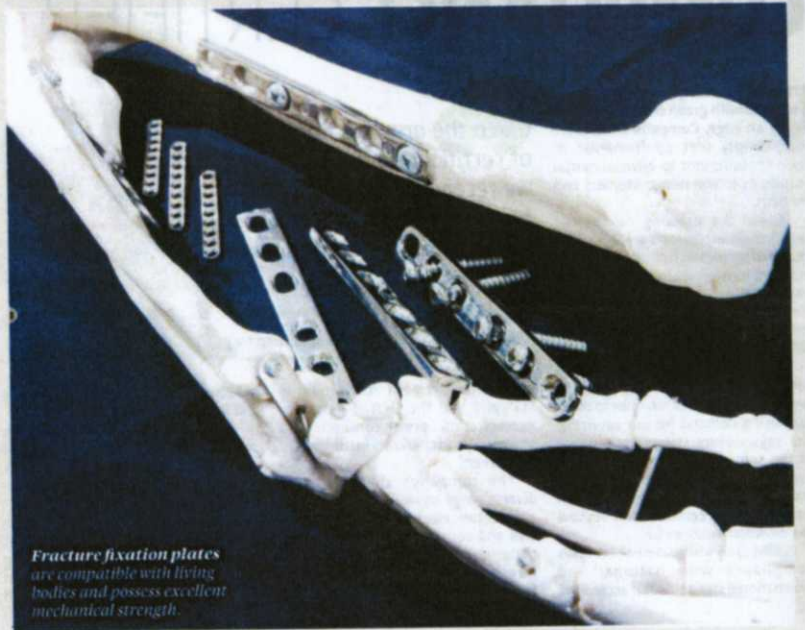
Zainal Abidin, who has been monitoring the transformation programme, says SIRIM's staff have now realised the value of collaboration and have made cooperation a practice.

For example, innovations had led to the production of medical implants from SIRIM's material science laboratories at its Advanced Materials Research Centre in Kulim, Kedah.

Metallurgists at the centre have developed composite alloys that are ideal for making complex but immovable orthopaedic implants while improving the materials malleability and tensile strength.

Meanwhile, at its engineering centre in Bukit Jalil, design engineers have been working on developing movable joint implants, making sure they possess the right dimensions and functionality for patients.

When the two teams began communicating with each other, they realised that the advanced composite alloys developed by the metallurgists



*Fracture fixation plates are compatible with living bodies and possess excellent mechanical strength.*

**"It is time for technologists and professionals to talk to each other. Malaysia has some of the best scientists and researchers in their fields, which are equipped with the best infrastructure in the world."**

**Dr Zainal Abidin Mohd Yusof**  
 President and Chief Executive

could also be used for making advanced functional orthopaedic implants.

Another example of the benefits of collaboration involves the oil palm biomass debate, with six agencies working on competing biomass energy solutions.

The solutions are all based on differing estimates of just how much biomass is available in the country. The debate is also on the definition of biomass as palm oil waste comes in many forms, namely trunks, fronds or empty fruit bunches.

While some say there is too little biomass, others hold an opposite stance, arguing that there is more than enough. But the fact is, no one knows for sure.



**SIRIM offers comprehensive capabilities in R&D, design and engineering and standards, all under one roof.**

"Our response to this situation was to develop the Renewable Energy Resource Map of Malaysia (MYREMap), which aggregates the data of seven agencies as well as oil palm plantations from across the country.

"Over time, it will become valuable and more importantly, come up with a database of actual biomass economic opportunities in the country."

MYREMap is a one-stop reference for remote assessment on the renewable energy applications viability.

Zainal Abidin says the transformation programme has seen researchers collaborating with each other and developing 44 proposals

for the science fund. Funding for 29 of the proposals, involving a wide spectrum of activities, has been approved.

The transformation programme started on a high note, with SIRIM submitting several projects to the Science, Technology and Innovation Ministry.

"These multi-disciplinary and multi-institution projects are collaborative efforts involving two or more research institutions, and SIRIM is delighted to have been contributed something."

One of the projects involved the development of artificial corals which began as a small community project led by SIRIM's ceramics research team.



**Fabrication of the titanium implant, a field explored by SIRIM.**

says SIRIM wants to boost collaboration via the convergence of technologies and increase revenue.

"We hope to do that via the commercialisation of our products, royalties and licensing fees for our technology products from companies as well as forge joint ventures with partner companies.

"Maintaining a good relationship is important because when a success is achieved, companies may come back to SIRIM for more research and development activities."

Established in 1976 as part of the government's efforts to commercialise government assets, SIRIM was corporatised in 1996. It is an agency under the purview of the Science, Technology and Innovation Ministry, employing more than 1,000 scientists and researchers.

KERATAN AKHBAR  
NEW STRAITS TIMES (SPECIAL) : MUKA SURAT 4  
TARIKH : 16 NOVEMBER 2013 (SABTU)

GENERATING PROSPERITY  
THROUGH HUMAN CAPITAL

MOSTI



# ECO-STANDARDS COMPLIANCE CERTIFIER

In today's marketplace, products and services with green credentials often gain an edge. Companies therefore increasingly seek confirmation of their commitment to environmental standards to win new customers and markets.

"Given the growing number of certification applications we receive, it's clear that businesses have become much more concerned about sustainability," says Khalidah Mustafa, managing director of leading certification, inspection and testing organisation SIRIM QAS International.

"We introduced environmental certification in 1997 and continue to broaden our range of schemes to meet escalating demand for our services," she says, noting strong attendance at the seminars and exhibitions the company stages to educate business managers on its programmes, which embrace many certifications beyond the environmental sector.

SIRIM QAS International certifies compliance with national and international standards. It is accredited

**Given the growing number of certification applications we receive, it's clear that businesses have become much more concerned about sustainability."**

**Khalidah Mustafa**  
SIRIM QAS International managing director



by the Department of Standards Malaysia and the United Kingdom Accreditation Service confirming its impartiality and credibility in conformity assessment.

The company's clients span a diverse range of industries, including automotive, electrical and electronic, civil and construction, chemical and material, petrochemical, oil and gas, information and communication technology, education, hospitality,

healthcare, logistics, food, agriculture and forestry.

A SIRIM QAS International green certification serves as independent verification that a company's product is manufactured in an environmentally-friendly manner.

This boosts the product's acceptance in local and international markets that demand eco-friendliness, including government and private sector green procurement programmes, and

potentially enables it to reap a premium price.

"It also boosts a company's reputation because it demonstrates commitment to the preservation and protection of the environment," adds Khalidah.

SIRIM QAS International offers several green certifications. The most sought-after is ISO 14001 Environmental Management System, the widely used international measure attesting that an organisation manages its environmental impact effectively.

It has certified almost 800 Malaysian organisations for their compliance with this standard.

In forestry and agriculture, the Forest Management and Chain of Custody certifications indicate that qualifying products originate from responsibly managed forests, while the Roundtable on Sustainable Palm Oil (RSPO) certification confirms that palm oil is sourced from sustainably managed plantations.

The ISO 50001 Energy Management System and Clean Development Mechanism certifications are available for companies seeking verification of their commitment to reducing their output of greenhouse gases.

### Eco-label service

SIRIM QAS International's Eco-label scheme helps the positioning of

a company's product and is increasingly recognised as Malaysia's national eco-labelling system, says Khalidah, noting growing demand for this service because it helps consumers identify products that meet green standards.

Eco-label assessment measures a product for eco-friendly degradability and its use of recycled and non-toxic materials and packaging.

To date, SIRIM QAS International has developed assessment rules for 46 product categories. Each set incorporates measures relevant to the type of product.

"We also play an important role in supporting national efforts to reduce energy usage through programmes to measure energy efficiency and conservation," says Khalidah.

She adds that SIRIM QAS International has been appointed by the Performance Management and Delivery Unit as an energy-efficiency testing laboratory for appliances such as refrigerators, air conditioners, lamps and lighting devices.

As part of its commitment to employing best international practices, SIRIM QAS International is a full member of the Global Eco-labelling Network, an international association of certification organisations.

This also promotes recognition of Malaysian certification procedures on the world stage, says Khalidah.

# MAPPING GREEN TECHNOLOGIES

WHEN it comes to researching and applying green technologies, SIRIM Berhad is no novice.

The nation's industrial research and development agency has chalked up many years of experience in the field, and along the way, accumulated knowledge and know-how on the technologies.

However, underlying all of its projects is the element of practicality: they are all capable of real-world application.

More importantly, SIRIM focuses on projects that benefit local communities and address pressing needs in environmentally-friendly and sustainable ways.

### Mapping renewable energy resources

Malaysia is a resource-rich nation, though some would beg to differ as to them, the only natural resource the country has in relative abundance is oil and gas.

But there is so much more that is ripe for the picking. Malaysia has an abundance of renewable energy resources.

Renewable energy resources are certainly of interest, due in no small part to the growing urgency of energy security.

In fact, part of the nation's philosophy on green technology — as defined by the Energy, Green Technology and Water ministry — is to maximise the use of renewable resources, says SIRIM Environmental Technology Research Centre senior

general manager Dr Chen Sau Soon.

Her project, the Renewable Energy Resource Map of Malaysia (REMap), aims to do just that.

Funded in part by the ministry, with collaborations from other agencies and institutes, REMap is what its name implies: a map of the country's renewable energy resources.

"Everyone knows our oil fields, but where are the wind or the solar energy fields, and biomass should we tap on? REMap is a database of this information," says Chen.

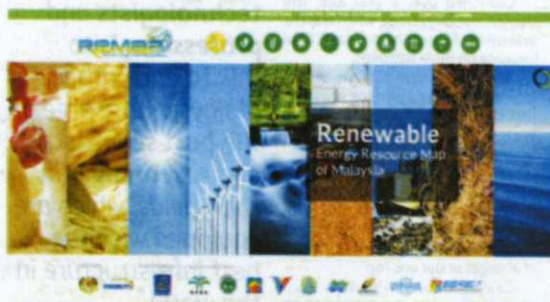
This one-stop reference for remote assessment on the renewable energy applications viability focuses on the major sources of renewable energy in Malaysia.

They are chicken manure, solar, wind, tidal, rivers (pico to micro-hydropower), rice husks and straws, palm oil biomass and biogas, forest and mill residues and municipal waste.

Each of these resources is capable of producing renewable energy. Sawmills, for example, produce wood residue that can be used as feedstock for energy production, as can rice husks from padi fields.

Manure from chicken farms and solid waste from municipal landfill sites can produce biogas, which is a natural gas-like fuel.

Chen and her team, in collaboration with the Malaysia Palm Oil Board, Forest Research Institute of Malaysia, Malaysian Nuclear Agency, Solar Energy Research Institute and Malaysian Remote Sensing Agency, spent about 1½ years gathering



The Renewable Energy Resource Map of Malaysia (REMap) is an interactive website that aims to maximise the use of renewable energy resources in the country.

information not only on renewable energy resources but also roads, railways, rivers and grid lines.

All kinds of avenues were employed, trawling through and checking and

re-checking voluminous data sets to establish REMap.

REMap can integrate all these resources into one map and link them to strategic information, such as the

transport network and transmission lines.

All this information — the availability and accessibility to these renewable energy resources — will enable industries, investors or researchers to determine the feasibility of using certain resources.

REMap can accelerate the green technology landscape of the nation by allowing easy, efficient, access to accurate and up-to-date information of Malaysia's renewable energy resources to researchers, investors and the public.

It will be made available to the public via an interactive website that contains information about Malaysia's renewable energy resources.

The website with its multiple data sets can provide information from a perspective of spatial distribution as well as estimation of the amount of resources available in a site.

Those in need of further information can obtain a comprehensive report made available as part of the services offered by the Environmental Technology Research Centre in SIRIM, which can map out the resources and provide details on available access, infrastructure and utilities.

MYREMap has garnered several awards: a gold medal at Malaysia Technology Expo (MTE) 2013; another gold medal at the 24th International Innovation & Technology Exhibition 2013; and special award (Best Green Award) also at the 24th International Innovation & Technology Exhibition 2013.

KERATAN AKHBAR  
NEW STRAITS TIMES (SPECIAL) : MUKA SURAT 6  
TARIKH : 16 NOVEMBER 2013 (SABTU)

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# SKILLED PERSONNEL ENSURE SAFETY OF EXPLOSIVE AREAS

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In June this year, it was reported that two workers were killed and one was injured in an accident on the oil and natural gas platform belonging to GDF Suez, the French oil gas company in the block of North Sea.

This incident, among the many which occurred throughout the world over the decades, is unfortunate. But the tragedy could have been avoided if the oil and gas industry had ensured their personnel were competent and strictly adhered to safety guidelines and standards such as the IECEx standards.

The IECEx standards are dedicated to the industry fields associated with the use of equipment installed and operated in potentially hazardous areas at risk of fire or explosion.

Determined to enhance the industry safety level, SIRIM QAS International is aggressively promoting the latest certification for industries to personnel called the "IECEx Scheme for Certification of Personnel Competence for Explosive Atmospheres".

Product Certification and Inspection Department of Sirim QAS International senior general manager Basori Selamat says it is a responsibility for industries to always enhance the knowledge and skills of their personnel so that they are competent to perform jobs in a safe manner.

"This is especially true for those personnel handling explosive and hazardous materials in high risk industries such as the oil and gas sector. For example, the offshore oil and gas platforms are always enveloped with flammable gases that even a tiny electric spark can trigger an explosion."



**It is a responsibility for industries to always enhance the knowledge and skills of their personnel."**

**Basori Selamat**  
SIRIM QAS International product certification and inspection department senior general manager

The IECEx standards can also be applied at non-oil and gas sectors such as timber sawmills, sewerage treatment plants and flour mills where the humidity is low and have a high probability of electrical sparks occurring.

The standards have been around for more than 10 years but it is only now that it is being adopted across various spectrums, from design, installation and repair to maintenance and inspection of electrical and electronic



IECEx standards foster work safety in hazardous environments

components and equipment used in hazardous areas.

"It is important that electrical and electronic equipment operating in hazardous environment conform to international safety standards as a minute spark can bring the entire facility down," says Basori.

The move to adopt the IECEx standards in Malaysia was spearheaded by the Department of Standards Malaysia over the last decade with the significant involvement of Petronas as the main player in the oil and gas industry.

SIRIM QAS International was mandated to be the certification body for the IECEx schemes in Malaysia.

#### What are the benefits of IECEx?

For a start, the IECEx standards will promote work safety and health in

hazardous and explosive conditions.

In certain cases, the equipment has to be taken out from the plant for repair and overhaul. Proper repair and overhaul procedure is crucial in order to maintain the safety features specially designed for each type of protection applied to the equipment meant for explosive atmospheres.

Only personnel with certain level of competency should be allowed to undertake such tasks to ensure the integrity of installed safety features are maintained. Repair or overhaul works conducted by incompetent personnel may damage the safety features in the equipment. Such a scenario poses a danger to workers and can lead to mishaps, causing fatalities and bigger damage to the oil and gas facility.

From a bigger picture, such an incident will tarnish Malaysia's image

and safety record. Worse still, it may lead to a halt in the production of oil and gas. And in the event of an oil leak, the damage to the environment and the country's tourism industry might be immense.

Last June, Sirim QAS International was accepted as one of the Ex Certification Bodies (ExCB) that can offer IECEx Certification of Personnel Competence.

It is now the only certification body outside Europe and North America that has been granted such a prestigious recognition by IECEx.

Individuals meeting the prerequisites can apply for the certification of personnel competence for competency of Unit Ex001 and Unit Ex003 from Sirim QAS International. The other units of competency are expected to be offered by early next year.

## CERTIFICATION TO BOOST WORKERS' COMPETENCE

COMPETENCE is more than an ability to get through a knowledge and/or practical assessment.

The ultimate goal of competence is about an ability of personnel to safely and correctly apply their knowledge and skills as well as commitment consistently while performing the jobs.

Plants or facilities are always designed and built according to international standards or code of practices to ensure safety and smooth operation.

Equipment and installations in plants or facilities undergo cyclic stresses in severe environment over a period of time, and this can lead to impairment of the safety features.

These equipment and installations, especially those operating in explosive environment, require appropriate levels of visual, close and detail inspection as well as a systematic maintenance programme.

The competency of personnel performing such inspections and maintenance is crucial to ensure the integrity of plants or facilities, and that all equipment and installations are consistently maintained especially in term of compliance to safety requirements.

Ex equipment and installations often need to be maintained, re-tested and re-certified at certain interval by competent personnel.

The need for common method and understanding of assessment for competency of personnel that can be accepted throughout the world is essential since different standards are being used by countries in the world.

The IECEx management committee has developed a scheme for "Certification of Personnel Competence" which provides a globally recognised certification. It can attest that a person has the knowledge and skills necessary

to implement international standards relating to equipment, services and personnel working in explosive atmospheres.

Industries have expressed the need for an internationally-structured qualification system for the identification of personnel competence, with regards to explosion-protected equipment used in explosive atmospheres since early 1990s.

Although training has been provided by many training providers, it is generally limited to the technical aspects, with no proper strategy to providing specific assessment of competence for personnel.

The "IECEx Certification of Personnel Competence Scheme" offers plant or facility owners an opportunity to use international standards to determine whether their staff, suppliers or contractors, at the management and operational levels, are truly competent

to perform tasks, such as hazardous area classifications, selection and installation, inspection, testing and maintenance or repair and overhaul of ex equipment together with the design of plants or facilities.

The scheme enables a harmonised and consistent approach for the assessment of personnel competence in accordance with ISO/IEC 17024, which sets out the criteria for bodies operating certification of persons.

The standard addresses the structural requirements of the certification body, the characteristics of the certification scheme, the resource requirements, and the certification process.

It is designed to help certification bodies conduct well-planned and structured evaluations in order to ensure impartiality of operations and reduce any conflict of interest.

Compliance with requirements of ISO/IEC 17024 forms the basis for bodies

to be accepted as an IECEx certification body to issue international IECEx certificates of personal competence.

Among the benefits of this scheme include providing companies with independent proof that a person holding an IECEx Certificate of Personnel Competence has the knowledge and skills necessary to implement the International Standards; enhancing a level of confidence to the individual certificate holder as they have been deemed competent to an international standard, and have been certified as having the required skills and knowledge to perform their task; facilitating plant owners to promote safety awareness among employees, suppliers and contractors; and maintaining the integrity of safety features of equipment and installation, hence safety of human are ensured, plant damages can be avoided and preservation of environment.

KERATAN AKHBAR  
 NEW STRAITS TIMES (SPECIAL) : MUKA SURAT 8  
 TARIKH : 16 NOVEMBER 2013 (SABTU)

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# PULLING OUT ALL STOPS TO REDUCE ROAD ACCIDENTS

**A**BOUT 1.3 million people die each year globally from traffic accidents, of which more than 90 per cent of the deaths occur in low- and middle-income countries which have 48 per cent of the world's registered vehicles.

Another 20 million to 50 million people worldwide suffer non-fatal injuries, which are also an important cause of disability.

In Malaysia, an average of 20 people die daily in road accidents.

If this traffic fatality is not addressed, road accidents are predicted to result in the death of two million people annually by 2020. Malaysia, whose statistics in this area are among the world's highest, is also not spared of the grim outlook.

Within a few years, road accidents will be one of the most common causes of injury and deaths. And with the increasing number of fatalities and injuries, the impact on the socio economy and health will be colossal.

Realising this, the Malaysian Institute of Road Safety Research (Miros) is pulling out all the stops to make the country's roads safer.

Enter the ISO 39001:2012 'Road Traffic Safety Management Systems: Requirements With Guidance For Use'.

It provides a tool to help organisations reduce and eliminate the incidence and risk of death and serious injury resulting from traffic accidents.

As even serious events can be prevented by systematic and evidence-based interventions, this standard is applicable to public and private organisations that interact with road traffic systems.

Director-general of Miros Professor Dr Wong Shaw Voon says Malaysia will be one of the first in the world to have such a system, which is set to be adopted by 40 countries.

The ISO 39001:2012 standard is a good platform on how countries and organisations



**"The ISO 39001:2012 is a good platform on how countries and organisations can manage road safety and transport management systems."**

**Professor Dr Wong Shaw Voon**  
 Miros director-general

can establish road safety and transport management systems.

"All stakeholders, including Miros, universities, consumer associations, automobile associations, SIRIM and Transport Ministry have contributed to the development of the ISO 39001 standard, which has now been adopted as a Malaysian Standard."

For a start, a pilot project on the implementation of the standard has got off the ground. It involves four entities: traffic police, oil company Shell, computerised vehicle safety inspection centre Puspakom and transport company Century Logistics.

The two-year project will come to its conclusion by the end of the year with the certification of the entities to the ISO 39001 standard by SIRIM QAS International. Hopefully, its completion will encourage other entities

to join in the full-fledged scheme to be operated by SIRIM QAS International.

What's the benefit for companies to adopt the standard?

"The system runs on itself, and the trend now is to implement the standard. Not implementing it will put companies in a bad light compared with those which do it."

The ISO 39001 standard is aspired by everyone as it ensures organisations are equipped with a system that emphasises on road safety and traffic management, all within their control.

Wong says organisations that have implemented management systems, such as ISO 9001 or ISO 14001, can easily integrate the requirements of ISO 39001 into their systems.

All this while, he says, many companies have spent millions to boost awareness about road safety as part of their corporate social responsibility programmes.

But who monitors these programmes? After spending on safety products,

such as illuminated vests, what is the outcome? What are the results?

"Often, company CSR programmes are driven by individuals in the organisation. However, once it ends, so will the initiative ... and nobody knows what the results are and how much it has benefited the company and road users."

He says knowing and understanding the outcomes of such programmes is important. Eventually, the management system based on the ISO 39001 standard will drive on its own and not by individuals, as is the case now.

Wong, who is regarded as an expert on road safety, says by implementing the standard in organisations, the leading causes of road accidents, traffic fatalities and injuries can be reduced significantly. The causes include speeding, helmet usage, seat belt and child-restraint use, alcohol and drugs, infrastructure and vehicles, and trauma care.

This new ISO management system standard provides a tool for systematic work and commitment among organisations that affect road safety.

The ISO technical committee on road traffic safety (ISO/TC 241) is a technical committee under the International Organization for Standardization (ISO), which was responsible for the development of

the ISO 39001 standard.

It is made up of representatives from 40 member countries (both developed and developing) and another 14 international liaison organisations, which include the World Bank and World Health Organisation.

Wong is the chairman of the national mirror committee to ISO/TC241 and the Malaysian steering committee for the implementation of road traffic safety management systems.

The steering committee has appointed SIRIM QAS International to offer certification to the ISO 39001 standard under a pilot programme which began last year. With the experience gained from the pilot programme, SIRIM QAS International will launch a full-fledged road traffic safety management certification scheme open to any organisation.

It is fitting as SIRIM QAS International is recognised as a premier provider of certification services in the region, with highly experienced and professional auditors competent in a wide range of sectors, providing value-added auditing and certification services.

Miros is the research and development arm on road safety for the Transport Ministry, laying out guidelines and policies.

Some of its work includes the new car assessment programme, which crash tests cars and rates their safety.



- Based on ISO 39001:2012 'Road Traffic Safety Management Systems - Requirements with guidance for use'
- Applicable to organisations that interact with road traffic system such as transport, insurance, consultancy and car leasing company.
- Benefits:
  - Prevention of road traffic accidents
  - Reduction in deaths and injuries
  - Reduction in risk of legal action
  - Enhanced image of the organisation



Various efforts are being taken to make Malaysian roads safer.

**KERATAN AKHBAR**  
**NEW STRAITS TIMES (SPECIAL) : MUKA SURAT 9**  
**TARIKH : 16 NOVEMBER 2013 (SABTU)**

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## QUALITY AWARD FOR EXCELLENCE

**F**IRST introduced this year, the SIRIM Quality Award 2013 is a formal recognition of SIRIM's clients who have achieved high level of excellence in quality management systems and products in various sectors.

The award also provides a platform for winning organisations and products to participate in national quality awards such as the Prime Minister's Awards.

It is also hoped the SIRIM Quality Award will raise awareness and bring about a wave of quality-consciousness among organisations and industries. To be an annual signature event

of SIRIM, the award is divided into two types – product and organisation.

Participating organisations will be evaluated based on criteria established by SIRIM.

Winners will receive incentives in the form of a trophy and certificate; a RM3,000 rebate for any services within the SIRIM Group (valid for one year from the date of the award); and use of SIRIM Quality Award logo for publicity and promotional purposes for a period of three years.

The winners will be honoured at the SIRIM-Industry Night 2013 at the Sunway Resort Hotel & Spa on November 15, 2013.

### Sirim Quality Award 2013 Winners

#### SIRIM Quality Award for Products

**Category 1:** Local companies with annual sales of more than RM100 million – Leader Cable Industry Berhad

**Category 2:** Local companies with annual sales of RM25 million to RM100 million – Mega Fortris (Malaysia) Sdn Bhd

**Category 3:** Local companies with annual sales of less than RM25 million – Tomher Industrial Sdn Bhd

**Category 4:** Open category – Foreign companies incorporated in Malaysia – R.G.E. Lighting Industries Sdn Bhd

#### SIRIM Quality Award for Organisations

**Category 1:** Companies with annual sales of more than RM100 million – Sunway Construction Sdn Bhd

**Category 2:** Companies with annual sales of RM25 million to RM100 million – Ranhill Bersekutu Sdn Bhd

**Category 3:** Companies with annual sales of less than RM25 million – Teckwah Paper Products Sdn Bhd

**Category 4:** Government Agency – Universiti Malaysia Perlis (UniMAP)

## Majlis Sirim Industri 2013

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## GREATER POWER WITH 'GREEN' BATTERY

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**S**IRIM's Advanced Materials Research Centre (Amrec) is poised to become the country's first producer of rechargeable batteries for electrical vehicles.

The centre has developed a prototype for the "green" lithium ion phosphate batteries at its pilot plant in Permatang Pauh, Penang.

Talks are underway with interested parties and if all goes well, Amrec and its partners will start producing the renewable source of energy, also known as Lithium Ion Phosphate of SIRIM (Lipos), by the end of next year. Amrec's Energy Materials section head Dr Mohd Ali Sulaiman and his team have been hard at work for the last few years in carrying out research and development on the prototype.

Met at the pilot plant recently, he said the prototype was ready to be introduced to the commercial market. For a start, the plan is for the battery to power electric motorcycles.

Lithium-ion (Li-ion) battery is not new to consumers. It has been used extensively in many electronic products, such as handphones, tablets and laptops since it is very durable and can handle hundreds of charge and

**"We are confident Lipos will provide the best alternative for fuel for motorcycles. The next phase is to develop better Lipos batteries capable of being used on bigger vehicles including cars, buses and commercial vehicles."**

**Dr Mohd Ali Sulaiman**  
 Amrec Energy Materials section head

discharge cycles.

Ali said Li-ion, which is much lighter than other types of rechargeable batteries of the same size, was also fast becoming a feasible, mass-marketed option for automakers.

This is because the electrodes of a Li-ion battery are made of lightweight lithium and carbon. Lithium is also a highly reactive element, meaning that a lot of energy can be stored.

This translates into a very high-energy density, which is suitable to power electrical vehicles.

Ali said the Lipos prototype had surpassed many tests to

determine its capabilities, safety and reliability.

The safety test included putting the battery through a lot of stress, including punching a hole through it and dropping heavy objects on it. The prototype passed with flying colours.

Used on a motorcycle, a single charge Lipos can run about 70km.

This, according to Ali, was very encouraging and promising for SIRIM Amrec.

He said compared to similar batteries in the market, Lipos has performed better, with it able to move a motorcycle 2.4 times further.

"We are confident Lipos will provide the best alternative for fuel for motorcycles. The next phase is to develop better Lipos batteries capable of being used on bigger vehicles, including cars, buses and commercial vehicles."

Ali added more R&D would be carried out to reduce the cost of production for the batteries to make them economically viable.

He said SIRIM Amrec's technologies on alternative sources of energy, especially for fossil fuels, would boost the country's technological know-how on renewable energy sources.

"This will also create new job opportunities in high capital and technology fields."

SIRIM Amrec's R&D will also enhance the country's image as a player in high-capital industries and boost the economy.

"Lipos batteries are Malaysia's proof of its commitment to the Copenhagen Declarations, aimed at reducing the production of greenhouse gas in the atmosphere by up to 40 per cent by 2020."



A lithium ion battery can power a motorcycle for 70km.



A sealed lithium ion battery.



Advance Materials Research Centre (Amrec) Energy Material section head **Dr Mohd Ali Sulaiman** showing the 'front of line' process in making lithium ion battery.



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# SIRIM'S INROADS INTO IMPLANT TECHNOLOGY

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**O**FTEN, accident victims suffer horrific injuries, with broken bones, deformed faces and mangled feet that require a complex reconstruction processes.

The "repair" job involves surgically embedding titanium implants.

Western medical companies are at the forefront of this medical technology.

But Malaysia is fast catching up, developing implants more suited to the Asian physique and customised according to its craniofacial features.

Developed by SIRIM Berhad, the national industrial research and standards and quality body is making heads turn with its own version and methods in producing titanium implants.

SIRIM Berhad Design Engineering Section head Victor Devadass says the most important aspect of the locally-produced implants is that they are more suited to the Asian body frame.

"The success is the result of SIRIM's transformation plan, which focuses on medical technology. It allows us to work with doctors and surgeons, especially in customising implants before they are

implanted in patients.

"Previously, preformed titanium implants imported from overseas were used. These plates were not patient-specific and doctors had to spend a considerable amount of time to reshape and cut to ensure that they fitted the patient, leading to longer surgical time."

But following the progress made by SIRIM, such a scenario will now be a thing in the past.

Devadass says the success will elevate Malaysia's standing as one of the world's medical hubs and a centre for research and development.

Elaborating on the craniofacial project, he says SIRIM researchers have developed a technique for modelling and forming titanium alloy plates based on the patient's craniofacial characteristics.

Titanium plates have been used to patch up broken skulls for decades. Yet, there is no one-size-fits-all when it comes to bone plates. Like the eyes and fingerprints, skulls are almost unique in shape, as are the shape and size of the holes caused by accidents.

Every titanium plate must therefore be bent, cut and mangled to fit each wound, a painstaking process undertaken by the surgeon himself during surgery and with mixed results.

Fortunately, three-dimensional imaging and rapid prototyping technologies now allow one to 'print' 3D models of patients' skulls from CT and MRI scans, so that surgeons can test

titanium implants and make the most detailed revisions and corrections to them before the surgery takes place.

When he goes into the operating theatre, he can concentrate on the surgery rather than on trying to bend a piece of stubborn metal into shape.

For nearly five years, SIRIM has provided surgeons with such 3D biomodelling services.

Every titanium plate produced at its biomodelling centre in Bukit Jalil is lovingly knocked, bent and sculpted into shape by hand, allowing surgeons to plan their surgeries with greater precision than ever before.

Yet, Devadass is modest about his team's work.

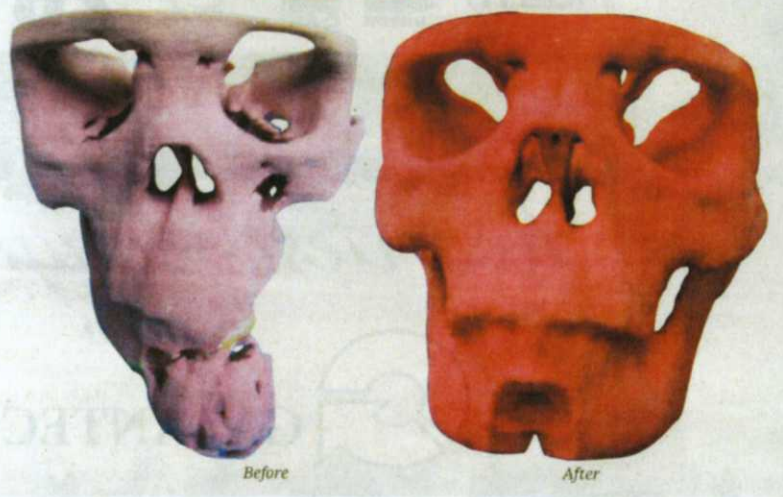
"All we do is reshape metal plates. The critical part is getting reliable and accurate X-ray data to help us tell us what the shape should be. Without that data, we cannot do anything."

That is why the patient's X-ray computed tomography (CT) scans are so important. It gives the biomodelling technicians a geometrical map of the trauma site and helps them build a model of what the skull should look like, although it takes quite a bit of work to go from X-ray to actual biomodel.

Contrary to popular belief, a CT scan does not give a three-dimensional view of one's skull per se. Rather, it takes a series of thin, two-dimensional X-ray images of skull rays, called slices.

Each of these X-rays represents a slice of the skull, and if these slices

Bio model with correction

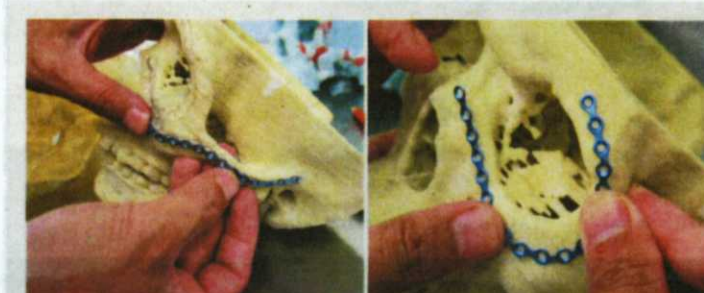


## Processing with MIMICS

**threshold**  
 Thresholding CT scan images using MIMICS.

**Polylines**  
 Convert to polylines for CAD purposes.

**modeling**  
 Convert to 3D model for better visualisation and RP model



**Bio skull model for implant-design and location.**

"On the other hand, if our plate is too tight a fit, it might squeeze the brain. That is worse."

Getting an accurate biomodel depends on the skill and experience of the technician who is assigned the task of modelling the patient a new forehead or parietal section.

Working on a computer with advanced 3D biomodelling tools, SIRIM technicians use the mirroring technique, craniofacial data and other information to patch up the damaged section of the skull.

Once the 3D model is complete, it will be 'printed' on SIRIM's stereolithographic facilities.

The team will then have two skulls: a 'bad' one showing the damage after the accident, and a 'good' one showing the skull as it might have been before the accident.

The team will use the good skull as a positive mould to shape the titanium plate.

The damaged area is marked out, and a new titanium plate is placed over it and then pushed, cut and formed until it conforms to the shape of the model below.

The surgeon in charge of the patient will study the plate and may make tweaks. When the plate is ready, it is cleaned and sanitised in the hospital before it is sent to the operating theatre.

Crude as it sounds, there is no other way for doing it. True, some companies in Europe can make fully-formed bioimplants from digitised craniofacial data with no manual sculpting, but the technology is prohibitively expensive and there is still no guarantee of a perfect fit.

CT scan data of broken skulls still has to be extrapolated and technicians still have to extemporise the gaps. In other words, the guesswork is the same. Only the tools are different.

"Making titanium metal plates is part science, part art, no matter what tools you use to make them," says Devadass.

"What matters most is the team's experience and track record. SIRIM has lots of both."

are stacked on top of each other in the correct order, one can get an approximate three-dimensional model of the scanned skull.

"We use a special software to transform this stack of slices into 3D data that can be read and understood by our 3D biomodelling printers," says Devadass. "But all of that is the easy part. The hard part comes later."

Unfortunately, data furnished by a CT scan of a patient with a hole in his head will produce only a biomodel of a skull with an identical hole in its head.

There is no way to produce a biomodel of the patient's complete, unharmed skull unless he has done a CT scan before the damage occurred. That kind of coincidence is one in a billion.

What this means is that Devadass's team has to make educated guesses about what the damaged area to the skull must have looked like before it got smashed.

There are a few ways of doing this, but the usual approach is to mirror the shape and size of the opposite side of the skull. This is accomplished in a virtual 3D environment by creating a mirror image of the good side of the skull and then positioning it into its corresponding position on the opposite side of the skull.

The result is perfectly symmetrical, but it is also unnatural since no human can be that perfect.

"The mirror technique cannot always be used anyway, especially if the damage is to the forehead or in cases when both sides of a skull are damaged and there is no corresponding 'mirror,'" says Devadass.

"When this happens, we have to rely almost exclusively on recent photographs of the patient as well as data from the existing craniofacial database."

However, Devadass and his team have also found the database useful for improving their odds at making better biomodels when mirroring is not an option.

"If we get the plate wrong and it isn't a snug enough fit, the patient's brain might move about when he is active, which is bad."

KERATAN AKHBAR  
NEW STRAITS TIMES (SPECIAL) : MUKA SURAT 13  
TARIKH : 16 NOVEMBER 2013 (SABTU)

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## QUALITY GENERATES MORE WEALTH

**I**n the business world, it is vital for organisations to introduce improvement initiatives to get an edge over the competition.

Realising the importance of quality activities, especially the need for constant training and re-skilling to keep the culture alive and well, SIRIM Berhad has provided the answer in its subsidiary, SIRIM Training Services (STS).

STS is a leading centre of quality training, providing a training and consultancy services to help private companies and government agencies improve their organisational competitiveness.

"We raise the global competitiveness of organisations through training and consulting on technology, quality and best practices," says its chief operating officer, Dr Mohd Azman Idris.

To achieve this, STS offers public and in-house courses to cater to the needs of customers.

Azman says every business has its own training needs, hence, some technology courses may only be of use only to certain industries, such as the welding and non-destructive testing training courses offered by SIRIM.

Staffed by 25 trainers and consultants, STS can cover a wide range of courses in quality management systems.



**"We raise the global competitiveness of organisations through training and consulting on technology, quality and best practices,"**

**Dr Mohd Azman Idris**  
chief operating officer

It is also a registered training provider under the Pembangunan Sumber Manusia Berhad of the Human Resources Development Fund.

But training is more than just a business for Azman and his team.

"We keep our eyes on the end game.

"We know that Malaysia's human capital must keep pace with the developed world if it is to reach its high-income target. Knowing that we are doing our part towards achieving this goal keeps us motivated."

STS result-oriented approach towards upgrading the technological skills and capabilities of local industries plays a key role in its success.

The benefits of a management of system or method can be hard to judge, and not every quality produces measurable results.

For this reason, Azman recommends that organisations start with SIRIM's Total Quality Fast Track Model.

"We are committed to providing quality training that produces results. With this model, an organisation can see the benefits of a quality culture in less than three years, as opposed to conventional approaches that can take up to five years to cover the same ground."

STS has added new training modules that focus on specific values and perspectives, such as sustainability

and Islamic values that can boost an organisation's appeal among specific group of customers, such as Muslims or eco-conscious 'green customers'.

However, the most interesting and compelling new training programme offered by STS is its 'Customer Service Management'.

Noting that companies ought to offer world-class customer service to win global customers, Azman says the course and recognition scheme will be essential for any business that wants to take their customer service to the next level and compete internationally.

The beneficiaries of the programme will be senior and middle-management personnel, customer services managers and front-line employees.

They will learn to increase customer satisfaction in all areas, from reception and complaint-handling to knowledge management and contact centres.

The whole idea of the initiative, says Azman, is to make customer service a core value in a company.

"Customer service is the 'last mile' in a quality-oriented organisation. You can make great products, have the lowest costs in the industry and the cleanest facility in the country.

"But all these mean nothing if you are unable to engage your customers and keep them happy, Azman says.



KERATAN AKHBAR  
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GENERATING PROSPERITY  
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## CALIBRATING SUCCESS

**A**NYONE requiring quality and reputable calibration services need not go far.

Such services are offered by SIRIM Berhad through its subsidiary SIRIM Standards Technology Sdn Bhd.

The company has the largest calibration facility in the country.

It is a one-stop centre offering comprehensive and diverse range of calibration and measurement services at its laboratories.

The company, which is backed by years of experience in integrating business and technology, provides the widest accredited scope of calibration services in radio frequency (RF), electrical, temperature, volumetric, dimensional, force, pressure and vacuum, and torque and mass.

All its laboratory standards are traceable either to National Metrology Laboratory SIRIM Berhad or other internationally-recognised standards laboratories.

Its capabilities and accuracy of calibration are updated according to the developments in metrology.

Customers can be assured of high-quality services to meet the exacting standards required by industries.

The ISO 17025 accreditation awarded to all its laboratories is in recognition of its competence and quality in laboratory



*Radio frequency calibration.*

*Volumetric calibration.*

management and operations.

With laboratories and personnel located in Subang Jaya, Penang, Johor, Kuching and Kuantan, SIRIM Standards Technology is well-placed to serve customers and measure up to their expectations.

Technical staff comprising engineers and technologists, who have experience

gained through years of service, enable the company to satisfy its customers' requirements in calibration, measurements and related services.

The company's customers come from multi-national companies, small- and medium-scale industries, government departments, educational, research institutes and many more.

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# DRIVING THE RENEWABLE FUEL FUTURE

**F**ANCY driving a car that runs on a fuel that is completely renewable and is carbon neutral? Such a car does exist, and it runs on biogas. Biogas, basically a gas produced by the breakdown of organic matter, is usually derived from waste matter, such as food waste or wastewater.

SIRIM Berhad, working with Sime Darby Research Sdn Bhd in a bio natural gas (BioNG) project, has produced biomethane from palm oil mill effluent at a pilot plant in Sime Darby Plantation's KKS East Mill on Pulau Carey.

Malaysia's first pre-commercial BioNG plant, it commenced operations last August and is capable of producing purified methane-rich biogas at a daily capacity equivalent to 500 litres of petrol, which is enough to fuel 40 natural gas vehicles.

### Research and applications

Biogas is not a new thing to Malaysia, but it is only used for power generation. The BioNG study began when SIRIM and Sime Darby Plantation researchers decided to explore other uses of biogas, especially as fuel for transportation.

The project was funded by the Science, Technology and Innovation Ministry as one of the technofund projects under the Task Force for Renewable Energy.

"Biogas is similar to the natural gas used in vehicles, but it has never been used as a fuel in Malaysia.

"It can also be used as fuel in boilers and other industrial equipment, in fuel cells and has other applications," says SIRIM's Biomass Energy Technology section head Azhar Abdul Raof.

To be used in a vehicle, all that is needed is a conversion kit for the engine, which is the same infrastructure used by natural gas vehicles, such as taxis.

Though natural gas and biogas are similar in composition, the latter is more environmentally friendly. It is not a fossil fuel, and as a fuel, it produces about a quarter of the carbon emissions as natural gas.

Biogas would be a perfect alternative for diesel-fuelled vehicles and machines, says Azhar.

"Displacing diesel with biogas in commercial use would not only be more environmentally-friendly, but also make economic sense."

This is good news for plantations, where most vehicles run on diesel, and wastewater in the form of palm oil effluent is abundant. This is one of the reasons Sime Darby Research collaborated on this project: the



Biogas is **more environmentally friendly** and produces about a quarter of the carbon emissions as natural gas.

common interest of exploring new applications for bioproducts.

### Challenges

The biggest challenge face by biogas producers is logistics: the storage and transportation of the product. Palm oil mills are usually in remote locations, and the Pulau Carey BioNG plant is no exception.

There is no infrastructure or vehicles to transport the biogas from these remote locations to where it can be stored and distributed for commercial use.

SIRIM is already exploring several technologies to solve the transportation problem, and has applied for further research funding to demonstrate the technical viability and economic feasibility of these options.

The infrastructure and investment needed to make the production of biogas for commercial use possible depend on the government putting in place policies and frameworks to encourage demand and regulate the standards and quality of the product.

Currently, competing with the subsidised price of petrol makes it difficult for biogas to find its way into mainstream use.

"There is great potential for biogas in Malaysia. We just need the demand and the investment for

this to take off," says Azhar.

Meanwhile, the research team will continue to optimise the production, product quality and economics to pave the way for BioNGVs to ply roads within and outside oil palm plantations.



SIRIM is exploring other uses of biogas, especially as fuel for transportation.

## Majlis Sirim Industri 2013

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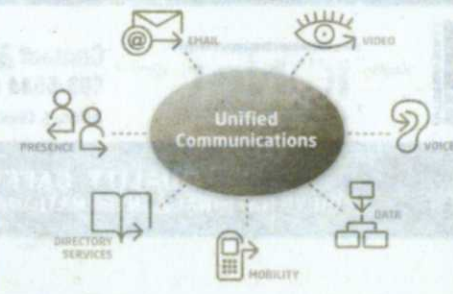
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