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Leslie Jong Yui Kee (Sabah Electrical Association)

Liow Lih Na (Candlelux Marketing Sdn Bhd)

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Nathan Chiam Tow Jen (TS Electrical Marketing Sdn Bhd)

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Technical Advisers

Datuk Ir Ahmad Fauzi Hasan (Individual)

Ir Rocky Wong Hon Thang (Individual)

Internal Auditor

Fong Mun Loon (Letrik PJ Union Sdn Bhd)

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Lim Yok Kee (Nanyang Electric Co (M) Sdn Bhd)

Suresh Kumar J Gorasia (Amalgamated Engineering & Commercial Co (KL) Sdn Bhd)

Wong Chin Cheong (FACC Electrical Trading Sdn Bhd)

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No. 5-B, Jalan Gelugor, Off Jalan Kenanga, 55200 Kuala Lumpur, Malaysia.

Tel: +603 - 9221 2091, 9221 4417

E-mail: teeam@teeam.org.my or teeam52@gmail.com



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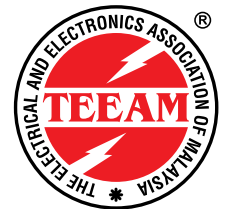
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Plugs, Socket-Outlets for Industrial Purposes

LS – TYPE Plugs and Socket-Outlets for Entertainment



Plugs



Couplers

Inclined flush mounting sockets - Watertight IP67



PEW...PI 16A-32A 63A-125A

Couplers - Watertight IP66/IP67



16A-32A

Wall-mounting plugs - Watertight IP67



PEW...SM 63A

Plugs - Low voltage from 50V to 690V

IP44



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IP67



Couplers 16A-32A



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SIPW...SV

Plugs – Watertight IP66/IP67



PEW...SV 16A – 32A

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(PK...PB5 125A)

Interlocked Switched Socket-Outlets



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PE...SV 16A-32A



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CP 6 Poles 35A-400/690V



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Inserts, 4 poles + connection with spring terminal

CMCE 3+2 (aux) polest



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Fax: +603-78752085, 78772014

E-mail: chitakpj@yahoo.com

Website: www.chitakelectrical.com.my

sales@chitakelectrical.com.my



2019-2021 Media, Publication & Emerging Technology Sub-Committee

Chairman

Nathan Chiam Tow Jen
TS Electrical Marketing Sdn Bhd
Tel: +603-8062 2257 Fax: +603-8062 2258

Co-Chairman

Julee Tan Chiew Theng
Welux (M) Sdn Bhd
Tel: +603-5191 9971 Fax: +603-5191 9970

Editor

Ir Chew Shee Fuee KMN
G. H. Liew Engineering (1990) Sdn Bhd
Tel: +603-7954 8675 Fax: +603-7954 8450

Committee Members

Ir Chang Yew Cheong
Abbaco Controls Sdn Bhd
Tel: +603-8066 8905 Fax: +603-8066 8906

Chong Yoon Koon
Perniagaan Kejuruteraan Chongs
Tel/Fax: +603-7875 2691

How Chee Seng
CS Project & Engineering PLT
Tel: +603-4297 4134

Lee Peng Sian
Furutec Electrical Sdn Bhd
Tel: +603-5635 7088 Fax: +603-5635 6099

Lim Sai Seong
QAV Technologies Sdn Bhd
Tel: +604-643 8317 Fax: +604-643 8597

Liow Lih Na
Candlelux Marketing Sdn Bhd
Tel: +605-312 8088 Fax: +605-313 8033

Siew Choon Thye
Gruppe Lighting Solution Sdn Bhd
Tel: +603-5525 4133 Fax: +603-5525 4122

Willy Wong
Wintrad Industries Sdn Bhd
Tel: +603-8076 4008 Fax: +603-8076 4007

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Circulation

TEEAM Secretariat
Tel: +603-9221 2091
Fax: +603-9221 8212

Contribution of Articles

Alex Looi Tink Huey
E-mail: alex.looi@live.com.my

Ir Chew Shee Fuee, KMN
E-mail: sfchew@ghliew1990.com

CIE Central Bureau
Email: kathryn.nield@cie.co.at

Ir Fong Chin On
E-mail: fongchinon@yahoo.com

Dr Mohammad Faizal Ahmad Fauzi
E-mail: faizal1@mmu.edu.my

Ir Yau Chau Fong
E-mail: chaufong78@yahoo.com

Artwork & Design

United Mission Press Sdn Bhd
No. 15 & 17, Jalan BS 9/10, Perindustrian BS 9,
Taman Perindustrian Bukit Serdang,
43300 Sri Kembangan, Selangor Darul Ehsan.
Tel: +603-8953 8836 Fax: +603-8958 0837

Printer

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No. 15 & 17, Jalan BS 9/10, Perindustrian BS 9,
Taman Perindustrian Bukit Serdang,
43300 Sri Kembangan, Selangor Darul Ehsan.
Tel: +603-8953 8836 Fax: +603-8958 0837

From The Editor's Desk



Our world has been taken by storm due to the COVID-19 pandemic. Malaysia is not an exception and we are now unfortunately under the Movement Control Order (MCO) since 18 March 2020.

We are not sure how the New Normal will play out but it is most likely to affect the way we live and do business - that's for sure.

Obviously, all the usual events involving our Association and members, are drastically affected. Our TEEAM President and his Team are pro-actively engaged with our Government, and have led meetings referring to the financial rescue plans. As you are well aware of, important information had been posted via the internet to members, as these information become available, especially so in regards to the Standard Operating Procedures (SOPs) involving the easing of the Movement Control Order (MCO).

This frightening worldwide pandemic will restrict travel between countries and thus greatly impact many people and businesses worldwide. The real impact will be known later on but currently, some businesses are severely impacted, even to the point of closing down for good. The much-awaited Government financial aid will address some of the arising problems but the real extent of damages has yet to be ascertained and seen.

We do sincerely hope that all TEEAM Members will be able to endure this adverse effects of this great disaster and come back stronger than ever before to take their businesses from strength to strength. In the meantime, be ALWAYS SAFE and together with everyone in the world, please do your bit to help to combat COVID-19.

Regards,

Ir Chew Shee Fuee, KMN
Editor
Suara TEEAM



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All smiles – Trade Mission from TEEAM at the ELECRAMA 2020 Welcome Reception.

ELECRAMA 2020, India

The Power-Packed ELECRAMA 2020 event majestically returned with its 14th edition which was successfully held from 18 - 22 January 2020 at the India Expo Mart, Greater Noida, India. Organised by the India Electrical & Electronics Manufacturers' Association (IEEMA), ELECRAMA is of great importance to the power sector in India. Year 2020 marked the completion of 30 successful years of ELECRAMA, which makes it more special for IEEMA.

ELECRAMA is the flagship showcase of the Indian Electrical Industry eco-system and the largest congregation of power sector eco-system in the said geography. The ELECRAMA 2020 event brought together the complete spectrum of solutions that powers the planet, from source to socket and everything in between. Featuring not only equipment and technology, but also peerless thought leadership platforms for everything electric - from technical conclaves to industry summits, this was a must-attend event. ELECRAMA 2020 pro-actively expanded from showcasing the traditional power transmission and distribution domains to cover the complete electricity eco-system – generation, transmission, distribution, power electronics, renewable energy, electro-

mobility, automation, power storage, Internet of Things (IoT) and Artificial Intelligence (AI).

ELECRAMA 2020 recorded a whopping 300,000 footfalls from 120 countries besides India, and saw 1,250-odd exhibitors eagerly showcasing their products and services at the biggest showcase of electrical and electronics manufacturers covering a total gross area of 110,000 sqm.

An eager 15-member Trade Mission organised by TEEAM and led by its Past President Mr

Suresh Kumar Gorasia, participated in the ChangXchange 2020 Programme which was a Reverse Buyer-Seller Meet (RBSM) held concurrently during ELECRAMA 2020. Five members from the Electrical Association of Sarawak & Sabah (EASS) headed by its Chairman, Mr Hii Hua Chuon, joined the mission too to explore the lucrative Indian market. It was a highly fruitful and enriching experience for TEEAM's mission members. TEEAM wishes to record its great appreciation and sincere thanks to IEEMA for the wonderful arrangements and warm hospitality as always.



Opening Ceremony – Inauguration of ELECRAMA 2020 by distinguished VIPs.



For the album – TEEAM Mission Members at the fairground.



Thank you – (left) Mr Suresh Kumar Gorasia (Past President) presenting a token of appreciation to Mr Anil Saboo (ELECRAMA 2020 Organising Chairman) for hosting TEEAM's Mission Members. Looking on are (far right) Mr Sunil Mishra (IEEMA Director General), (left) Mr Lee Boon Kuan of ELCO and Mr Subramaniam Karuppan of Datmel Technology.



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TEEAM Mission Members @ ChangXchange 2020 Programme, a Reverse Buyer-Seller Meet held concurrently during ELECRAMA 2020, India



TEEAM's CSR Activity

As a way of giving back to society, TEEAM participated in The Star's Kuntum Sponsorship Programme, to distribute sponsored copies of the Kuntum Magazine to the hardworking and brave front liners in fighting the COVID-19 pandemic, mainly those from the Ministry of Health, the Police Force and the Military. Through this CSR programme, it is hoped that the magazine could reach out to as many of their children as possible, and bring cheer and joy to them. This is one of the Corporate Social Responsibility

activities of TEEAM as a gesture of thanks to the front liners.

About four decades since Kuntum was first published in 1980, this monthly children's educational magazine had comprised various sections covering what is trending in the world of social media, books and cinemas. The magazine shares much-needed information and provides educational reading materials in an entertaining context. It helps to cultivate a healthy reading habit amongst children and also helps to improve their knowledge.





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IEEMA-TEEAM Virtual Meeting

On 18 June 2020, TEEAM had a Virtual Meeting via the Zoom Platform with the India Electrical & Electronics Manufacturers' Association (IEEMA) which aimed to explore mutually beneficial business opportunities for IEEMA and TEEAM membership.

IEEMA is an Apex Industry Association of the Indian electrical equipment, industrial electronics and allied equipment manufacturers which represents a combined turnover of USD42 billion. It is the first ISO-certified industry association in India, with 800-odd member organisations that represents businesses encompassing the complete value chain in generation, transmission and distribution equipment in India. IEEMA members have contributed to more than 90% of the power equipment installed in India.

Both parties shared the impact of COVID-19 on the country's economy and members' businesses. It is hoped that Governments' measures can help to overcome the gridlock situation. It has been very challenging for businesses amidst the on-going market uncertainties.

In view of the current COVID-19 pandemic where travel and physical events are



Fruitful Meet – Virtual Meeting with IEEMA via Zoom Platform.

restricted, Virtual Platform Connectivity is the way forward now. IEEMA is exploring future Virtual Exhibitions and Online B2B Meetings. TEEAM will continue to extend support to IEEMA's activities, particularly the bi-ennial ELECRAMA Exhibition. Virtual Platforms will be the new era of global connectivity and are here to stay.

It was a highly fruitful discussion for both parties. IEEMA was represented by

Mr Sunil Mistra (Director General), Ms Reema Shrivastava (Director), Mr Ninad Ranade (Director) and Mr Amit K Gupta (Director). Attendees from TEEAM were Ir Chang Yew Cheong (Deputy President), Ir Kok Yen Kwan (Vice President), Mr Lee Peng Sian (Honorary Secretary), Mr Chris Yow (Professional Development & Events Chairman), Mr Suresh Kumar Gorasia (Past President) and Ms Winnie Khong (Executive Secretary).



Webinar on Employment Issues and Legal Considerations

TEEAM organised a Webinar on 'Prihatin I & II Stimulus - Briefing on Employment Issues, Legal Considerations & Suggestions' on 14 April 2020. The Guest Speaker was Mr Brent Yap Hon Yean, Advocate & Solicitor, Co-Founder Partner of Viknesh & Yap, based in Kuala Lumpur. Mr Brent Yap is also currently serving as the Legal Advisor of TEEAM.

The COVID-19 pandemic has rapidly changed how we live and work. It has created a lot of uncertainties to businesses including having impacted employment during the Movement Control Order (MCO). During this 1-hour long webinar, Mr Brent Yap spoke on the relevant laws and regulations that apply during the MCO and went on to address various concerns related to employment. He further discussed the various steps that businesses could take to deal with the negative effects of COVID-19 and the MCO, on employment in Malaysia. Some of the important incentives which were available were also highlighted to the participants. The



BRENT YAP HON YEAN,
Advocate & Solicitor,
Co-Founder Partner of

VIKNESH & YAP
ADVOCATES & SOLICITORS

Contact: brentyap@vikheshyap.com
Firm : www.vikheshyap.com

A blue rectangular graphic with rounded corners. At the top left is the TEEAM logo. To its right, the text reads: 'Date : 14 April 2020 (Tuesday)', 'Time: 2:30pm-3:30pm', and 'Language : English'. Below this is a horizontal line. Underneath the line, the text reads: 'PRIHATIN I + II Stimulus : Briefing on Employment Issues, Legal Considerations & Suggestions'. At the bottom center is the Zoom logo.

valuable Session was moderated by Mr Simon Leong, former TEEAM Vice President.

The Webinar successfully drew a good crowd of 79 online participants.

Mr Brent Yap can be contacted at his e-mail address (brentyap@vikheshyap.com) for any further legal enquiries.





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MITI-Industry Meeting

TEEAM attended a MITI-Industry Meeting on 28 April 2020 which discussed industry sectors' operations during the Movement Control Order (MCO). Technical issues related to the CIMS2.0 application system and post-MCO economic recovery measures were discussed.

At the meeting, the MySejahtera app was highlighted. MySejahtera is an application developed by the Government to assist in managing the COVID-19 outbreak in the country. It allows users to perform health self-assessments on themselves and their



Panelist – MITI-Industry Meeting.

families. The users can also monitor their health progress throughout the COVID-19 outbreak. In addition to that, MySejahtera enables the Ministry of Health (MOH) to monitor users' health conditions and take immediate actions in providing the necessary treatments required. The App also helps individuals to identify COVID-19 hotspots in housing areas and workplaces. TEEAM strongly urged members to support this Government's noble initiative. Members are

encouraged to download and register for MySejahtera.

The meeting observed strict health guidelines where all attendees wore face masks, 1-m distance apart, and hands sanitising. The meeting was attended by 36 Industry Associations/Chambers. TEEAM was represented by Mr Siew Choon Thye (President) and Mr Simon Leong (Former Vice President).



MITI Engagement Session with Industry on Proposed COVID-19 Temporary Measures Act

On 3 June 2020, the Ministry of International Trade & Industry (MITI) organised an Engagement Session with industry to discuss a proposal for COVID-19 Temporary Measures Act. The Session aimed to mitigate potential negative impacts to economic activities caused by contractual breaches affected by the COVID-19 pandemic and the Movement Control Order (MCO). This proposed Bill will provide relief from certain contractual obligations and financial distress for the revival of the economy.

MITI informed that the Ministry had received 281 proposals regarding the proposed

COVID-19 Bill from various industries who raised issues and expressed their concerns. Some 130 industries and professional services

sectors attended the Session. TEEAM President, Mr Siew Choon Thye attended the Session.



Proposed COVID-19 Bill – Engagement Session in progress.



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TEEAM Media Statements

TEEAM had issued four Media Statements during the various stages of Movement Control Order (MCO) due to the COVID-19 Pandemic.

30 March 2020

RM 250 billion stimulus package

TEEAM lauded the Government initiative to assist the Rakyat via the announced RM 250 billion stimulus package. The MCO initiated by the Government has an adverse impact on the Electrical and Electronics (E&E) industry. Coupled with the bearish economy, our members are experiencing an unprecedented challenge to continue to provide mission critical services and to support the country's E&E supply chain. It is expected that most of the E&E companies will be experiencing cash flow problems, lost productivity and extreme economic duress. We fear that if the situation persists, millions of E&E jobs could be at stake.

Having sought opinions and feedbacks from our members, we believe that the Government has to urgently attend to the huge losses of income experienced by the E&E industry, which actually is the backbone of the country's economy and a major source of employment for the Rakyat. We strongly urge the Government to consider the following points:

- 1) Formulation of an **additional stimulus package** that will provide swift and direct assistance to the E&E industry, especially the Small and Medium Enterprises (SMEs). The SMEs are struggling to survive, having to close down their businesses during the MCO imposed by the Government since 18 March 2020.
- 2) As Malaysia aspires to be a fully-developed nation in the near future, it is perhaps timely that we can model the **Salary Assistance Plan** of nations such as Australia, Canada, and the United Kingdom where businesses affected by the MCO are assisted with the payment of 80% of the wages for all employees, for at least 3 months, claimable during the MCO period. This would both prevent the winding up of E&E companies and loss of jobs among the Rakyat employed in this critical sector.
- 3) The Government needs to provide special **Express Loan Scheme** on an immediate basis to pay salaries and wages. E&E companies who can provide proof to banks of their payroll for the past six months to be given an immediate interest-free loan for an amount equivalent to 12 months of payroll to ensure the continuity of the employment for at least a year. The Government has

to provide guarantee to circumvent the assessment of credit risks, but which have to be based on the proof of payroll to the banks. The loan is strictly to pay salaries and wages to the employees and credited directly to the employees' bank accounts.

- 4) We would also hope that **EPF and SOCSO could be exempted for 6 months** for the employer. This is to ensure sufficient cash flows are restored following the losses after the MCO for the survival of the E&E companies.
- 5) The Government should seriously consider the postponement of all outstanding **tax payments** to LHDN (Income Tax), Customs, and Local Councils for a year, and income tax exemption for this year's income, should situation become worse. We also make a plea to the Government to reduce the tax payable for next year and also to immediately cease forcing the penalty on the forecasted profit vs actual profit under this unforeseen circumstances in order to lessen the financial burden of the E&E industry.
- 6) As for loans, we hope that the Government would enhance accessibility to the E&E industry, provide up to 60% **guarantees to warrant faster loan approvals**, and to reduce the interest rates to 1% or lower with adequate repayment periods.

The Government has to save the E&E industry and businesses because direct disbursement of cash to individual Rakyat can only sustain their lives for a short period of time, but supporting the E&E industry and businesses will provide a long term sustainable and continuous ecosystem of jobs to the Rakyat and keep food on the table for them. The Government needs to provide crucial assistance to the E&E companies to ensure the highly critical E&E sector will be able to ride through the pandemic and in turn further assist the Government in providing sustainable, longer-term economic solutions to all our fellow Malaysians.

9 April 2020

Enhanced Prihatin Package

TEEAM welcomed and lauded the caring Government for the additional allocation under the RM10 Billion Enhanced Prihatin Package as timely. This package has certainly increased the number of companies receiving Government aid. The enhanced wage subsidy, which now has more groupings, provides better relief for more E&E SMEs and micro enterprises, and gives them more breathing space although bigger E&E companies with larger workforces may still struggle.

1) 50% Reduction in Revenue/Sales for Wage Subsidy

TEEAM is of the opinion that some conditions for E&E companies to meet the requirements to claim the wage subsidies may be difficult. It would ease the burden of civil servants having to vet through applications of companies should the condition of a 50% reduction in revenue/sales is removed in order to qualify for the wage subsidy. Medium and large E&E companies form an important part of our supply chain in our E&E business environment, and hereafter, should not be ignored. Hence, these medium and large E&E companies should not be tied down under the 50% or more reduction in revenue/sales condition too.

2) Special Relief Funds (SRF)

TEEAM also recommends that no restriction is imposed for foreign SMEs to access Special Relief Funds (SRF). This is because foreign SMEs are investors in our country that are providing jobs and income to our locals. This would likewise encourage more foreign direct investments (FDIs) with the support given. An additional reduction in the interest rates for the RM5 billion SRF from 3.5% to 1.5%, besides lowering lending conditions and cutting bureaucratic red tape on documents required, would be a great relief to businesses.

3) Extend Moratorium to Leases

In addition to those, TEEAM looks forward to the extension of the moratorium to leases for our E&E enterprises to be able to meet the short-term cash flows for the continuity and survival of the businesses.

4) E&E Manufacturers to be Allowed to Operate before MCO is Lifted

Lastly, TEEAM would recommend that licensed E&E manufacturers be allowed to operate before the MCO is lifted to help smoothen shortage or delay in the supply chain when the MCO is fully lifted.

TEEAM also wishes that this is not a one-off package for the business community and that reviews with feedbacks be carried out now and then as this will aid the E&E industry that our economy is dependent on as part of the ecosystem. TEEAM will, in our best effort, always step out to save the economy by keeping jobs and to be in the front line to keep supply (and demand) robust. Notwithstanding, this would be another testing time for our E&E industry, and also a chance for us to do our needful part.



Mr Siew Choon Thye
TEEAM President



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12 May 2020

Stimulation of Economy Post-MCO, Rebuild and Restart Malaysia's Economy

Revival of Malaysia's economy is vital as the MCO since 18 March 2020 has affected majority of companies with fall in revenue up to 90%, cash flow issues and more severely to face shut down. With this unprecedented situation, various economists have reported and Government agencies have also highlighted that the world is going into recession and Malaysia's GDP growth is forecast at -2.5% for 2020. This will result in more than 2.4 million job losses. As of March 2020, more than 600,000 unemployment was recorded by the Department of Statistics Malaysia (DOSM). The Government has introduced many forms of monetary assistance as well as aid policies for companies and the people to cushion the impact of this MCO.

TEEAM is of the view that to bring the economy back to its heyday is for the Government to strongly promote **Buy Made in Malaysia Products** as well as **Engineering Services**. The Ministry of Finance (MOF) has a policy in place based on the Ministry's circular **PK1 "Punca Kuasa, Prinsip dan Dasar Perolehan Kerajaan"** effective from 15 January 2020. The Government should lead by example and enforce all Government Agencies and Government-linked companies to promote "Buy Local First" policy. The chain effect is tremendous when the local industries and private sectors are also promoting the same. By doing so, Malaysia's economy is able to revive more speedily and return back on track in the shortest period of time. This helps to increase the local industries' productivities and exports which will surely benefit the economy in the long term.

TEEAM as a Trade Association for the Electrical and Electronics Industries strongly promotes **"Buy Local Products and Services"**.

19 June 2020

Buy Malaysia Campaign to Boost and Energise Malaysia's Economy

TEEAM welcomed and expressed its gratitude to the Government for launching the RM35 billion Short-Term Economic Recovery Plan (PENJANA). This package is certainly a well-balanced package whereby the Government had introduced various recovery plans to propel businesses and boost the local economy.

However, we believe that the RM2 billion **Special Relief Fund (SRF)** allocation is limited and noticeably slow in disbursement to many SMEs. With almost all of the economic sectors being now opened in Recovery Movement Control Order (RMCO), many SMEs are still struggling to sustain due to the dire lack of cash flow. Thus, we strongly urge the Government to increase the SRF allocation amount and to turbo-speed disbursement which is very crucial for business survival and sustainability.

TEEAM sincerely lauds the Government's **Buy Malaysia Campaign** initiative to encourage buying locally-made products and engaging local services. Additionally, we urge the Government to provide tax exemption such as fully waive the sales and services tax, as added incentives for all E&E products and services. This would further enhance and positively increase the sales of "Buatan Malaysia" products and services, thus encouraging more importers to localise their manufacturing plants and boost direct investment. Consequently, the trade deficit will also be drastically reduced. To further enhance the use of local products and services in all Government, GLC and private sector procurements, the "Punca Kuasa, Prinsip dan Dasar Perolehan Kerajaan" PK.1 circular issued by MOF should be further enhanced and strengthened for effective implementation and also to boost the "Buy Malaysia" Campaign's success.

There are many **non-compliant electrical products** in the Malaysian market which are

not certified and are also not in compliance with the stringent Malaysian standard. This could be due to importation from countries having low-quality standards and which offer cheaper prices. This posed grave dangers to the users and also translates into a great loss for the country when lives are put in jeopardy. This problem can be effectively controlled, reduced or eliminated by using local production and services.

The world at large has been bewildered by the COVID-19 pandemic whereby the impact on global economy is now at an alarming stage. The Malaysian economy was also badly affected whereby a recent survey predicted the economic growth to be -2.0 percent in 2020 with trade deficit in April 2020. COVID-19 seriously fractured and totally **disrupted supply chains** whereby many local factories had to fly in emergency supplies from abroad in order to complete the production of essential products and services during this emergency. We must therefore learn our lessons well from this and do everything we can to re-establish Malaysia's local production capabilities of these essential parts and henceforth protect our local manufacturing. We must be fully ready with supply chain self-sustenance measures to prevent future disasters. Incidentally, these pro-active corrective and preventive action plans and policies can also help to create more local champions and contribute to world-class innovations.

Based on statistics from the Department of Statistics Malaysia, our **unemployment rate spiked to 5.0 percent** as the unemployed persons went up 48.8 percent as compared to a year ago to 778,800 persons for April 2020. The closure of operations for most businesses during MCO has impacted loss of employment and jobseekers could hardly find jobs. Undoubtedly, our Government is very supportive by introducing various funding packages for the upskilling of the jobless and young Malaysians. As the "Buy Malaysia" Campaign is emphasising and prioritising on local products and services, the time is ripe now for a good push for the growth of our local manufacturing sector and also to help reduce further retrenchments.



PENJANA – Short-term Economic Recovery Plan

On 5 June 2020, Malaysia's Prime Minister YAB Tan Sri Dato' Haji Muhyiddin bin Haji Muhammad Yassin announced 40 initiatives worth RM35 billion under PENJANA, a short-term economic recovery plan effective June to December 2020 to stimulate business and economy recovery.

TEEAM lauds our pro-active Government

initiatives in introducing a comprehensive economic recovery package which focuses on three key thrusts - empower people, propel businesses and stimulate the economy. A copy of the Booklet which outlines the initiatives of PENJANA (Pelan Jana Semula Ekonomi Negara - or National Economic Recovery Plan) can be downloaded from our TEEAM website at: www.teeam.org.my

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	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM	kg/m	kg/lft		MINIMUM	MAXIMUM							
in	mm	in	mm	in	mm	in	mm	in	mm							
¾	18.76	0.7387	19.05	0.7500	1.52	0.060	1.53	0.064	0.713	0.217	0.479	16	12.70	0.5000	14.29	0.5625
1	25.11	0.9887	25.40	1.0000	1.52	0.060	1.63	0.064	0.972	0.296	0.653	16	15.88	0.6250	17.46	0.6875
1¼	31.46	1.2387	31.75	1.2500	1.52	0.060	1.63	0.064	1.240	0.376	0.830	16	17.46	0.6875	19.05	0.7500
1½	37.80	1.4880	38.10	1.5000	1.73	0.068	1.83	0.072	1.680	0.511	1.130	14	19.05	0.7500	20.64	0.8125
2	50.50	1.9880	50.80	2.0000	1.93	0.076	2.03	0.080	2.510	0.765	1.690	14	22.23	0.8750	23.81	0.9375

MS 275 / BS 4568 CLASS 3 (SCREWED) / MANUFACTURER'S STANDARD

NOMINAL SIZE	OUTER DIAMETER		WALL THICKNESS	CALCULATED WEIGHT WITH COUPLER		PITCH	LENGTH OF THREADS	
	MINIMUM	MAXIMUM		MINIMUM	MAXIMUM		MINIMUM	MAXIMUM
mm	mm	mm	mm	kg/m	kg/m	mm	mm	mm
20	19.7	20.0	1.6 ± 0.15	0.643	0.783	1.5	13	15
25	24.6	25.0	1.6 ± 0.15	0.811	0.995	1.5	16	18
32	31.6	32.0	1.6 ± 0.15	1.069	1.301	1.5	18	20

MS IEC 61386-1 / MS 61386-21 Conduit Systems for Cable Management.

NOMINAL SIZE	OUTER DIAMETER		INSIDE DIAMETER		EXTERNAL THREAD LENGTHS
	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM	
mm	mm	mm	mm	mm	mm
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25	24.6	25.0	21.1	21.1	17.0

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Webinar on Business Sustainability

TEEAM, in collaboration with our Trading Member Schneider Electric Malaysia Sdn Bhd, organised a Webinar on Business Sustainability for the Electrical and Electronics (E&E) Industries on the afternoon of 27 April 2020 through the Microsoft Teams Webinar platform. The Webinar was part of TEEAM's EVOLVE Knowledge Series aimed at enriching members with the latest knowledge and technologies within the E&E industry.

The highly informative Webinar, which drew an attendance of 79 online participants, was organised by TEEAM's Vice-President of Engineering Construction & Services Group – Ir Kok Yen Kwan, and aimed to address some of the most pertinent issues affecting TEEAM's members post-COVID19 global pandemic and the subsequent Movement Control Order (MCO) which has inadvertently wreaked havoc on the country's economy including adversely impacting the E&E industries.

Three distinguished panellists from differing sectors and expertise were invited to share their respective thoughts on recovery mechanisms post-pandemic:

- Mr Eric Yong, Secretary General of Master Builders Association Malaysia (MBAM) and the Group Managing Director of Crest Builder Holdings Berhad
- Ms Lee Yoke Shan, Associate of Messrs Chee Hoe & Associates
- Mr John Chin, Services Operational Marketing Manager of Schneider Electric Malaysia Sdn Bhd

Amongst some of the most salient points discussed during the enlightening Webinar,

Mr Eric Yong highlighted the various opportunities and challenges in the building and construction industry; and on the overall unsettling impact the pandemic has had on the Malaysian economy – which was estimated by MBAM to be approximately RM11 billions of losses per month for the industry and its related downstream industries.

Ms Lee Yoke Shan then took over the session and enlightened the participants on the issues faced by both employers and employees during the pandemic period, such as salary reductions, retrenchments, unpaid leaves, etc. She further provided viable solutions from the human resources' point of view, for everyone's considerations moving forward and post-pandemic; and stressed on the importance of sincere and transparent communications between employers and employees in the current difficult

situation. Government incentives such as the PERKESO Wage Subsidy Programme, cutting non-essential expenditures and reducing operational costs are some of the options that can be considered.

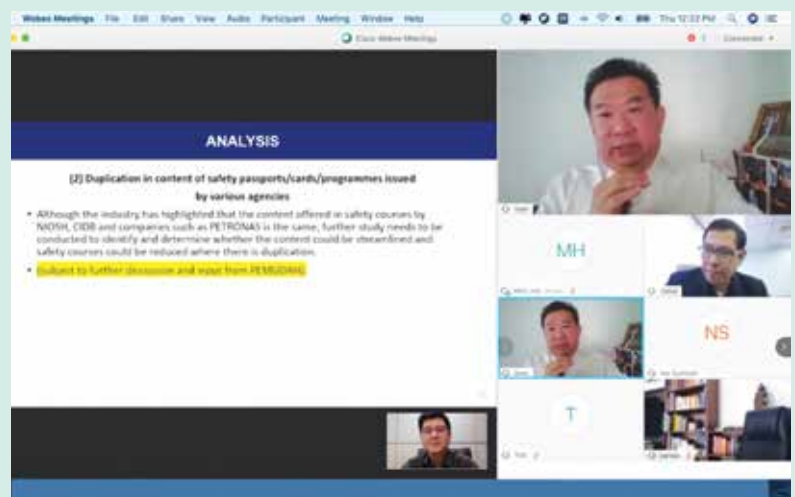
Last but not least, Mr John Chin shared his experiences on the importance of maintenance and operational procedures, which are especially crucial for manufacturing businesses re-starting post-pandemic, as downtime caused by breakdowns can be significantly reduced with the proper practice of maintenance – utilising both skilled personnel and advancement of technologies. According to Mr John Chin, studies have shown that good maintenance practice can mitigate approximately 89% of equipment failure.

The Webinar ended with a lively Q&A Session moderated by Ir Kok Yen Kwan.



PEMUDAH – Private Sector Meeting No. 10/2020

The Special Task Force to Facilitate Business (PEMUDAH) - Private Sector Meeting No. 10/2020 was held on 18 June 2020 via Cisco Webex video conferencing. During the meeting, TEEAM together with the Malaysia Mobile Crane Owners Association (MMCOA), under the Malaysia Productivity Corporation (MPC) - Machinery & Equipment Productivity Nexus (MEPN) Work Group (WG) 4, brought up the issue and challenge of too many safety passports to the attention of PEMUDAH. Safety passports are issued by the National Institute of Occupational Safety and Health (NIOSH). MPC-MEPN WG4 made a presentation on the need of 'Streamlining Safety Passports for Effectiveness' during the meeting. Mr Lee Peng Sian, TEEAM Honorary Secretary together with Ns Nik Syafiqah of ZICO Law, did the presentation. The issue will be further pursued with PEMUDAH.



Interactive discussion – PEMUDAH-Private Sector Meeting via Webex Video Conferencing.

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MATRADE-TEEAM Virtual Meeting

TEEAM had a successful Virtual Meeting via the Webex Platform with the Malaysia External Trade Development Corporation (MATRADE) on 20 April 2020. MATRADE hopes to engage more with industry to assist and facilitate Malaysian exporters to more efficiently and effectively market their products and services abroad.

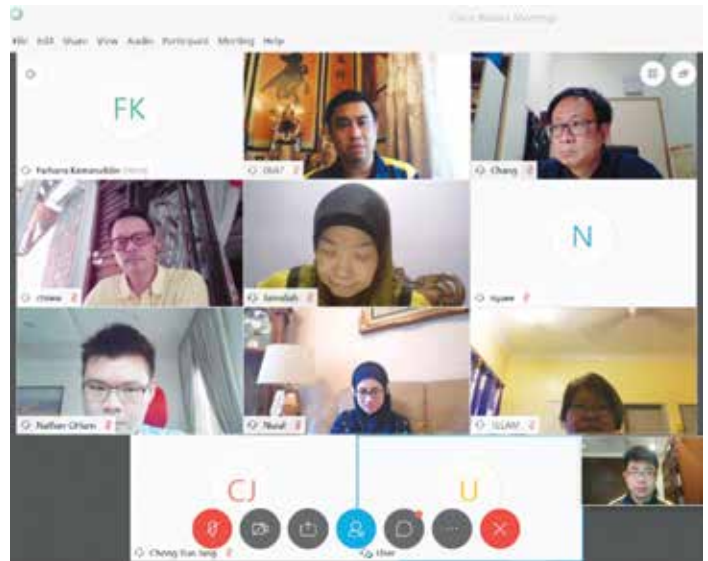
TEEAM shared with MATRADE that the impact of COVID-19 on the Electrical & Electronics (E&E) industry is severe, particularly the manufacturers involving export-oriented businesses, as orders cannot be fulfilled on time due to the Movement Control Order (MCO) restrictions and very stringent Standard Operating Procedures (SOPs) being enforced to combat COVID-19. MATRADE enlightened that the Government was undertaking pro-active and responsive measures to balance the people's health and well-being, and also ensuring the stability of the economy including mitigating the loss of jobs. The Government will be allowing more business sectors to operate soon and in full capacity. This good news comes as a very big relief to TEEAM Members who are under duress vis-à-vis their struggling businesses.

COVID-19 has severely dampened business activities all across the world with travel limitations being put into place across markets, amongst others. Hence, TEEAM believes that MATRADE's e-platform (electronic platform) can play a much bigger

role in facilitating business-matching across the globe. Virtual Platform Connectivity is the way forward now and Virtual Exhibitions will be the new era to explore.

MATRADE has been leveraging on digital platforms during the MCO period with almost 300 virtual B2B meetings being organised between Malaysian exporters and international buyers. Additionally, MATRADE has disseminated almost 360 trade leads via its myExport online service. A number of Webinars are currently being planned by MATRADE to pro-actively help businesses to face the challenging times ahead. MATRADE is seeking feedback from TEEAM Members on exhibitions and markets to explore, under MATRADE's Export Acceleration Mission, a programme where activities involved are business meetings and market briefings.

MATRADE Officers present included Ms Jamaliah Jamaludin, Mr Damian Santosh



Interactive meeting with MATRADE – Virtual Meeting with MATRADE via the Webex Platform.

Samson, Mr Chong Yu Jang, Ms Nyae Ayub, Ms Farhana Kamaruddin, and Tengku Nural. Attendees from TEEAM were Mr Siew Choon Thye (President), Ir Chang Yew Cheong (Deputy President), Mr Simon Leong (Former Vice President), Mr Lee Peng Sian (Honorary Secretary), Mr Lim Sai Seong (Honorary Treasurer), Mr Nathan Chiam (Media, Publication & Emerging Technology Chairman) and Ms Winnie Khong (Executive Secretary). Overall, it was a very fruitful business-enhancing virtual discussion.



MATRADE MDG Virtual Events 2020



MATRADE has introduced Market Development Grant (MDG) for online export promotions (virtual events) in view of the COVID-19 Pandemic. For this purpose, Virtual Event is a web platform in virtual venue to enable interaction with business people and entities through the use of live interaction tools. The interactive features will be displayed on devices such as smart phones, tablets and laptops or desktops. Virtual events expenses claimable under MDG include exhibitions and business-to-business (B2B) meetings that are related to the promotion of Malaysian products and services globally.

Salient Features of MATRADE's MDG Virtual Events:

- * Empower participants to engage amongst themselves via virtual platforms
- * Engage prospects with an easy-to-navigate online avenue

- * Amplify engagement with features such as Webinars and Chat Tools
- * Enable potential buyers to learn about products and services via images, videos and documents
- * Analytical report of the event that would include buyer and seller profiles, visitor profile, total sales reported, audience interest analysis, feedback analysis and profile of business meeting.

MDG is an export facilitation in the form of a re-imbursable grant which was introduced in 2002, with the objective to ease Malaysian exporters' core expenses in promoting Malaysian-made products or services globally. The maximum ceiling amount for Malaysian SMEs, Professional Service Providers, Trade and Industry Associations, Chambers of Commerce, Professional Bodies and Co-operatives is RM300,000 per life time. However, all

MDG re-imbursments are subject to the availability of the Government funds.

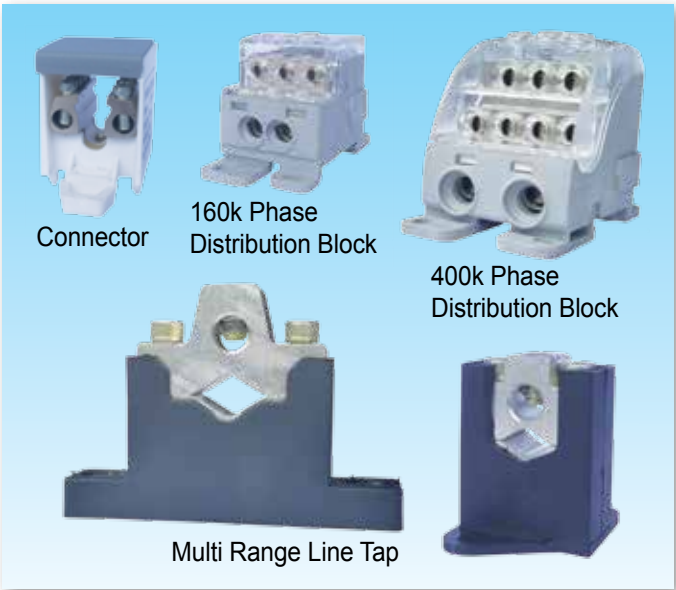
A copy of the Guidelines for MDG Virtual Events 2020, can be downloaded from our TEEAM Website at: www.teeam.org.my This Guideline is applicable for virtual export promotion activities undertaken from 1 July 2020. It is subject to change from time to time.

All enquiries can be sent to:

Market Development Unit (MDG)
8th Floor, East Wing,
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Jalan Sultan Haji Ahmad Shah,
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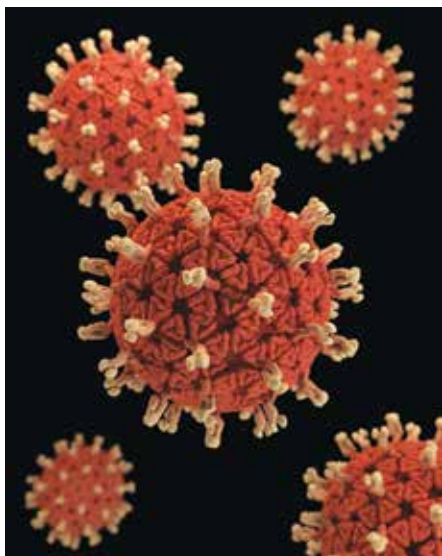


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Digitalisation and COVID-19: Yesterday, Today and Tomorrow

Alex Looi Tink Huey and Ir Dr Siow Chun Lim



Source : Public Health Image Library of the Centres for Disease Control and Prevention.

While most of the world were ushering the year 2020 with rambunctious display of fireworks during the final hours 2019, it was also a significant day which officially signified the beginning of what would arguably become the biggest pandemic ever in the modern history of civilisation. The 2020 New Year's eve was unlike any of its predecessors. A yet-to-be-known cause of pneumonia in Wuhan, China was reported to the World Health Organisation (WHO) [1]. On 5 January 2020, China reported that a cluster of pneumonia cases had been identified. In the next six days, China shared the genetic sequence of the novel coronavirus to the world, which is crucial for other countries to develop essential diagnostic kits. On 13 January 2020, WHO officials confirmed a case of the novel coronavirus outside of China, namely, in Thailand. After 30 days from the first report, WHO declared the 2019-nCoV outbreak a Public Health Emergency of International Concern. On 11 February 2020, the novel coronavirus disease was named COVID-19, and on 11 March 2020, it was characterised as a pandemic. Table 1 illustrates the timeline of the development of the pandemic globally.

As of 30 June 2020, there have been 10,357,662 confirmed COVID-19 cases and 508,055 deaths [2]. South-East Asia alone has 808,906 confirmed cases. Malaysia reported its first confirmed case on 25 January 2020 in Johor [3]. As of 30 June 2020, Malaysia has 8,639 confirmed cases and 121 deaths. To manage the COVID-19 pandemic, the Malaysian Government had initiated the Movement Control Order (MCO), effective on 18 March 2020. The main objective of

Date	Event
31 December 2019	China reported pneumonia case of unknown cause to WHO
5 January 2020	China reported a cluster of pneumonia cases
13 January 2020	Thailand reported the first pneumonia case outside of China
24 January 2020	France reported the first European case
25 January 2020	Malaysia reported its first case
30 January 2020	WHO declared it as a Public Health Emergency of International Concern
11 February 2020	WHO named the new coronavirus disease as COVID-19
11 March 2020	WHO declared COVID-19 as a pandemic

Table 1 : Development of COVID-19 until its declaration as a pandemic

MCO was to increase social distancing to attempt to cut the chain of infections. The order was expected to last for two weeks and end on 31 March 2020. However, on 25 March 2020, the Honourable Prime Minister announced that the MCO would be extended to 14 April 2020 in light of the worrying development of COVID-19. Subsequently, two more announcements were made on 10 April 2020 and 23 April 2020 to extend the MCO until 28 April 2020 and 12 May 2020, respectively.

In areas where clusters of 40 or more were found, the Royal Malaysian Army (ATM) and police personnel immediately locked them down by using barbed wire coils to contain the imminent spread – this was known as the Extended MCO (EMCO). On 3 May 2020, the Government implemented the Conditional Movement Control Order (CMCO) to allow Small and Medium Enterprises (SMEs) to resume their operations and economic activities nationwide. As the situation significantly improved, the Prime Minister, YAB Tan Sri Muhyiddin Yassin, then announced that the CMCO is replaced with the Recovery Movement Control Order (RMCO) beginning 10 June 2020 until 31 August 2020. More restrictions are relaxed as the Government intends to further ease economic activities.

The global battle with the COVID-19 pandemic over the past three months has deeply shaken the global supply chain markets. The global airline industry was forced to implement major cost-cutting measures as people are no longer travelling. Likewise, other non-essential businesses such as construction, automotive, real estate, travel agencies, and retail outlets, were also scathed by this global crisis [4]. Businesses, particularly the SME's and those in the gig economy, are still struggling to remain in

business and stay afloat. To date, this highly devastating “invisible force” has virtually grounded the global economy.

SME's represent 98.5% of the total number of companies in Malaysia. These approximately one million establishments of SMEs in the country have been providing an enormous amount of employment [5]. Out of them, 62% of the SMEs are in the services-related sector. The extensions of the MCO has truly caused a detrimental effect to this sector and ultimately the economy. The Malaysian Investment Development Authority (MIDA) estimated the industrial output to contract between 40% and 70% during the MCO with a projected negative growth of -8.6% in the manufacturing sector [6]. Gross Domestic Product (GDP) losses relative to the projected figures in 2020 have been estimated to fall in the range of RM38 billion and RM102 billion [6]. Operations of non-essential businesses were completely halted during the MCO and it is expected to require at least a 6-12 months recovery period in terms of revenues. To alleviate the serious negative economic impacts of COVID-19, the Malaysian Government has pro-actively introduced a series of Economic Stimulus Packages by injecting RM260 billion to revive the growth of the country's economy and to support businesses, particularly the SMEs.

To break the chain of infection, travel restrictions and ban on mass gatherings were implemented in accordance with the Standard Operating Procedures (SOPs) on Health and Safety Measures Against COVID-19 Pandemic by the Malaysian National Security Council (NSC). There would thus be reduced activities at locations with high proportions of visitors such as in the airports, public transport system, co-working spaces, and shopping malls. The public has been aggressively educated to embrace the new norm.



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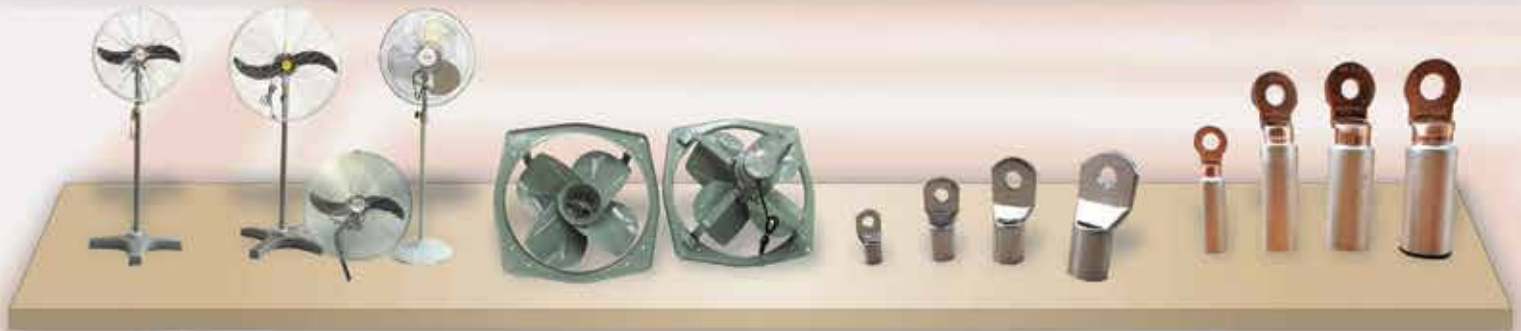
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The pandemic situation has caused unprecedented social and economic implications and has forced many companies to adopt remote working practices to reduce office utilisation rates and travelling to and from work. For employers, their primary concern would be the health and well-being of their employees. Employers are required to provide Personal Protection Equipment (PPE) such as face masks and hand sanitisers to all their employees, as well as carrying out frequent disinfection of premises and temperature screening.

Citibank Inc. [7] installed plastic partitions at work stations, while Morgan Stanley has recalibrated the elevators for faster rides and fewer passengers for social distancing at work. Staffings are limited to 50%-60% capacity, depending on the situation. Face-to-face communications and interactions were to be observed within safe distances. Meetings were limited to half of the room's seating capacity and video conferences have now become a new norm to many companies. Citigroup even considered employing robotic floor cleaners to clean and disinfect their office towers. Most office buildings are required to increase outdoor air ventilation (use caution in highly polluted areas) and to avoid centralised air conditioning.

The unexpected sudden notice of the MCO announcement on 16 March 2020 caught many companies off-guard. Given a day before the MCO kicked in on 18 March 2020, the management of the companies scrambled to plan remote working arrangements to be executed by the employees. With grim expectations on their cash flow status during the MCO period, the companies now have to adopt new strategies to survive by leveraging on the new age of information, where data is the new 'oil'. Conventional ways of conducting business have to be abandoned. Yet, a recent survey revealed that 40% of the respondents were not prepared for remote working [8]. Companies are now slowly realising the dire need of digitalising the business processes to partially cushion the imminent impact of MCO.

So what is digitalisation? According to Forbes, "Digitalisation" is the process of changing from analog information (or paper-based processes) to digital information where computers can store, process, and transmit information [9]. Gartner, Inc. provides a more on-point definition that ties business processes to digitalisation, where "Digitalisation is the process of employing digital technologies and information to transform business operations" [9]. The context "digital technologies" means computers, Information Communications Technology (ICT), and automation whereby people's daily jobs change respectively, shifting work roles and transforming business processes. For example, factory workers are being upgraded to manufacturing supervisors to oversee industrial robots controlled by Artificial Intelligence (AI).

Companies need to be agile and adaptable to the rapidly-evolving global economy and business environment, or otherwise be affected by the financial and economic downturn. Companies should develop and establish corporate responses that focus on preparedness, protection, monitoring and reporting, communication, and policy compliance. Communication has to be timely and effectively co-ordinated with the relevant key stakeholders, employees, and customers. A strong developed crisis response and Business Continuity Plan (BCP) will ensure and enable businesses to efficiently manage incidents to minimise negative impacts, and to ensure the continued delivery of products and services to support the global supply chain. Digital technology is the glue that keeps business operations running in times of uncertainty, and reduces the recovery period once business resumes to normality. Additional examples include:

1. Empower the Human Resource (HR) Team to maintain employees' physical and mental well-being, providing guidance, assurance, and relief to affected employees [10].
2. Empower the Accounting Team to significantly transition towards utilising online banking accounts to facilitate the transfer of funds in lieu of depositing traditional cheques. It was highlighted by PWC that future digital banks can further empower consumers with big data analytics tools and platforms which are supported by machine learning algorithms to assess financial status and information [11].
3. Utilise Cloud-based Accounting System to manage cash flow and working capital, and real-time inventory data and forecasts supplemented with supply and demand predictions. Businesses armed with a luxurious amount of data are expected to achieve better operational performance by harnessing the capabilities in operations, procurements, and Research & Development (R&D) [10].
4. Develop back-up plans for affected employees which may include introducing automation, and remote working arrangements [10]. Intensify the usage of collaboration tools to hold virtual meetings and conference interactions. Ensure employees are equipped with reliable broadband connections. Leverage on cloud-office technologies as part of BCP.
5. Tap into the potential of e-commerce platform to ensure that internal supply chains and delivery mechanisms are able to meet the demand and fulfil customer's requirements with comprehensive end-to-end supply chain management, and advanced forecasting abilities using data analytics [12]. Businesses with full supply-chain transparency with algorithms to detect purchase-pattern changes would be able to mitigate stock-outs during the crisis [13].

6. Digitalise marketing and sales through the e-commerce platform. Businesses now have to be adventurous and daring enough to embrace this 'uprising' and the immense potential of e-commerce platforms.

7. Develop a Cyber Security Risk Management Plan and ensure strict adherence to the execution of this plan. Cultivate the culture of cyber security amongst the employees. Ensure that the Remote Access Systems are securely configured and installed with the latest security patches. Cyber Security experts may also be engaged. Why? Shifting to remote working will significantly multiply cyber security threats as existing processes and good practices may be sidestepped as employees utilise virtual meetings and data sharing tools [14].

The COVID-19 crisis has institutionalised a paradigm shift towards digitalisation among consumers and businesses [15]. Conventional work practices have also changed significantly, as more businesses and Government Agencies are adopting online consultations and digital interactions. Additionally, the deployment of 5G network will significantly catalyse the rapid amplification of digitalisation.

The adoption of digitalisation requires us to overcome not just the technological barriers but also more importantly the human-psychological barriers. This is deeply reflected in the ways in which humans interact and use these technologies. These digital technologies have been increasingly humanised with the maturation of elements such as Virtual Reality and Augmented Reality. Hence, businesses have to increase their digital transformation efforts through a human-centric approach to see through to their successful implementation.

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Mr Alex Looi Tink Huey has two Bachelors' Degrees, one in Electrical & Electronics Engineering and the other in Software Engineering. He is the Head of Projects for Malim Consulting Engineers Sdn Bhd, providing M&E Consultancy Services and Turnkey Project Management for renewable energy power plants, commercial, and industrial developments; and Head of Projects for LAJ Engineering Sdn Bhd, providing electrical service contracting services: electrical installation inspection, T&C of high voltage and low voltage electrical equipment, power system studies, power quality analysis, efficient energy management, and preventive maintenance programme. He is currently the elected Committee Member of the IEM Electrical Engineering Technical Division (EETD) and Chairman of the Activities Organising Committee. He is also an IEC (International Electrotechnical Commission) Young Professional and serves in the IEC SEG 10:



Ethics in Autonomous and Artificial Intelligence Applications Committee. He is a Registered Electrical Energy Manager (REEM) with the Energy Commission, Associate ASEAN Engineer (AAE), and a Certified Infrared Thermographer. He is also a TEEAM Member and can be reached at alex.looi@live.com.my

Ir Dr Siow Chun Lim is currently the elected Secretary and Treasurer of the IEM Electrical Engineering Technical Division (EETD). He is an IEC (International Electrotechnical Commission) Young Professional and serves in the IEC TC 81: Lightning Protection Committee. Professionally, he is a Senior Lecturer at the Faculty of Engineering, Multimedia University (MMU) and is also actively involved in the Lightning Protection Risk Assessment sector. He can be reached at chunlim87@gmail.com



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Malaysian Economic Statistics Review Volume 1/2020

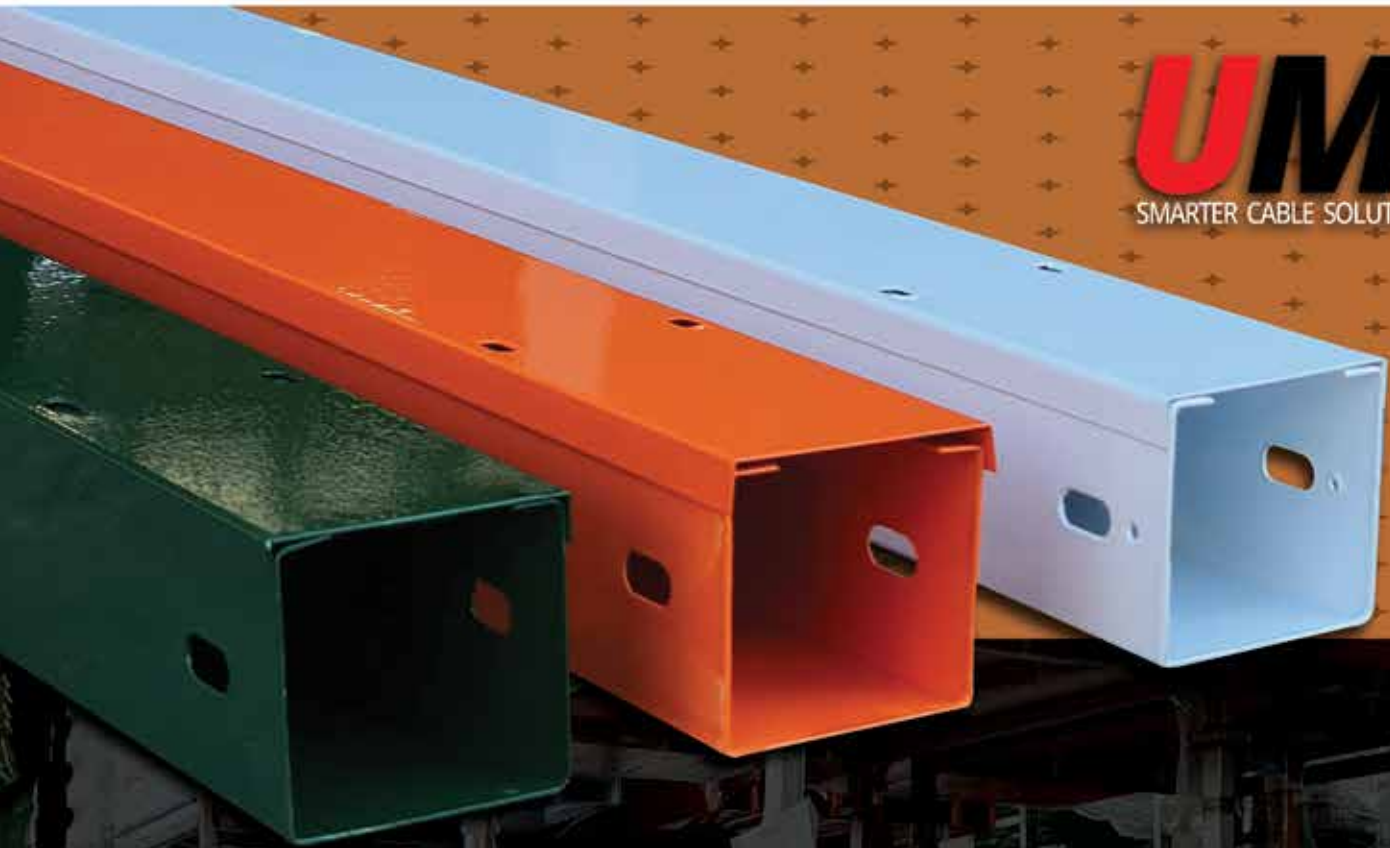
The Department of Statistics, Malaysia (DOSM) released the Malaysian Economic Statistics Review (MESR) Vol. 1/2020 on 29 May 2020 highlighting current economic scenario of businesses and households in facing the challenges as a consequence of COVID-19. This is the very first attempt by DOSM to produce the MESR in providing comprehensive information for the benefit of the stakeholders and Government that enables in expediting strategic policies to handle the economy crisis efficiently by overcoming the challenging environment faced by Malaysians. A copy of the Review can be downloaded from our TEEAM website at: www.teeam.org.my



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MCMEA News – Meeting with CIDB

MCMEA, also known as the Malaysia Council of Mechanical & Electrical Associations, had a meeting with the Chief Executive of Construction Industry Development Board Malaysia (CIDB), Datuk Ir Ahmad ‘Asri Abdul Hamid on 28 February 2020 at the CIDB headquarters. The meeting involved a meaningful discussion on the Retention Sum issue faced by Contractors.

In our current construction industry scenario, one constant issue that is faced by Contractors is the Retention Sum. Retention Sums are monies held by the Employer for the Contractors for specific purposes, such as for payment on the costs incurred by the Employer to rectify defective works or to complete the works left uncompleted by the Contractors. There have been many cases where the Retention Sum was not fairly and successfully distributed back to the Contractors at the end of the Contract. Consequently, several disputes arose due to this crucial matter. Hence, MCMEA would like to initiate the reform of Retention Sum matters in Malaysia.

Datuk Ir Ahmad ‘Asri and his team are supportive of MCMEA’s proposal to have the Retention Sums to be held by Employers on behalf of the Contractors as Trust Monies.

MCMEA will work out the avenues for the reforms to take place and to have further engagements with standard building contract bodies.

MCMEA was founded as a result of collaborative efforts among various Associations aimed to effectively address all mechanical and electrical works-related issues, thus providing one common platform and voice representing the said industries whenever the needs were to arise. The Members of MCMEA are:

- BASAM - Malaysia Building Automation System Association

- MACRA - Malaysian Air-Conditioning & Refrigeration Association
- MALEA – The Malaysian Lift and Escalator Association
- MFPA - Malaysian Fire Protection Association
- PERKEM - Malay and Bumiputra Manufacturers, Suppliers, Contractors of the Electrical, Electronics, Mechanical and ICT Industry Associations of Malaysia
- SKLPA - The Selangor & Kuala Lumpur Plumbing Association
- TEEAM - The Electrical and Electronics Association of Malaysia



Meeting with CIDB – Group photo taken after the meeting.

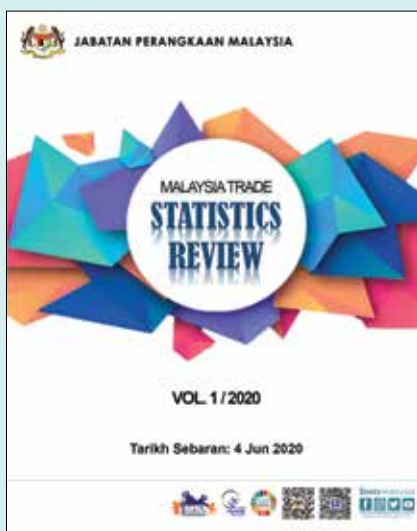


Attentive participants – Meeting in progress.



Engrossed in discussion – Retention Sum issue was deliberated.

[N.B. One of MCMEA’s activities involves conducting meeting with CIDB. TEEAM is a member of MCMEA]



Malaysia Trade Statistics Review Volume 1/2020

The Malaysia Trade Statistics Review Vol 1/2020 has just been released by the Department of Statistics Malaysia (DOSM) on 4 June 2020. It is a DOSM initiative to produce statistics that incorporate several key indicators through different perspectives. This Review provides information on the current scenario of Malaysia’s trade and its relationship with other statistical indicators in the Department.

The Review contains information on Malaysia’s merchandise trade performance, the impact of COVID-19 on Malaysia’s trade, exports of SMEs, major imports of selected consumer goods, exports by State, foreign direct investment performance in Malaysia and trade performance links coupled with other statistics produced by DOSM. A copy of the Review can be downloaded from our TEEAM website at: www.teeam.org.my



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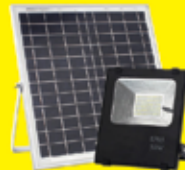
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E-mail: arusjaya48@gmail.com

SB Two Electrical Sdn Bhd (1217570-V)
Lot 2140D, Jalan Welfare, Kg. Baru Sg. Buloh,
47000 Sungai Buloh, Selangor, MALAYSIA.
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E-mail: sbzeletrical@gmail.com

SB Three Electrical Sdn Bhd (1240533-H)
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40150 Shah Alam, Selangor, MALAYSIA.
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E-mail: sb3adm.eletrical@gmail.com

State Associations News



Penang Electrical Merchants' Association

No. 171A, Malacca Street, 10400 Penang.
Tel: +604 - 229 0195 Fax: +604 - 228 4233
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The Perak Electrical Association

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Charity Programme

Following the tremendous success of the previous Charity Programme, and experiencing joy in helping the less fortunate, the Welfare Committee of Penang Electrical Merchants' Association (PEMA), under the stellar stewardship of Mr Lim Kim San, organised another Charity Programme at the Be Home for Special Care, Penang and Pertubuhan Penyayang Chi Yun (Pusat Anak Yatim), Bukit Mertajam, Penang on 8 and 9 February 2020 respectively.

Be Home for Special Care, Penang and Pertubuhan Penyayang Chi Yun (Pusat Anak Yatim), Bukit Mertajam, Penang are non-profit organisations, aimed at helping those that need special care or the handicapped children from poor families. To ensure that both Charity Organisations continue receiving assistance and support, PEMA organised a charity programme to donate food and daily supplies, such as diapers, cotton wool rolls, toilet rolls, Vitamin B and C tablets, Milo, coffee powder and many other essential items.

The Charity Programme was an overwhelming success as PEMA managed to raise a cool RM21,500.00, which exceeded the targeted amount.



At Be Home for Special Care, Penang - PEMA President, Mr Khaw Tatt Siew (centre), PEMA Past President, Dato' Ooi Kok Kee (2nd from right), PEMA Welfare Committee Chairman, Mr Lim Kim San (extreme right), presenting a cheque to Be Home for Special Care, Penang's Organisation Programme Chairman, Mr Jason (extreme left).



At Pertubuhan Penyayang Chi Yun (Pusat Anak Yatim), Bukit Mertajam, Penang - A group photo of the Charity Organisation Officials and the PEMA Delegation led by PEMA President, Mr Khaw Tatt Siew, capped off the event.

Chinese New Year Open House

The Perak Electrical Association (PEA) celebrated Chinese New Year at its premises on 27 January 2020. All PEA Council and Committee Members actively participated in the event together with the members. This event aimed to foster fellowship and exalt the traditions of Chinese New Year. There was a Lion Dance performance to usher the Chinese New Year. It was also a great networking event for members of PEA.

PEA's Chinese New Year Open House Celebrations (2020)





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Chinese New Year Greetings at Sin Chew Daily, Perak

On 17 January 2020, the Committee Members of Persatuan Kekompetenan Penjaga Jentera & Pendawai Elektrik Perak (Perak Electrical Chargemen & Wiremen Competence Association, PKPPE) visited the Sin Chew Daily, Perak Branch. The delegation was led by the PKPPE President, Mr Choong Soon Year. The objective of the visit was to convey Chinese New Year greetings to all the Sin Chew Daily's readers and also to forge closer ties with the Press members. PKPPE expressed its gratitude to Sin Chew Daily for their continuous support to PKPPE.



Gong Xi Fa Cai – (from left) Mr Leong (PKPPE Technical Advisor), Mr Liew (Deputy Manager, Sin Chew Daily Perak), Ms Fong (Operations Manager, Sin Chew Daily Perak), Mr Tan (PKPPE Committee Member), Mr Wong (District Manager, Sin Chew Daily Perak), Mr Choong (PKPPE President), Mr Tan (PKPPE Vice President), Mr Nick Liew (PKPPE Deputy President) and Mr Leong (PKPPE Vice President). All wishing "Smooth Sailing" and "Everything Goes Well in the year of the Rat" to Sin Chew Daily's readers.

PERDA Chinese New Year Dinner

The Perak Electrical & Radio Dealers' Association (PERDA)'s Chinese New Year Dinner took place on 15 February 2020 at Mun Choong Restaurant, Ipoh. Guests were captivated by a grand welcome of the highly impressive Lion and Dragon Dance performance. PERDA Organising Chairman, Mr Tony Toh Chong Soon in his Opening Speech, expressed his gratitude to all guests who attended the Dinner.



PKPPE Vice President, Mr Tan Soo Choy and PKPPE Committee Member, Mr George Tan joined the occasion. The delectable dinner was accompanied by amusing performances arranged by the Organiser.

Good Dinner – PKPPE Vice President Mr Tan Soo Choy (left) and PKPPE Committee Member, Mr George Tan (right) enjoying the delightful atmosphere at the Dinner.



Enjoyable Celebration – Group photo of PERDA Committee Members and Guests.

Food Aid to 20 Needy Families in Times of a Pandemic

The unprecedented outbreak of COVID-19 made many communities face very challenging socio-economic and livelihood consequences, especially the underprivileged amongst us. A concerted and effective response in support of poor and vulnerable households will require significant additional fiscal resources too. In fact, towards this noble end, some JBEEA Committee Members had been constantly in contact with several charity organisations and also actively involved in their praiseworthy activities to help the needy and displaced. Persatuan Kebajikan Amal Orang Miskin approached JBEEA for contributions and to continue the noble cause. Without hesitation, the JBEEA Board agreed to sponsor 2-month grocery supplies to 20 needy families. JBEEA has indeed pulled off a much-needed successful charitable activity during this frightening pandemic period. Congratulations to JBEEA for your kind generosity!



Warm hearts – Generous contributions by JBEEA to the needy families.

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Electrical Association of Sarawak & Sabah

No. 2A/F, 2nd Floor, Hardin Road, 96000 Sibul, Sarawak.
Tel: +6084-319 949 Fax: +6084-325 112, 346 114
E-mail: sibuccci@gmail.com

Visit to ELECRAMA 2020, India

EASS Chairman, Mr Hii Hua Chuon, led a 5-member delegation from the Electrical Association of Sarawak & Sabah (EASS) to visit ELECRAMA 2020 in India from 19-22 January 2020. Besides visiting the power-packed exhibition, the EASS Delegation also participated in the ChangeXchange Programme, which is a Reverse Buyer-Seller Meet (RBSM) for business meetings with Indian suppliers. It was a good and profitable exposure to the Indian Electrical market for the EASS delegates.



Fruitful meet – EASS Chairman, Mr Hii Hua Chuon at RBSM Business Meeting.



EASS Delegation – (from left) Mr Lee Joon Lee, Mr Hii Hua Chuon, Mr Ding Tiing Hoh, Mr Lee Men Chiew and Mr Hii Tuang Hai.

Other State Association Members' contacts:



Sarawak Electrical Association

Lot 412, (2nd Floor), Lorong 11D,
Off Jalan Ang Cheng Ho, 93700 Kuching, Sarawak.
P. O. Box 1494, 93730 Kuching, Sarawak.
Tel: +6082 - 346 188 Fax: +6082 - 345 118
E-mail: sea.kchsarawak@gmail.com



Malacca Electrical Contractors and Traders Association

No. 389-G1, Taman Pringgit Jaya,
Jalan Mata Kuching, 75400 Melaka.
Tel: +606 - 283 8688 Fax: +606 - 781 1466



Negeri Sembilan Electrical Engineering Association

c/o No. 194, Jalan Pantai, 71000 Port Dickson,
Negeri Sembilan Darul Khusus.
Tel: +606-647 1105 Fax: +606-647 4728



Sabah Electrical Association

Lot No. 3-3-R, Beverly Hills Plaza, Jalan Bundusan,
88300 Kota Kinabalu, Sabah.
Tel: +6088 - 712 358 Fax: +6088 - 717 358
E-mail: pes233sabah@gmail. Website: www.pes-sabah.org

Sandakan Electrical Engineering Association, Sabah

Block B-2, Lot No. 25, Bandar Utama,
Batu 6, Jalan Utara, 90000 Sandakan, Sabah.
Tel: +6089 - 666 963 Fax: +6089 - 669 936
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2020 AFEEC-FAPECA Conference & Meeting in Hong Kong

In conjunction with Build4Asia 2020, a Tradeshow for the Building, Electrical Engineering and Security Industries in Hong Kong

The Conference and Meeting of the ASEAN Federation of Electrical Engineering Contractors (AFEEC) and the Federation of Asian Pacific Electrical Contractors Associations (FAPECA) for 2020 will be held from 17 to 19 November 2020 at the Hong Kong Convention and Exhibition Centre. The theme for this year's Conference is "Innovation for the Electrical Contracting Industry". The event will be hosted by the Hong Kong Electrical Contractors Association (HKECA).

The Conference and Meeting will draw participation from national associations including the Association of Indonesia Electrical and Mechanical Contractors (AKLI), Korea Electrical Contractors Association (KECA), Singapore Electrical Contractors and Licensed Electrical

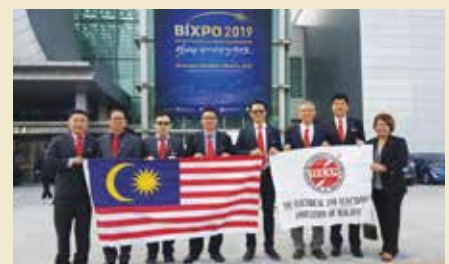
Workers Association (SECA), Society of Philippines Electrical Constructors & Suppliers, Inc (SPECS), Taiwan Electrical Contractors Association (TECA), Thai Electrical & Mechanical Contractors Association (TEMCA), HKECA and TEEAM.

TEEAM will be organising a delegation to attend the above events, and members are invited to participate. This is a good platform to network with M & E contractors from ASEAN and the Asia-Pacific regions. For registration, please contact the TEEAM Secretariat at teeam52@gmail.com.



Itinerary:

- Mon, November 16 : Arrival of Delegates
- Tues, November 17 : Morning - Build4Asia 2020 Opening Ceremony/Tour of Exhibition
Afternoon - AFEEC & FAPECA Conference
Evening - Welcome Dinner
- Wed, November 18 : Morning - Build4Asia Conference
Afternoon - AFEEC & FAPECA Board Meeting, Evening - Farewell Dinner
- Thurs, November 19 : Departure





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CIE Position Statement on Ultraviolet (UV) Radiation to Manage the Risk of COVID-19 Transmission

Introduction

The coronavirus disease (COVID-19) pandemic has accelerated the search for environmental controls to contain or mitigate the spread of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) responsible for the disease. SARS-CoV-2 is usually transmitted from person to person by contact with large respiratory droplets, either directly or by touching virus-contaminated surfaces (also denoted as fomites) and subsequently touching the eyes, nose or mouth. Importantly, there is growing evidence of virus transmission via the airborne route as the large respiratory droplets dry out and form droplet nuclei which can remain airborne for several hours. Depending on the nature of the surface and environmental factors, fomites can remain infectious for several days (van Doremalen, 2020).

The use of germicidal UV radiation (GUV) is an important environmental intervention which can reduce both contact spread and airborne transmission of infectious agents (like bacteria and viruses). GUV within the UV-C range (200 nm–280 nm), primarily 254 nm, has been used successfully and safely for over 70 years. However, GUV must be knowledgeably applied with appropriate attention to dose and safety. Inappropriate GUV application can present human health and safety issues and produce insufficient deactivation of infectious agents. Application in the home is not advisable and GUV should never be used to disinfect the skin, except when clinically justified.

What is GUV?

Ultraviolet radiation is that part of the optical radiation spectrum that has more energy (shorter wavelengths) than visible radiation, which we experience as light. GUV is ultraviolet radiation that is used for germicidal purposes.

Based on the biological impact of ultraviolet radiation on biological materials, the ultraviolet spectrum is divided into regions:

UV-A is defined by CIE as radiation in the wavelength range between 315 nm and 400 nm; UV-B is radiation in the wavelength range between 280 nm and 315 nm; and the UV-C wavelength range is between 100 nm and 280 nm. The UV-C part of the UV spectrum has the highest energy. Whilst it is possible to damage some microorganisms and viruses with most of the ultraviolet radiation spectrum, UV-C is the most effective and hence UV-C is most commonly used as GUV.

The radiant exposure required for the deactivation of an infectious agent by 90 % (in air or on a surface) depends on the environmental conditions (such as relative humidity) and the kind of infectious agent. It typically ranges between 20 J/m² and 200 J/m² for mercury lamps predominantly emitting radiation at 254 nm (CIE, 2003). Previously, GUV of 254 nm has been shown to be effective in disinfecting surfaces contaminated with the Ebola virus (Sagripanti and Lytle, 2011; Jinadatha et al., 2015; Tomas et al., 2015). Other studies have demonstrated the effectiveness of GUV during an influenza outbreak in the Livermore Veterans Hospital (Jordan, 1961). However, despite ongoing research, at present there is no published data on the effectivity of GUV against SARS-CoV-2.

Applying GUV for disinfection

UV-C has been used successfully for water disinfection for many years. Moreover, UV-C disinfection is routinely incorporated into air handling units to manage the build-up of biofilms and to disinfect air (CIE, 2003).

Until the introduction of polymer materials in healthcare settings and the availability of antibiotics and vaccines, UV-C sources were commonly used in several countries to sterilise operating theatres and other rooms overnight. Recently, there has been a resurgence of interest in the use of whole room UV-C exposure devices for healthcare environments intended to disinfect the air and accessible surfaces in the room. Such devices can either be placed in a specific room location for a period of time, or they can be robotic units that

move around the environment to minimise shadow effects. For surface disinfection, in addition to the option to place a UV-C source in the room, it is possible to place a UV-C source close to a surface.

Limited use of UV-C for disinfection of personal protective equipment during pandemics has been explored in some countries (Jinadatha et al., 2015; Nemeth et al., 2020).

There is growing evidence that the use of UV-C as an adjunct to standard manual cleaning in hospitals can be effective in practice, although more specific application guidelines still need to be developed as well as standard testing procedures.

Upper air disinfection UV-C sources are usually mounted above head-height in rooms and operate continuously to disinfect circulating air. Such sources have been successfully deployed to limit the transmission of tuberculosis (Mphahlele, 2015; Escombe et al., 2009; DHHS, 2009). Based on a systematic review of the literature, the World Health Organization (WHO) recommended the use of upper room GUV as a means for tuberculosis infection prevention and control (WHO, 2019).

Some laboratory studies have found that the effectivity of upper-air UV-C disinfection depends on the relative humidity, temperature conditions and air circulation (Ko et al., 2000; Peccia et al., 2001). Escombe et al. (2009) studied upper room GUV in a non-air-conditioned hospital ward in Lima, Peru, and found a marked reduction in the risk of transmission of airborne tuberculosis, despite the high relative humidity of 77 %.

Risks when using UV-C

Most people do not get exposed to UV-C naturally: UV-C from the sun is primarily filtered by the atmosphere, even at high altitudes (Piazena and Häder, 2009). Human exposure to UV-C typically arises from artificial sources. UV-C only penetrates the outermost layers of the skin and hardly reaches

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the basal layer of the epidermis, neither does it penetrate deeper than the surface layer of the cornea of the eye. Exposure of the eye to UV-C can result in photokeratitis, a very painful condition that feels as if sand has been rubbed onto the eye. Photokeratitis symptoms take up to 24 hours after the exposure to develop and require about another 24 hours for them to subside.

When the skin gets exposed to high levels of UV-C, erythema (a skin reddening similar to sunburn) can develop (ISO/CIE, 2019). Usually erythema is less painful than the effect of UV-C on the eyes. However, the UV-C-induced erythema can be misdiagnosed as dermatitis, especially when it is not known that there was a recent UV-C exposure history. There is some evidence that repeated exposure of the skin to UV-C levels that cause erythema may compromise the body's immune system (Gläser et al., 2009).

Ultraviolet radiation is generally considered to be carcinogenic (ISO/CIE, 2016), however, there is no evidence that UV-C alone causes cancer in humans. The Technical Report CIE 187:2010 (CIE, 2010) discusses the question and concludes: "while the UV radiation from low-pressure mercury UVGI lamps has been identified as a potential carcinogen, the relative risk of skin cancer is significantly less than the risk from other sources (such as the sun) to which a worker will be routinely exposed. UV germicidal irradiation can be safely and effectively used for upper-air disinfection without a significant risk of long-term delayed effects such as skin cancer."

Guidance for occupational exposure to UV radiation including UV-C radiation has been provided by the International Commission on Non-Ionizing Radiation Protection (ICNIRP, 2004): UV radiant exposure upon unprotected eyes/skin should not exceed 30 J/m² for radiation of 270 nm, the peak wavelength of the spectral weighting function for actinic UV hazard for skin and eye. As the hazard effect of UV radiation depends on wavelength, the maximum exposure limit for radiation of wavelength 254 nm is 60 J/m². For radiation of 222 nm the maximum (actinic UV hazard) exposure limit is even higher, around 240 J/m². This wavelength has been studied for germicidal purposes in (Buonanno et al., 2017; Welch et al., 2018; Narita et al., 2018; Taylor et al., 2020; Yamano et al., 2020). The preceding (daily) UV exposure limits are given in the IEC/CIE standard for the photobiological safety of products (IEC/CIE, 2006).

Typical UV-C sources often also emit radiation that includes various wavelengths outside the UV-C range. Some UV-C products may additionally emit UV-B or UV-A, and some UV disinfection sources declared as UV-C sources may not even emit UV-C. As the exposure to UV from such products may increase the risk of skin cancer, protective measures have to be taken to minimise this risk. In normal use, UV sources secured

inside ductwork for recirculated air or used for water sterilisation should not present a risk of exposure to people. When working in a UV-irradiated zone, workers shall wear personal protective equipment such as industrial clothing (e.g. heavy fabric), and industrial face protection (e.g. face shields) (ICNIRP, 2010). Full-face respirators (CIE, 2006) and hand protection by disposable gloves (CIE, 2007) are also protective against UV.

Measurement of UV-C

In-situ measurement of UV-C is usually performed using handheld UV-C radiometers. Ideally, any radiometer should be calibrated by a laboratory that is accredited to ISO/IEC 17025 (ISO/IEC, 2015), so that the calibration is traceable to the International System of Units (SI) (BIPM, 2019a; BIPM, 2019b). Moreover, it is important to check the calibration report and apply any correction factors which are contained within the report when using the instrument. The calibration report is usually only valid for the UV-C source used in the calibration; significant errors may result when measuring other source types with the instrument. Most instrument calibrations are typically done using the 254 nm emission line of a low-pressure mercury source. If the calibrated instrument is then used to measure a UV source with a wavelength (range) that is significantly different from 254 nm, this may result in spectral mismatch errors of tens of per cent. Some UV-C radiometers can be calibrated to account for wavelengths other than 254 nm, for example for use with UV LED sources or excimer lamps.

When a UV radiometer is calibrated, it is best practice for the calibration laboratory to ask the user what type of source will be evaluated with the instrument, so that ideally the instrument will be calibrated using a source with a similar spectral composition as the sources to be measured by the user, in order to reduce these spectral mismatch errors. CIE 220:2016 (CIE, 2016) provides guidance for characterisation and calibration of UV radiometers. Further information about the measurement of optical radiation hazards is provided in (ICNIRP/CIE, 1998). At present, CIE and ICNIRP are organising an online tutorial on the measurement of optical radiation and its effects on photobiological systems (CIE/ICNIRP, 2020).

Consumer products

As the present COVID-19 pandemic spreads, many UV-C products promising efficient disinfection of surfaces and air are being put on the market. Specific guidance on the safety of consumer products is the responsibility of international organisations such as the International Electrotechnical Commission (IEC), and is not provided by CIE. As such, this Position Statement only covers the wider issue of the safe use and application of UV radiation for germicidal disinfection. Products available to consumers tend to be marketed as handheld devices. CIE is concerned that users

of such devices may be exposed to harmful amounts of UV-C. Moreover, consumers may use/handle UV products inappropriately (and therefore not achieve effective disinfection) or they might be buying products that do not actually emit UV-C.

Summary recommendations

Products that emit UV-C are extremely useful in disinfection of air and surfaces or sterilisation of water. CIE and WHO warn against the use of UV disinfection lamps to disinfect hands or any other area of skin (WHO, 2020), unless clinically justified. UV-C can be very hazardous to humans and animals and therefore can only be used in properly constructed products that meet safety regulations, or in very controlled circumstances where safety is taken into account as the first priority, ensuring that the limits of exposure as specified in ICNIRP (2004) and IEC/CIE (2006) are not exceeded. For proper UV assessment and risk management, appropriate UV measurements are essential.

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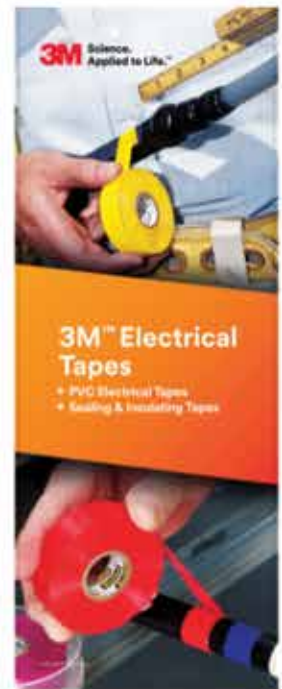
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Challenges and Opportunities in the Electrical Industry – Part 36

Ir Chew Shee Fuee KMN, TEEAM Past President

Asset Expected Life for Transformers and Switchgears

Asset Expected Life can be defined as:

“THE MINIMUM LIFETIME IN YEARS A PRODUCT IS EXPECTED TO OPERATE, IF MAINTAINED IN LINE WITH MANUFACTURER GUIDANCE AND RECOMMENDED MAINTENANCE”

Asset Life Variables - Transformers

1. **Design** - The design intended for the system must be suitable for the installation in order to ensure correct application, thus avoiding factors that will increase or cause damage to the asset.
2. **Loading** - Loading of transformer depends not only on its capacity but also on the ambient temperature of its location. The ventilation of the transformer room is an important consideration. This is even more vulnerable for dry-type transformers. In the event of excessive harmonics in the system, they will cause high temperature in the transformer, thus reducing the life-span of the transformer. Excessive loading on an oil-immersed transformer will cause deterioration of oil, which will eventually reduce the life-span of the transformer.
3. **Condition** - The condition of oil in oil-immersed transformers. Dissolved Gas Analysis (DGA) Oil Analysis will indicate the extent of internal discharges, high temperature, moisture or particle contamination and acidity, which will reduce the quality of oil and cause a rapid reduction of the life-span of the transformer.
4. **System faults** - Short-circuit currents will impact the mechanical integrity of the transformer and the thermal-ageing characteristics of the insulation.
5. **Maintenance** - Inspection, cleaning, tightening of cable connections and oil analysis are to be carried out at regular intervals.

Asset Life Variables - Switchgears

1. **Design** - The design intended for the system must be suitable for the installation in order to ensure correct application, thus avoiding factors that will increase or cause damage to the asset.
2. **Loading** - Equipment should not exceed the maximum current specified on the rating plate, to prevent overheating of the equipment.
3. **Installation** - It is important that the equipment is installed according to the Manufacturers' recommendations, especially so the interface between the switchgear and the cables or busbar.
4. **Environment** - Increased ambient temperature may require the equipment load current to be de-rated to prevent over-heating and damage to the insulation. Equipment placed in areas of high humidity or in coastal areas may need increased surveillance to inspect for increased rate of corrosion, etc.
5. **System faults** - The number of faults on the system can significantly reduce the asset

life of the equipment. When the number of fault operations meets the maximum recommendations by the Manufacturer, the equipment should be replaced.

6. **Maintenance** - Maintenance of the equipment has to be in accordance with Manufacturers' recommendations.
7. **Operator Training** - Proper training must be given to the operators so that they are fully familiar with the equipment, and also to prevent damage through misuse.
8. **Number of Operations** - The number of operations of the equipment will determine the asset life; once this number equals that recommended by the Manufacturer, the equipment should be replaced.

Manufacturers' Recommendations:

European Transformer Lifetimes

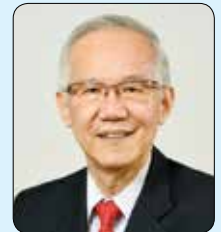
1. Industry Oil - 25 years
2. Industry Dry - 30 years

European Switchgear Lifetime - 30 years

Ir Chew Shee Fuee KMN B Sc (Hons) (Strathclyde), PEng, CEng, FIEM, MIEE Member, IEEE Member, 1st Grade Electrical Engineer (Competent up to 500 kV).

Ir Chew was President of The Electrical and Electronics Association of Malaysia (TEEAM) for 2001-2005 and 2013-2017. He was the President of the ASEAN Federation of Electrical Engineering Contractors (AFEEC) for 2016-2018. He is the Immediate Past Chairman of The Institution of Engineering & Technology (IET) Malaysia Local Network. Ir Chew is the Managing Director of G H Liew Engineering (1990) Sdn Bhd and Chris Chew Electrical Consultant. He graduated from the University of Strathclyde, Glasgow with a B Sc (Hons) in Electrical & Electronics Engineering. He is a Professional Engineer and is also licensed by the Energy Commission as a Competent Engineer (without voltage limits) and a Service Engineer to carry out electrical testing up to a voltage of 500 kV.

Ir Chew has more than 30 years of industry experience in electrical control and relay protection. He is also specialized in electrical site tests on power equipment, electrical fault investigation, service and maintenance of electrical switchgears and relays. His work also includes electrical supervision of sub-stations and electrical audit. He also presents lectures on electrical apparatus and the protection system. He was Vice-Chairman of MyENC (Malaysian Electro-Technical National Committee) and is a Member of Technical Committees (TCs) and Working Groups (WGs) in Standards Development. He can be reached at E-mail: sfchew@ghliew1990.com.



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The Critical Zs, Ze and Re Factors

Ir Fong Chin On

Abstract

There were many reported cases of electrocutions in recent years.

Therefore, we need to investigate the importance of good earthing systems to ensure correct tripping of protective devices.

Relationship between Zs - total earth loop impedance, Ze - external earth loop impedance (utility earth resistance from Transformer up to the consumer Main Switch Board - MSB), and Re - MSB earth electrode resistance.

$$Z_s = Z_e + (R_1 + R_2)$$

Why and how are these impedances so important in our electrical installation protection system?

The earth loop impedances comprising Zs, Ze and Re provide a path for the fault current to flow to earth (general mass) and back to the transformer star neutral point or discharge to ground.

A low earth resistance will ensure the fast discharge of the fault current to ground, thereby tripping the protection devices (either a circuit-breaker or fuse) to protect lives and properties from fire.

The required earth resistance values to activate the Automatic Disconnection of Supply (ADS) in a specific time of 0.1s, 0.2s, 0.4s and 5s to comply with the Standards can be calculated as follows:

$$Z_s (R): U_o/1 \times 1.5$$

$$Z_s (R): U_o/1 \times 2.4$$

$$Z_s (R): U_o/1 \times 3.0$$

$$Z_s (R): U_o/[10\% \times (1.5 \times \text{CTs setting Amps})]$$

and is dependent on the Current Transformers (CTs) setting of the protection relays, the time-current tripping characteristic of the breakers, and the fusing factor of the fuse.

With Residual Current Device (RCD) protection,

$$Z_s (R): 50V/1*n$$

$$1*n \times R < 50V$$

Please take note that the earth resistance of more than 200 ohms will not be stable, hence the earth resistance must be below 200 ohms, preferably below 100 ohms, to achieve the safe effective impedance of

$$Z_{\text{measure}} = Z_{\text{design}} \times 0.8 \text{ factor}$$

In theory, there is not much difference between the measured consumer earth electrode resistance and the earth loop impedance that include the transformer neutral earth resistance.

However, if the utility transformer neutral earth resistance is not good enough, it will affect the earth loop impedance measurement no matter how good the consumer earth resistance.

Similarly, poor consumer earth resistance will also affect the earth loop impedance measurement even though the transformer neutral earth resistance is low.

In our experiment, if the reading of Zs and Re are not the same, then the actual fault current flowing through the circuit should be calculated using the Zs value and not the Re value.

Conclusion

From the above illustration, we can safely conclude that a good earthing system is very essential to protect lives and properties. We can always calculate the required earth impedances and compare the same with the actual site measurements.

Ir Fong Chin On B.Sc Hons (Elec Eng) (UK), PEng, CEng, MIEM, MIET, MACEM, Chartered Engineer & Competent Engineer.



Ir Fong is the Electrical Advisor of PKPPE. He graduated from the University of Portsmouth, England in 1976 with a B Sc (Hons) in Electrical and Electronics Engineering. Upon graduation, Ir Fong worked in factories for a few years before starting his own M&E Consulting Firm in 1983.

He is a Chartered Professional Electrical Engineer with Practising Certificate and a Competent Electrical Engineer licensed by Suruhanjaya Tenaga (Energy Commission). He can be reached at e-mail: fongchinon@yahoo.com



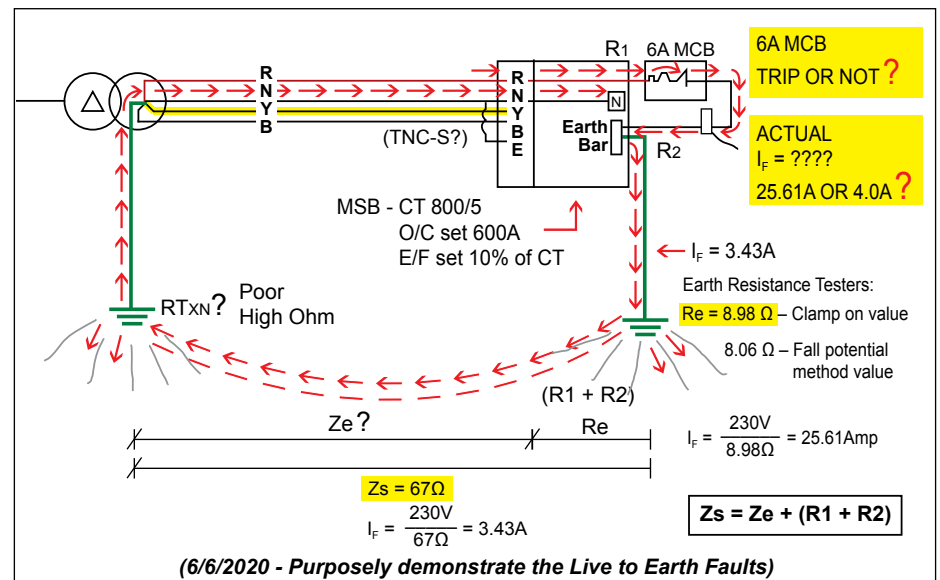
Measuring the earth loop impedance of MSB and transformer star point – reading 67 ohms and fault current 4 amps.



Measuring MSB Re using a clamp – on earth resistance tester.



Measuring Re at Consumer's MSB earth electrode – by Fall Potential Method using earth resistance tester.



Circuit diagram showing the flow of earth fault current in a simulated live shorted to earth condition.



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Machine Intelligence in Digital Pathology: Towards Personalised Medicine for Better Healthcare

Dr Mohammad Faizal

Pathology is a branch of medical science primarily concerning the examination of organs, tissues, and bodily fluids in order to make a diagnosis of disease. It is used extensively in forensic investigations, autopsy, diagnosis, as well as in education and training. Histopathology and cytopathology are two branches of pathology for the diagnosis and study of diseases at the tissue and cellular levels respectively, both involving the examination of tissues and cells under a microscope. Digital pathology is an image-based information environment which is enabled by computer technology that allows for the management of information generated from digital slides. With the advent of whole-slide imaging (Figure 1), the field of digital pathology has gained considerable interests and is currently regarded as one of the most promising avenues of diagnostic medicine in order to achieve even better, faster and cheaper diagnosis, prognosis and prediction of cancer and other important diseases. While imaging tests such as X-rays, Computed Tomography (CT) and Magnetic Resonance Imaging (MRI) are helpful in detecting masses or areas of abnormality, they alone cannot differentiate cancerous cells from non-cancerous cells. For most types of cancer, histopathology remains the 'gold standard' for the diagnosis of cancer.

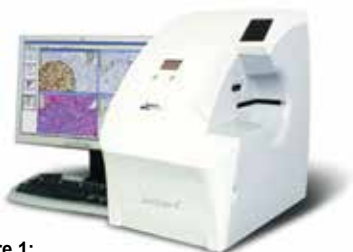


Figure 1:
Whole-slide scanner for scanning glass slides.

Histopathological examination of tissues starts with either surgery, biopsy, or autopsy. These involve removing a piece of tissue or a sample of cells from the body so that it can be analysed in a laboratory. The tissue is placed in a fixative which stabilises the tissues to prevent decay, and is then stained and prepared for viewing under a microscope. Staining is carried out to enhance visualisation of the cell or certain cellular components under a microscope. One of the principal stains in histology as well as the most widely used stain in medical diagnosis is the haematoxylin and eosin (H&E), in which haematoxylin stains cell nuclei blue, and eosin stains cytoplasm, connective tissue and other extra-cellular substances pink or red (Figure 2). Other staining techniques include immunohistochemistry (IHC) and in situ hybridisation (ISH). The glass slides obtained after the fixation and staining processes are then converted into digital slides via whole-slide scanners that can be viewed, managed, and analysed on a computer monitor.

Computer-aided diagnosis (CAD) employs machine learning and computer systems that assist medical professionals in the interpretation of medical images. CAD systems do not aim to replace medical professionals but instead attempt to assist them by providing computer interpretations to enhance confidence in making the final diagnosis. In digital pathology, CAD helps in reducing the diagnosis time (can be several hours for a single case manually), reducing errors and inaccuracies (due to human factors such as tiredness and distractions), and removing sampling bias and subjective interpretations. CAD systems in digital pathology will not only be valuable to doctors and pathologists but will also benefit cancer patients and general population directly. CAD systems are applied to histopathology images in many ways for cancer diagnosis, amongst others to detect and segment Region-of-Interests (ROI) such as mitotic counts, nuclei and stroma characteristics; to classify tissue samples as diseased or normal; to classify between different sub-types of a particular type of cancer; to determine tumor grade; and to score predictive markers in tumor cells. There are also many types of cancers (bone, brain, breast, cervix, colorectal, gastric, kidney, lung, pancreas, prostate gland, skin, etc.), each of which require different diagnostic criteria which machine intelligence can be trained to apply. Additionally, with image resolutions of up to 100,000 pixels by 100,000 pixels, digital pathology lends itself very well in the state-of-the-art deep learning architecture as it can easily handle huge amounts of required training samples consistently.

Of the many CAD applications in digital pathology, perhaps the most interesting is its role in personalised medicine. Personalised medicine is the tailoring of medical treatment to the individual characteristics of each patient. The approach relies on scientific breakthroughs in the understanding of how a person's unique molecular and genetic profile makes them susceptible to certain diseases or amenable to various treatment modalities. Taking breast cancer as an example, a crucial step in the breast cancer treatment algorithm is to test the tumor tissue to determine if it expresses estrogen receptors (ER), and progesterone receptors (PR), and has amplification of human epidermal growth factor receptor 2 (HER2), collectively known as tumor predictive markers. These markers provide key information about how the cancer may behave. Along with tumor grade and cancer stage, the tumor markers status helps determine the best treatment options for breast cancer patients. For example, breast cancers that are ER positive are much more likely to respond to treatment that block estrogen while those that have HER2 amplification are likely

to respond to HER2 inhibitor targeted therapy. The determination of ER, PR and HER2 status is currently a pre-requisite for establishing treatment strategies for breast cancer patients, regardless of disease stage. CAD systems in digital pathology, by reducing examination time, errors and inaccuracies, as well as eliminating bias and inconsistencies, pave the way in this era of personalised medicine. Multimedia University, in collaboration with many national and international pathologists, and funded by several national and international grants, is working on developing algorithms and systems for various cancer types, including a prototype system for breast cancer evaluation and treatment.

Acknowledgement: The author would like to thank all of his collaborators for supporting the past and on-going projects conducted at Multimedia University. Special thanks to Datuk Professor Dr Looi Lai-Meng from University Malaya for her valuable input and suggestions for this article.

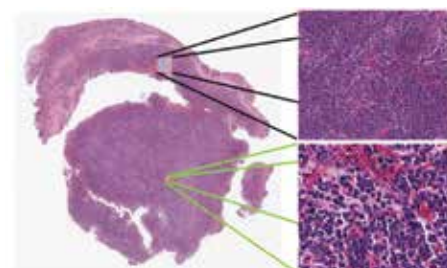


Figure 2 : Digitised slide showing different magnification of two different regions.

Dr Mohammad Faizal Ahmad Fauzi (MIEM, SMIEEE) received the B Eng Degree in Electrical and Electronics Engineering from Imperial College, London, UK in 1999, and the PhD Degree in Electronics and Computer Science from University of Southampton, UK in 2004. He is currently an Associate Professor at the Faculty of Engineering, Multimedia University. His main research interests are in the areas of signal and image processing, pattern recognition, computer vision and biomedical informatics.



He was first exposed to digital pathology, especially on cancer and diseases analysis, during his attachment at the Clinical Image Analysis Lab at the Ohio State University Wexner Medical Center, USA, from May 2013 to June 2014, and again in 2017 (Fulbright Award). He has published more than 80 journal and conference articles to date. Dr Mohammad Faizal is a Senior Member of the Institute of Electrical and Electronics Engineers (IEEE), which he first joined in 2000. He is currently serving as the Chair for IEEE Region 10 Newsletter Committee, Past Chair of the IEEE Malaysia Section as well as the Advisor for the IEEE Signal Processing Malaysia chapter. He can be reached at faizal1@mmu.edu.my

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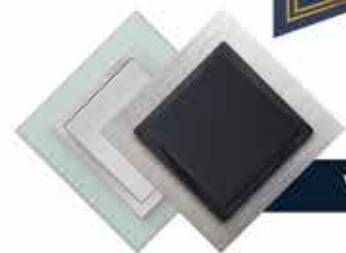
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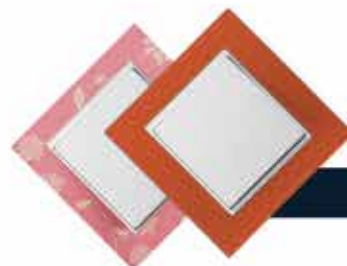
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Aseanising Electrical Engineers

Ir Yau Chau Fong and Mr Low Pek Jun

ASEAN History – The Beginning

Ever since the formation of the Association of South-East Asian Nations (ASEAN) in 1967, ASEAN has vigorously gathered the nations within it to accelerate economic growth and social progress in the region. One of the ASEAN aims is to promote regional collaboration and mutual assistance on matters of common interest. It also serves to provide assistance to each other in the form of training and research facilities, to collaborate for better utilisation of industry, to raise the living standards of the people, to promote Southeast Asian studies and to maintain close, beneficial co-operation with existing international organisations with similar aims and purposes. Thus, looking back at the aims and purposes of ASEAN, the following pertinent questions arise: How far are we in terms of engineering and electrical engineers per, say, in getting together within the ASEAN region in fulfilling those aims? Have ASEAN electrical engineers and industry players collaborated to mutually benefit each other in this field? Have any initiatives been made on it so far? Currently, only two major milestones have been achieved in ASEAN pertaining to the Electrical and Electronics (E&E) sector. They are the ASEAN Sectoral Mutual Recognition Arrangement for Electrical & Electronic Equipment (ASEAN EEE MRA) and The Agreement on ASEAN Harmonised Electrical and Electronic Equipment Regulatory Regime (AHEEERR).

The ASEAN EE MRA provides for recognition of test results and product certifications conducted by listed testing laboratories and certification bodies, respectively, in ASEAN, thereby allowing the products tested and certified in the source country to verify compliance of the products to the importing country's requirements prior to export. This saves costs and reduces time to market an electrical or electronics product without compromising consumer safety and product quality. The Agreement on ASEAN Harmonised Electrical and Electronics Equipment Regulatory Regime (AHEEERR) was signed in December 2005 by the ASEAN Energy Ministers to integrate the electrical and electronics sector in the area of standards and conformity assessment. Under the AHEEERR, the essential requirements for EEE have been defined, including health, safety and electromagnetic compatibility. Common standards are to be used for a particular electrical and electronics product, to accompany common conformity assessment procedures.

Besides the above two milestones which are focused on the equipment, what about the

mobility of electrical engineers and workers? What about the quality of the electrical installation works and safety within the region?

Hence, standardisation of Electrical Installations in ASEAN Standardisation plays an important role to ensure the quality of the electrical installation works and also ensures human safety. Standardisation of the electrical installations also boosts cross-border economic activities. The ASEAN region has a huge potential to be a global economy player with the estimation by World Bank that ASEAN will be the fourth largest economic zone by 2030. With the crafting and effecting of the ASEAN Economic Community (AEC) Blueprint 2025 in December 2015, ASEAN is looking ahead for more cross-border economic activities in the form of trade as well as the mobility of engineers being no exception. One of the main catalysts of enhancement of mobility of engineers is for standardisation to firmly take place in ASEAN. In light of this aspiration and commitment, a feasibility study on low voltage electrical installation regulations and standards amongst ASEAN countries was conducted in 2017.

AEI-EI

The feasibility study is an initiative of the ASEAN Engineers Register (AER) Committee – ASEAN Engineering Inspectorate for Electrical installation (AEI-EI) in buildings carried out and championed by The ASEAN Federation of Engineering Organisations (AFEO) Energy Working Group, led by the Electrical Engineering Technical Division of the Institution of Engineers, Malaysia (IEM EETD). AFEO is a non-governmental body with members comprising the engineering institutions and organisations of ASEAN countries. This Study has two (2) milestones to be achieved in line with objectives of the formation of AFEO itself, which are:

- To promote goodwill and mutual understanding
- To establish and develop an ASEAN baseline standard for the engineering profession with the objective of facilitating the mobility of engineers within the ASEAN countries

In order to achieve the afore-mentioned milestones, a number of immediate and long term objectives have been identified.

The immediate objectives are to:

- a) Review, study and identify the possible gaps in the various ASEAN Countries' Electrical



Feasibility Studies – White Paper for Electrical Installation Standards in Buildings amongst ASEAN Countries.

Installation Standards & Regulations and Application

- b) Update the ASEAN Engineering Inspectorate (AEI) Electrical Installation Guidelines based on inputs from the survey
- c) Facilitate mobility of engineers with knowledge sharing of each country's practices and current applicable Standards and Regulations

The long term objectives are to:

- a) Provide training and certification of electrical engineers and workers as per AEI guidelines
- b) Work in line with the ASEAN initiatives of ASEAN Connectivity 2025 and to initiate an MRA for Electrical Installation Works amongst ASEAN Countries
- c) Work towards the harmonisation of ASEAN Electrical Installation Standards and Regulation

The study was completed two years ago as part of the immediate objectives and was successfully launched as a "White Paper on Electrical Installation Standards & Regulations in Buildings amongst ASEAN Countries" by the then IEC President, Mr James M Shahnon during the Standards Malaysia – Suruhanjaya Tenaga (ST's) ASEAN Electrotechnical Symposium, which was co-organised by Standards Malaysia, ST and IEM in Kuala Lumpur. The Paper is a culmination of an extensive study undertaken by the AEI-EI team to comprehend and identify the possible gaps and differences in the various electrical installation standards and regulations of the 10 ASEAN countries.

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Description	Malaysia	Malaysia (Sarawak)	Brunei	Laos	Myanmar	Cambodia	Singapore	Thailand	Indonesia	Vietnam	Philippines
Electricity Regulations & Electrical Safety Regulations Authority	Energy Commission (ST/EC)	Electrical Inspectorate Unit (EIU), Ministry of Public Utilities Sarawak	Department of Electricity Services (Till 2018) Electricity Authority Brunei Darussalam	The Ministry of Energy and Mines	Electrical Inspection Department, Directorate of Supervision and Inspection, Ministry of Industry	General Department of Energy, Ministry of Mines & Energy	Energy Marketing Authority (EMA)	Energy Regulatory Committee (ERC)	Direktorat Jenderal Ketenagalistrikan (DGE)	Ministry of Construction	Energy Regulatory Commission (ERC)
Standards Writing Authority For Electrical Installation	Department of Standards Malaysia (DSM)	Department of Standards Malaysia (DSM)	Department of Electricity Services	The Ministry of Energy and Mines	Ministry of Construction, implemented by Federation of Myanmar Engineering Societies (Fed. MES)	Ministry of Mines & Energy & Institute of Standards, Cambodia (ISC)	Singapore Standards Council (The Electrical and Electronic Standards Committee)	Engineering Institute of Thailand (EIT) – for engineering standards	Standards Nasional Indonesia (SNI)	Directorate for Standards, Metrology and Quality (STAMEQ)	Institute of Electrical Engineers (IIEE) Philippines
Registration of Electrical Products	Energy Commission (EC)	Electrical Inspectorate Unit (EIU), Ministry of Public Utilities Sarawak	Authority For Building Construction Industry (ABCI) – Consumer Products Only	The Ministry of Energy and Mines	Electrical Inspection Department, Directorate of Supervision and Inspection, Ministry of Industry	Institute of Standards, Cambodia (ISC)	Enterprise Singapore	Thai Industrial Standards Institute (TISI)	Lembaga Sertifikasi Produk	Ministry of Science and Technology (MOST)	Bureau of Products Standards (BPS)
National Standards on Electrical Installation and Electrical Safety	MS1979, MS1936 & MS IEC 60364	Refer to Malaysian Standards & International Standards	Electricity Installation Regulation 2011	Lao Electric Power Technical Standards	Electricity Law 2014, National Building Code 2016	The Electricity Law Of Kingdom of Cambodia, Electric Power Technical Standards of The Kingdom of Cambodia	SS 638 : 2018, Code of practice for electrical installations	Thai Electricity Code 2013	Electrical Installation Regulation: Penseratan Umum Instalasi Listrik (PUIL) 2011	National Technical Regulation on Electrical Installations of Dwelling and Public Building & National Technical Regulation on Electric Safety	Philippines Electrical Code (PEC)
General Reference Standards	IEC	IEC	IEC/BS	IEC	IEC/India Standards (IS)	IEC/Singapore Standards (SS)	IEC/BS	IEC	IEC	IEC	IEC/NEC

Table 1 : Summary of Electrical Installation Standards Authorities In The ASEAN Region

This is an important milestone in line with the noble vision to harmonise the electrical installation standards in buildings within ASEAN region. The accomplishment of the afore-mentioned harmonisation initiative will then significantly enhance cross-border trade and mobilisation of engineering services within ASEAN. A summary of the tabulation of the White Paper is as per Table 1 for reference purposes.

Upon the completion of the White Paper, the AEI-EI Team then worked on promoting numerous Roadshows throughout ASEAN and Malaysia itself, including promoting the initiatives over the course of the last two years. The AEI-EI Team thus managed to complete more than 30 roadshows around the region and arranged meetings with more than 50 stakeholders including TEEAM. In view of the recent COVID-19 pandemic lockdown and/or curfew, AEI-EI has also embarked on providing its value-added Webinar Series to reach out to ASEAN electrical engineers. To date, we have completed 5 webinars to continue our educational efforts in the ASEAN region. More are in the pipeline.

AEI-EI Blueprint

Based on the survey results and feedback from the stakeholders, the AEI Steering Committee has charted its way forward towards realising the vision of harmonising ASEAN electrical installation standards and regulations in achieving its long term objectives. This concerted effort is in line with the ASEAN initiatives of ASEAN Connectivity Blueprint 2025 and to initiate an MRA for Electrical

Installation Works amongst ASEAN Countries.

The AEI-Electrical Blueprint (2018-2035) has charted the next series of action plans in 3 stages:

- a) Phase One (2018-2020)
- b) Phase Two (2020-2025)
- c) Phase Three (2025-2028)

This crucial Masterplan has been formulated by taking into consideration the feedback drawn upon consultation with the following esteemed organisations:

- a) ASEAN Secretariat
- b) ASEAN Federation of Electrical Engineering Contractors (AFEEC)
- c) IEC & IEC Asia-Pacific Regional Centre
- d) APEC Secretariat
- e) Federation of ASEAN Consulting Engineers (FACE)
- f) ASEAN University Network/Southeast Asia Engineering Education Development Network
- g) CENELEC (European Committee for Electrotechnical Standardisation)

The key beneficiaries of this Masterplan encompass the following within the ASEAN region:

- a) Electrical consulting engineers
- b) Electrical contractors/workers
- c) Electrical product manufacturers
- d) Electrical engineering education
- e) Electrical regulatory authorities

To ensure that the afore-mentioned vision is realised with close engagement with the above said target groups, the following key strategies and initiatives have been duly identified:

- a) Trade facilitation
- b) Awareness and promotion
- c) Education
- d) Stakeholders engagement
- e) Utilisation of standards and guidelines
- f) Creation and enhancement of database of all key beneficiaries

Conclusion

AEI-EI has successfully initiated the route to Aseanising The Electrical Engineers and this journey is now just at its beginning stage. Thus, the AEI-EI Blueprint has provided the Master Plan and pathway in realising the ASEAN dream for electrical engineers. Throughout this exciting journey, the involvement and feedback from various stakeholders in the ASEAN region will be the key to the continual success of our mutual efforts and thus providing a new horizon for the electrical engineers in this region.

A note of thanks:

AEI-EI would like to thank TEEAM for their earlier engagement on these subjects and for taking part in the stakeholders' engagement as well as connecting AEI-EI with TEEAM's State Associations and AFEEC, and its Member Associations.







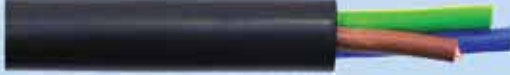








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Group photo – AEI-EI Steering Committee Meeting held in Jakarta 2019.



In Kuala Lumpur – Stakeholders' meeting with TEEAM.



In Jakarta – Meeting with ASEAN Secretariat.



Group photo – Launching of White Paper for Electrical Installation Standards in Buildings amongst ASEAN Countries in Kuala Lumpur 2018.



For the album – Meeting with APEC Secretariat in Singapore.



In Ipoh – Stakeholders' meeting with PKPPE.

Ir Yau Chau Fong has a total of 19 years working experience mainly in a large and reputable Consultant Firm. He has established his own M&E consultancy practice, Duriane Professionals Sdn Bhd 7 years ago. His exposure includes mainly large scale Electrical System design for various types of buildings, plants & aviation industries, RE plants & data centres. His experiences include design, implementation and contracting for Electrical Building Services of various types of buildings from specialised buildings such as large scale solar farms, infrastructure development & data centres to highrise buildings, both locally and overseas.



Ir Yau has and is still playing an extensively active role in the The Institution of Engineers, Malaysia, the primary organisation encompassing the professionals in engineering in Malaysia. He has been involved in IEM since 2001, was the past Chair of Young Engineers Section and served in IEM Excomm and Council and currently chairs the AEI-EI (ASEAN Engineering Inspectorate – Electrical Installation) Steering

Committee at the AFEO (ASEAN Federation of Engineering Organisation) level. He was also the Past Chairman of the IEM Electrical Engineering Technical Division, and currently still serving in the various Technical Committees in SIRIM/DSM and also at IEC International Level serving in TC64 and IEC New Revenue Generation Committee. He is also the current President of the UM Engineering Alumni Association. He can be reached at chauyong78@yahoo.com

Mr Low Pek Jun received his education, Bachelor Degree in Telecommunication from Multimedia University, Malaysia in 2013 and Bachelor Degree in Electrical from Tenaga University in 2015. He completed his Master Degree in Electrical Energy Management in 2019. He is currently working with NTT Inc, as the Data Centre Senior Engineer where he is responsible for the facilities management as well as project management in the data centres.



Mr Low joined the Institution of Engineers, Malaysia in May 2015 and currently is serving

as Committee Member of the Electrical Engineering Technical Division (EETD). He is the current chairperson for the Electronics & Telecommunication Working Group for EETD where he is responsible for the organising learning activities for the Continues Professional Development for the Electrical Engineers in Malaysia. He started to be involved in the standards writing organisation when he joined the International Electrotechnical Committee for Malaysia National Mirror Committee TC64 (Electrical Installations and Protection against Electric Shock) in 2015. He is also part of the Malaysia National Mirror Committee TC20 (Electric Cables).

He becomes part of the Committee for the ASEAN Federation Engineering Organisations' Energy Working Group in 2015 where he acts as record keepers of the list of energy experts in ASEAN. He is actively involving in the ASEAN Engineering Inspectorate (Electrical Installation) as Founder/Honorary Secretary cum Treasurer Position where he assists to develop a guideline for Low Voltage Electrical Installation for the harmonisation of standards in ASEAN. He can be reached at edylowpekjun@yahoo.com

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Overview of Biogas Systems, Utilisation and Prospects of Biogas Development in Malaysia

Alex Looi Tink Huey

Biogas is defined as a gas produced by the bacterial breakdown of organic matter or feedstock by anaerobic microbes (methanogens) in the absence of oxygen. It is categorised as a clean Renewable Energy (RE) source produced biologically through anaerobic digestion consisting of 50-70% methane (CH₄), 30-50% Carbon Dioxide (CO₂) and traces of other contaminants such as siloxanes, volatile organic compounds and Hydrogen Sulphide (H₂S) (depending on the source of the feedstock) [1]. The natural course for biogas includes buried organic matter, wet soils, aquatic sediment, etc. Human activities create additional sources including Municipal Solid Waste (MSW) landfills, wastewater ponding systems, digesters at water resource recovery facilities (wastewater treatment), livestock farms, food production facilities, etc.

The important contributions of biogas capturing and utilisation to environmental sustainability are:

- (i) CO₂ neutral [1], as the CO₂ released by combustion of biogas was previously removed from the atmosphere during the generation of biomass through photosynthesis.
- (ii) Capture of biogas also improves climate change and significantly reduces emissions of greenhouse gas, CH₄, which has far more damaging effects (25 times) [2] on the climate than CO₂.

Anaerobic Digestion Process

Biogas can be produced either by mesophilic anaerobic digestion (35-40°C) or thermophilic anaerobic digestion (48-57°C) [3]. Thermophilic process has a faster throughput with faster biogas production per unit feedstock [4]. However, this process requires higher capital expenditure and more energy and control required for heating. Biogas anaerobic digestion involves the complex interaction of various microorganisms and takes place in four (4) separate phases: hydrolysis, acidogenesis, acetogenesis, and methanogenesis [5] as shown in Figure 1.

Typically, the anaerobic digestion process starts with the organic matter or feedstock where large contents of carbohydrates, cellulose, proteins and fats are broken down into simple sugars, amino acids and fatty acids [5]. Then, soluble monomers are further converted into volatile fatty acids. The products of acidogenesis subsequently break down into acetic acid, releasing Hydrogen and CO₂. The last phase which involves methanogens then produce CH₄ by cleaving two (2) acetic acid molecules to form CH₄ and CO₂.

Biogas Production Technologies

Loh et al. [6] indicated that anaerobic digestion can be designed and engineered in

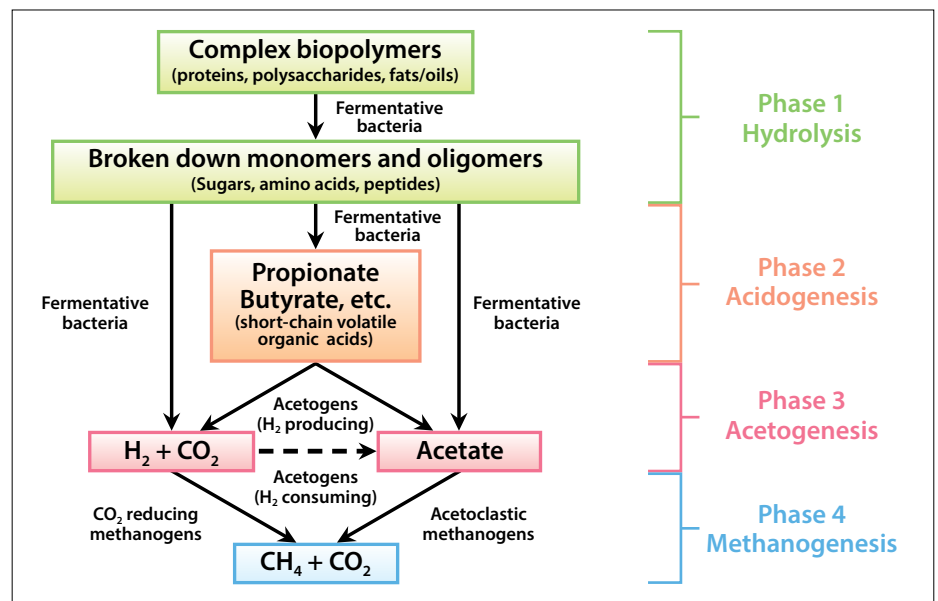


Figure 1: Anaerobic Digestion Process [Source: MEEEMS Module B7 – Anaerobic Digestion]

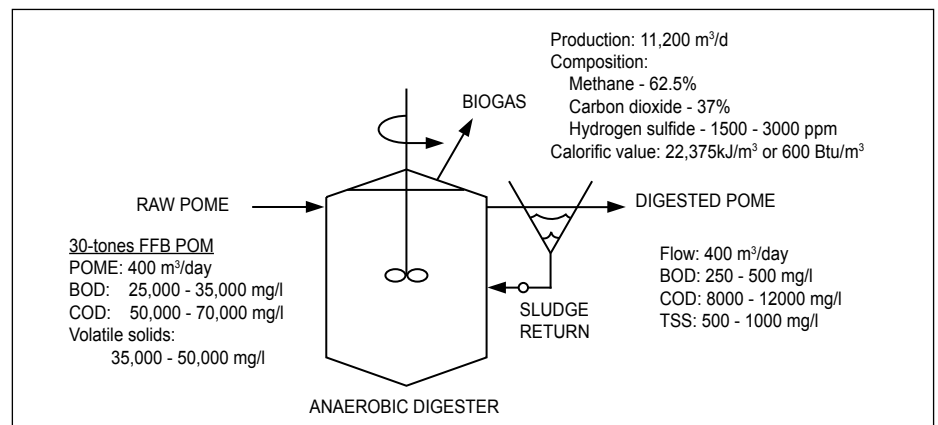


Figure 2 : CSTR. [Source: Design Specification of the CSTR Anaerobic Digester of Keck Seng]

a closed-tank anaerobic digester system, or in a covered lagoon digester. The commonly used biogas production technologies are the Continuous Stirred-Tank Reactor (CSTR), the Up-Flow Anaerobic Sludge Blanket (UASB), and the Dry-Fermentation process.

The CSTR system is typically made of mild steel digester tanks with size and capacity in the range of 3,000 to 4,500m³. Other alternative materials may include glass-fused-to-steel digester tank with double membrane gas holder installed on the roof. The covered lagoon digester system is equipped with gas-tight covers called geomembranes with internal mixing mechanisms. It has lower capital and operational expenditure compared with the closed-tank digester system.

The dry-fermentation biogas-based process is also known as the percolation process. The primary focus of this method is to digest dissolvable organics. This process is stackable and has no flowing of solid rich biomass without any pre-processing. Such process

allows simple plant setup with low capital and operational costs.

Biogas Development in Malaysia, Challenges & Opportunities

Malaysia is known as the second largest palm oil producer in the world with 446 palm oil mills (as of March 2020) [7] and has huge potential for RE generation from Palm Oil Mill Effluent (POME). Malaysia has the potential to generate over 500MW of RE from biogas alone [8]. The biogas development in Malaysia is driven primarily by biogas capture from POME and landfills. POME is a wastewater generated by the milling process of Crude Palm Oil (CPO) which has a high soluble organic content, and Biochemical Oxygen Demand/Chemical Oxygen Demand (BOD/COD) > 0.45 [6]; thus making it an excellent feedstock for biogas production. Sanitary landfills from MSW can also capture significant amount of biogas due to the enormous amount of MSW being generated daily.

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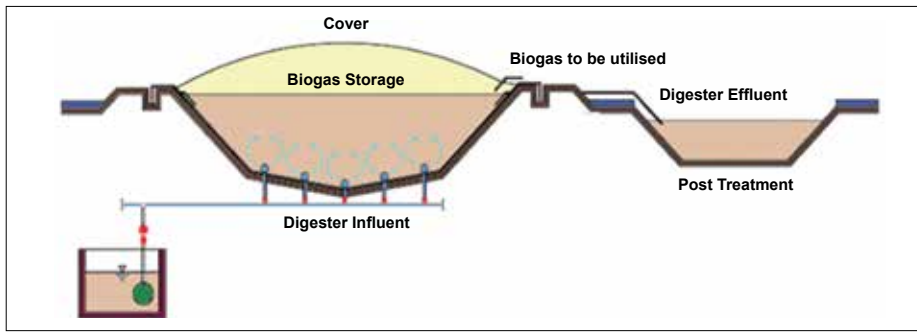


Figure 3 : Covered Lagoon Digester. [Source: Green Energy Network].

Malaysia currently has 69.45MW installed biogas capacity of commissioned RE installations under the FiT mechanism, with an additional 96.94MW approved and awaiting FiT commencement [9]. Introduced in 2011, FiT is one of the key drivers for biogas development where electricity generated from biogas fed into the utility grid gets a guaranteed tariff from the Government and is funded via a 1.6% levy on electricity bills. In 2018, the e-bidding mechanism for biogas was introduced to optimise the utilisation rate of the RE fund, and at the same time, making the market more competitive. Project owners and developers of RE would also stand to receive tax benefits such as exemption from income tax, Investment Tax Allowance (ITA), and import and sales tax exemptions. Green Technology Financing Scheme (GTFS), and technology acquisition grants provide the necessary financial support to fund RE projects.

On the other hand, although the resources for biogas and biomass are abundant, the right mechanisms for production and incentives need to be put in place to drive the growth in this sector. Grid connectivity is one of the barriers of biogas development. Most palm oil mills are situated in remote areas and are not always connected to the grid or having low electricity demand in its surrounding rural areas. This translates to the inability to tap into the FiT scheme or having to fork out high investment costs to build the grid infrastructure.

The application of biogas has many advantages aside from combustion in biogas engines for electrical power generation to meet localised use such as rural electrification or connecting

to the utility power grid. Other applications include co-combustion in biomass boiler to generate steam, Combined Heat and Power (CHP) system, absorption chilling, and many more. Biogas can be further upgraded into natural gas quality known as Bio-Compressed Natural Gas (Bio-CNG). The raw biogas captured is treated using a combined biological and chemical process to reduce H₂S and CO₂ levels, and further enriching the CH₄ content to more than 94% [10]. The Bio-CNG is then compressed and stored to be dispensed to compressed natural gas trailers for distribution and utilisation (virtual pipeline) or injecting into the gas grid. However, lack of regulatory support and financial incentives for non-electricity utilisation of biogas hampers development work.

Challenges such as risks perceived by the private sector; utility power grid infrastructure (introducing smart microgrids and centralised networks); capacity building (training of competent personnel); diversifying feedstocks to include manure, food waste, sewage, and other agricultural residues such as rubber, rice, sugar cane, etc.; financial institutions; national guidelines and standards can be further developed to support this. Regulations and policies can be further strengthened to accelerate renewable energy advancement and development. Malaysia's focus on renewable energy requires a well co-ordinated and concerted action from all relevant stakeholders and Government Agencies to tackle the long-term environmental impacts of coal-fired power generation, increasing Greenhouse Gases (GHGs) emissions and the detrimental effects of climate change.

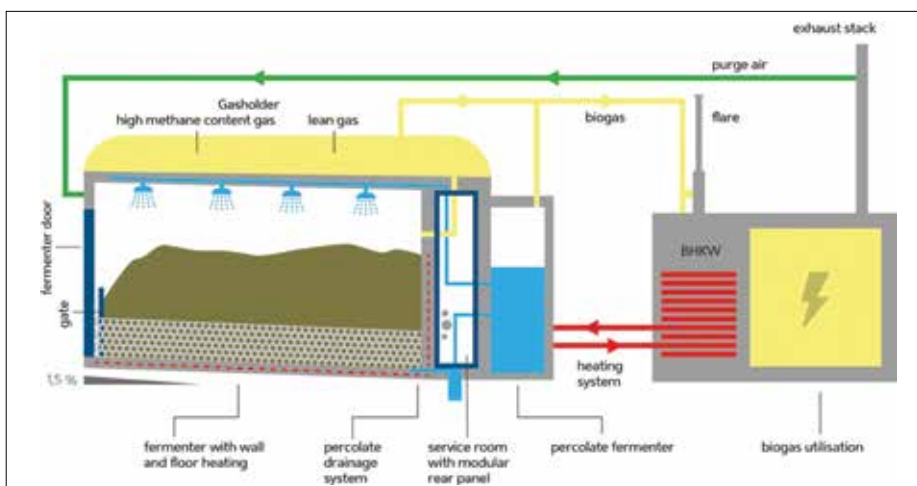


Figure 4 : Dry-Fermentation Technology. [Source: Bekon Technology]

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Mr Alex Looi Tink Huey

has two Bachelors' Degrees - in Electrical & Electronics Engineering and Software Engineering. He is the Head of Projects for Malim Consulting Engineers Sdn Bhd providing M&E Consultancy Services and Turnkey Project Management for renewable energy power plants, commercial, and industrial developments; and Head of Projects for LAJ Engineering Sdn Bhd providing Electrical Service Contracting Services: electrical installation inspection, T&C of high voltage and low voltage electrical equipment, power system studies, power quality analysis, efficient energy management, and preventive maintenance programme. He is currently the elected Committee Member of the IEM Electrical Engineering Technical Division (EETD) and Chairman of the Activities Organising Committee. He is also an IEC (International Electro-technical Commission) Young Professional and serves in the IEC SEG 10: Ethics in Autonomous and Artificial Intelligence Applications Committee. He is a Registered Electrical Energy Manager (REEM) with the Energy Commission, Associate ASEAN Engineer (AAE), and a Certified Infrared Thermographer. He is also a TEEAM Member and can be contacted at alex.looi@live.com.my





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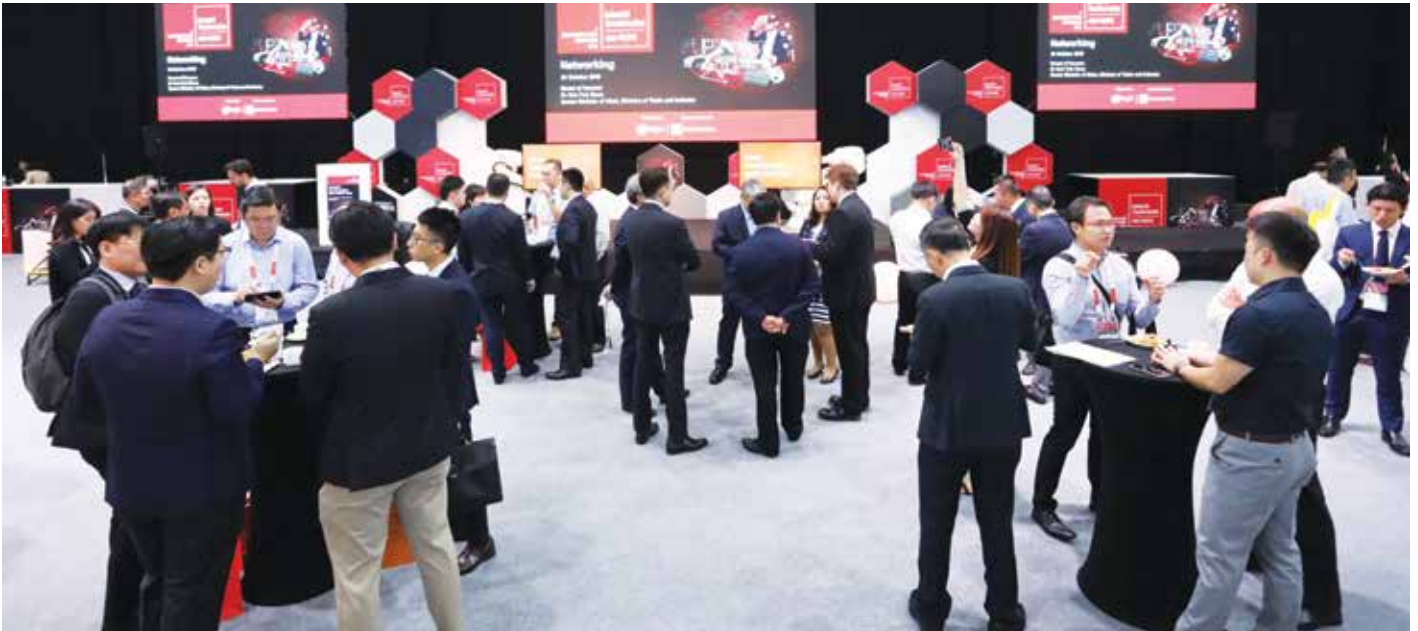
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Overwhelming – Networking event at ITAP 2019.

ITAP 2019 (Industrial Transformation Asia-Pacific)

The second edition of ITAP 2019 (that is, Industrial Transformation Asia-Pacific), was very successfully organised from 22 to 24 October 2019 at the Singapore EXPO. Industrial Transformation Asia-Pacific is a Hannover Messe event that had its inaugural launch in Singapore in 2018. It is Asia-Pacific’s leading trade event for Industry 4.0. Organised by SingEx Exhibitions and International Partner, Deutsche Messe, this grand event in 2019 drew over 350 enterprises from 30 countries. It showcased cutting-edge technologies, demonstrations of applied solutions and innovation in Additive Manufacturing, Digital Factory, Industrial Automation, Intra-Logistics and Integrated Energy. 2019’s immersive experience included the introduction of the Collaboration Lab which offered a perfect Business-Matching opportunity and environment, thus helping SMEs in Asia-Pacific to adopt a bite-sized approach in deploying Industry 4.0

solutions. There was also the new Robotics Experimental Zone with innovative displays, interactive exhibits and demonstrations designed to showcase Robotics usage in various industries.

Members of TEEAM also participated in this grand event where TEEAM was one of the Supporting Organisations. TEEAM President, Mr Siew Choon Thye, was honoured to be invited as a special guest to attend the event. This grand event was truly overwhelming with a whopping 23,000 attendees from 77 countries optimistically attending Industrial Transformation ASIA-PACIFIC 2019. This included representatives from regional Governments, associations and also business delegations from Brunei, Cambodia, China, Hong Kong SAR, Indonesia, Japan, Kazakhstan, Malaysia, Myanmar, New Zealand, the Philippines, the Russian Federation, Thailand and Vietnam. Over

200 qualified participants from Cambodia, India, Indonesia, Malaysia, Myanmar, the Philippines, Sri Lanka, Taiwan, Thailand and Vietnam participated in the Hosted Buyer Programme. Over 1,000 meetings were pre-scheduled via the Business-Matching Platform and 1,100 meetings took place on-site between exhibitors and attendees.

The next ITAP 2020 is scheduled for 20 to 22 October 2020 at the Singapore EXPO. The event brings together an eco-system of manufacturers, Government agencies and businesses, ranging from Multi-National Corporations (MNCs) to Small and Medium Enterprises (SMEs), with a view to help shape and support their transformation initiatives. The customised and curated unique “Learning Journey” in the event is aimed at helping companies “Start, Scale and Sustain” their adoption of Industry 4.0 processes and solutions.



Malaysian Pavilion – MATRADE co-ordinated a Malaysian Pavilion @ ITAP 2019.



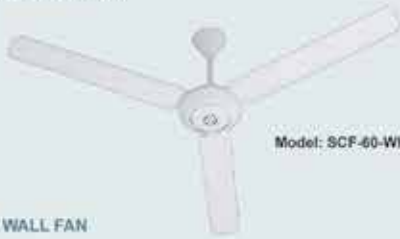
Special Guest – TEEAM President, Mr Siew Choon Thye at ITAP 2019.

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Model : SWF-20-D



Model : SWF-20-DR



Model : SFF-20-D

26" INDUSTRIAL FANS



Model : SSF-26



Model : SWF-26
(WALL MOUNTED)

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<p>Transfer speed</p>	<p>≥ 55ms</p>	<p>Delay adjustable</p>	<p>≤ 20 ms <small>*To CBEMA / ITIC Curve</small></p>	<p>7-50ms</p>

*For Data Centre Application - Parallel Redundancy / E-T1 ≤ 5ms

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- Easy mounting, no torque wrench needed
- Huge time savings compared to exothermic welding
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- Established technique (e.g. French nuclear power plants)
- No environmental hazard



	Standard clamp	Welding	Clamp with tear-off screw
Permanent Connection	—	✓	✓
Mounting time	✓ (60 sec) *	— (60 sec)	✓ (30 sec)
Constant installation quality	✓ *	—	✓
Environment-friendly	✓	—	✓
No specific mounting equipment needed	—	—	✓
No preparation of the connection necessary	✓	—	✓
No welding expert needed	✓	—	✓
No risk for the operator by harmful welding smoke	✓	—	✓
Mounting during rain	✓	—	✓
Corrosion-resistant	✓	✓	✓

* when using a torque wrench

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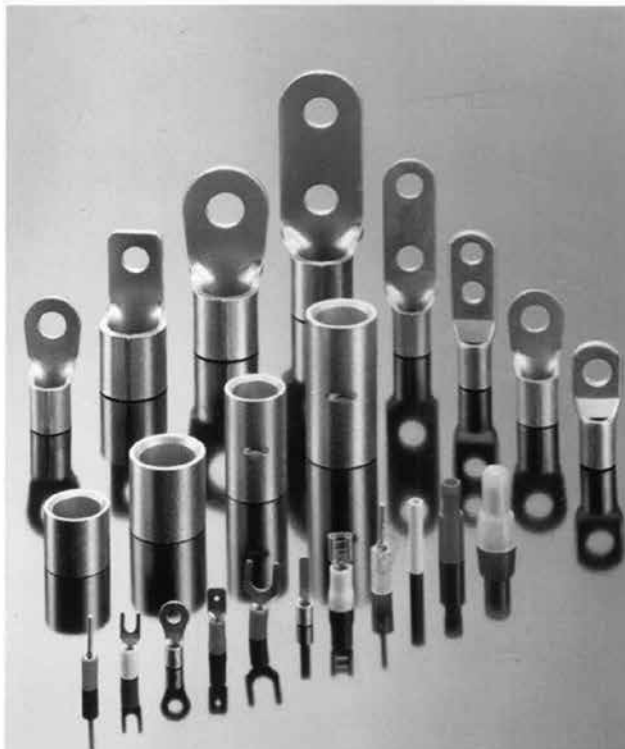
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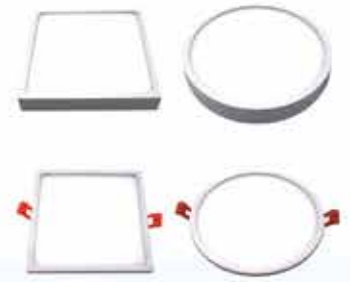
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