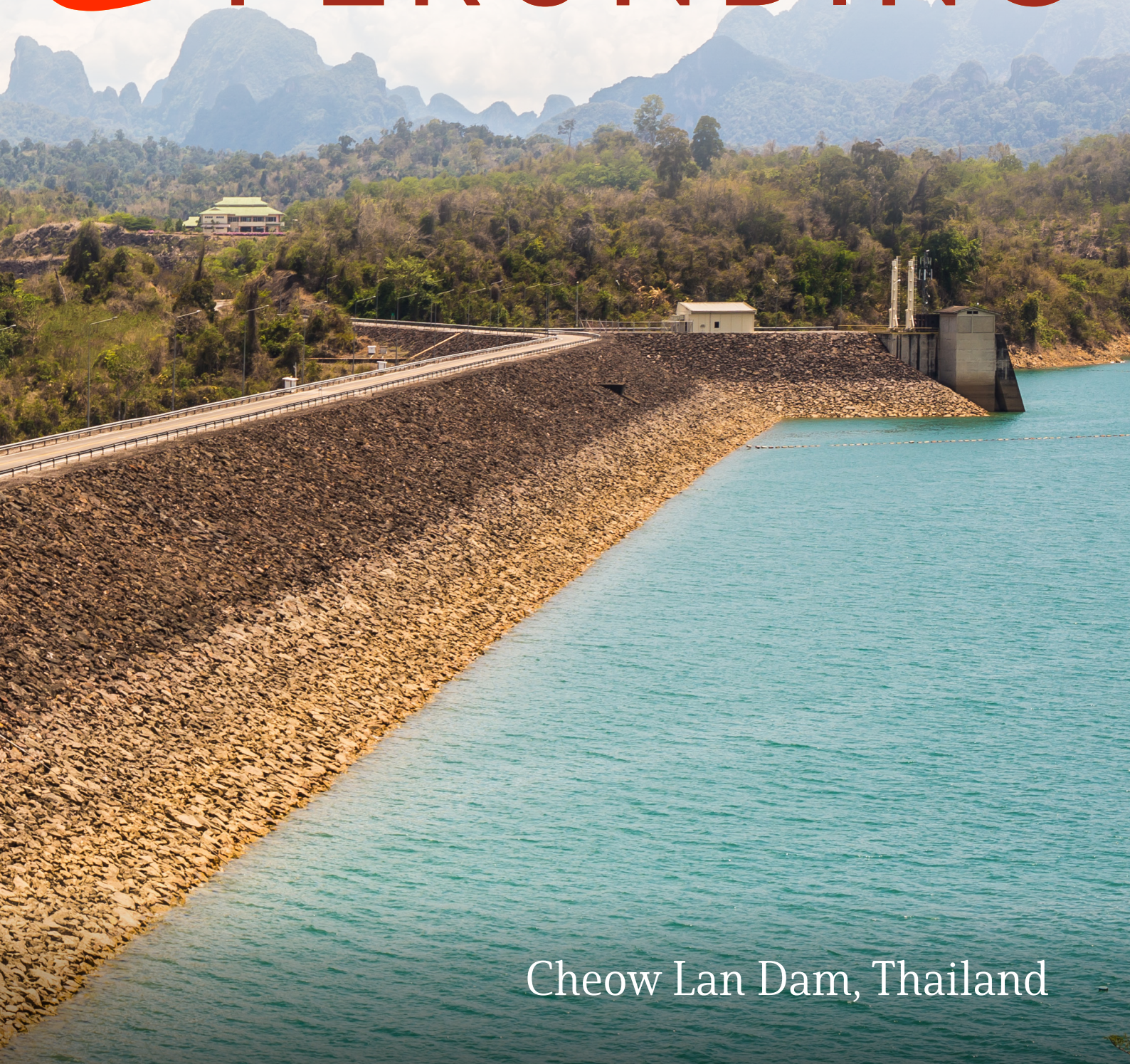


# Suara



# SPERUNDING



Cheow Lan Dam, Thailand



ASSOCIATION OF CONSULTING ENGINEERS MALAYSIA



INTERNATIONAL FEDERATION OF CONSULTING ENGINEERS (IFC)



FEDERATION OF ASEAN CONSULTING ENGINEERS (FACE)

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2019/2020 Session

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**MESSAGE FROM THE PRESIDENT**



Dear ACEM Members and Readers,

Welcome back Suara Perunding and thanks are due to the special efforts by the Publication Committee. They are also taking initiative to refresh our ACEM website to have a new and interesting look. Suara Perunding is our newsletter for members and readers to catch up on our activities and for information on matters of interests and future events. In this issue of Suara Perunding, reports the activities of the Association for July until September 2020.

Emphasis is on the annual general meetings of the Association and its branch offices. The Sabah and Sarawak Branch offices had their annual general meetings on 8 August and 25 July 2020 respectively. The Branch AGMs are reported on pages 3 and 4 with the new Exco line up for session 2020/2021. The Association will conduct its 57<sup>th</sup> annual general meeting on 26 September 2020.

Look out for technical talk which were conducted by online webinar due to MCO Standard of Procedure (SOP) set by government.

Let us keep ACEM strong always and to continue being **“the Voice of the Consulting Business and Industry”**.

Happy reading,

**Datuk Ir. Mohd Adnan**

President, ACEM

New Members (July - September 2020)		Cessation of Membership (July - September 2020)	
Individuals		Individuals	
JULY 2020		JULY 2020	
NAME	DATE	NAME	DATE
Ir. Mohamad Shukor bin Che Malek	16 July 2020	Ir. Goh Hwa Kwee	20 July 2020
Ir. Dr. Wesley Wong Yew Wei	16 July 2020	Ir. Tar Singh	22 July 2020
Ir. Loi Yew Hua	16 July 2020	Ir. Hamzah b. Ismail	22 July 2020
		Ir. Reddy Gunasegaran	28 July 2020
AUGUST 2020		AUGUST 2020	
NAME	DATE	NAME	DATE
Ir. Kevin Soo Zine Shen	12 August 2020	Ir. Yun Wey Ting	11 August 2020
Ir. Chua Hang Chuan	12 August 2020	Ir. Sallahuddin b. Muhammad	13 August 2020
Ir. Irwanddy bin Rosli	12 August 2020	Ir. Khaw Ean Kee	12 August 2020
Ir. Wong Sik Kwang	24 August 2020	Ir. Yong Ki Min	28 August 2020
Ir. Frisco Celestial @ Salleh Salam	24 August 2020		
Panel Member Firms		SEPTEMBER 2020	
AUGUST 2020		NAME	DATE
NAME	DATE	Ir. Pan Khee Keong	1 September 2020
Konsortium Bistari CS Sdn Bhd	17 August 2020	Datuk Ir. Mustaza b. Salim	9 September 2020
		Panel Member Firms	
		AUGUST 2020	
		NAME	DATE
		E Konsult	11 August 2020

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- ACEM's Courtesy Visit to The Newly Appointed Ketua Pengarah Kerja Raya, Datuk Mohamad Zulkefly bin Sulaiman on 12<sup>th</sup> August 2020
- Meeting with MATRADE
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- Malaysia Dam Safety Management Guidelines (MYDAMS)

## BEM, IEM, ACEM AT MINISTRY OF INTERNATIONAL TRADE AND INDUSTRY (MITI)

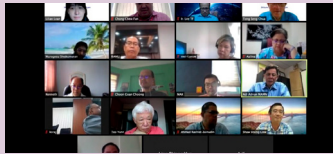
Discussion on COVID-19 Temporary Measures held on 3<sup>rd</sup> June 2020. ACEM was represented by Datuk Ir. Mohd Adnan bin Mohd Nor.



Datuk Ir. Mohd Adnan with the representative from BEM and IEM.

## ACES-ACEM VIRTUAL INTERIM DISCUSSION ON 25<sup>th</sup> JUNE 2020

Association of Consulting Engineers Singapore (ACES) and Association of Consulting Engineers Malaysia (ACEM) held a Virtual Interim discussion on 25<sup>th</sup> June 2020. COVID-19 pandemic and MCO that restricts movement has opened up new norms and new ways in conducting business and work activities.



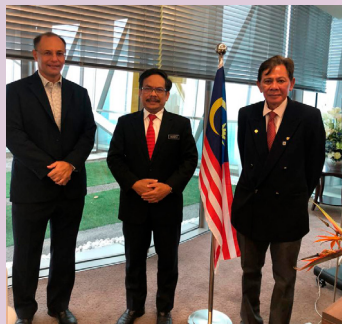
## TNB ILSAS COURTESY CALL TO ACEM ON 7 JULY 2020

A delegation TNB ILSAS paid a courtesy call to ACEM on 7<sup>th</sup> July 2020. TNB was represented by Ir. Izam bin Ismail, Ir. Yeoh Chien Wern, Noor Azmi bin Sulaiman & Mohd Fadzil Mohd Yusof, while ACEM was represented by Datuk Ir. Mohd Adnan bin Mohd Nor, Ir. Chong Chew Fan, Ir. Ahmad Rashidi bin Zainuddin & Ramli bin Ibrahim. Discussion looked into areas of common interests and areas where ACEM and TNB ILSAS may explore possible collaborations.



Meeting in progress ACEM council members with representatives from TNB ILSAS

## COURTESY VISIT TO THE NEWLY APPOINTED KETUA PENGARAH KERJA RAYA, DATUK MOHAMAD ZULKEFLY BIN SULAIMAN ON 12<sup>th</sup> AUGUST 2020



From left Ir. Romesh, Datuk Mohamad Zulkefly and Datuk Ir. Mohd Adnan.

ACEM was represented by Datuk Ir. Mohd Adnan bin Mohd Nor and Ir. Romesh Srinivasan. Talk revolved around strengthening ties between ACEM and Kementerian Kerja Raya and to enhance cooperations between the two organisations particularly in areas of common interests.

## TECHNICAL TALK ON TWO CASE STUDIES OF COLLAPSED TEMPORARY EXCAVATION USING CONTIGUOUS BORED PILED WALL

The webinar was presented by Ir. Liew Shaw Shong, Senior Director of G&P Geotechnics Sdn Bhd on 7<sup>th</sup> July 2020 at ACEM Office. A total of 131 participants attended the webinar.

The focus of this talk is on the investigation works carried out for two (2) temporary excavation failures. Both excavations utilised temporary steel struts propped against partially completed basement structure as lateral shoring supports along the peripheral earth retaining wall. The two investigations show that it is undoubtedly necessary to have appropriate and sufficient materials sampling and testing as part of the investigation processes if conclusive evidence regarding the failure cause is to be found.

## MEETING WITH MATRADE

A meeting between ACEM and MATRADE was held on at MATRADE's office. YBhg. Datin Rusiah Mohamed, Director of Construction & Business Services, chaired the meeting. Also present were Encik Haikal Hanib and Cik Nur Fatimah Anis. ACEM was represented by Datuk Ir. Adnan, Ir. Chong Chew Fan and Ir. Sharifah Azlina.



From left: En. Haikal Hanib, Datuk Ir. Mohd Adnan, Datin Rusiah Mohamed, Ir. Chong Chew Fan and Ir. Sharifah Azlina.

At the meeting, ACEM has requested for MATRADE's support for the following upcoming events:

- FIDIC ASPAC Conference 2020, Bangkok (new date to be announced).
- FIDIC International Infrastructure Conference, Geneva (postponed to 12 September 2021).

MATRADE explained the mechanisms to support the event, namely

- Joint Collaboration on Seminar Program.
- Export Acceleration Mission (EAM).

The potential support from MATRADE can be used towards conference registration fee, air passage, accomodation and logistics. Paperwork must be prepared and submitted to MATRADE three(3) months prior to the event. MATRADE has requested to be given a slot for briefings of MATRADE's functions and export financial assistance through their Market Development Grant (MDG) and Services Export Funds (SEF). The briefing is for ACEM members and best to coincide with any of ACEM's scheduled activities. MATRADE has also indicated their participation in Construction Indonesia (rescheduled to 15-18 September 2021) which could be of interest to ACEM members.

## ACCELERATING CYBER SECURITY CULTURE AT WORKPLACE

The webinar was held on 28<sup>th</sup> July 2020 at ACEM Office. The speaker was Encik Sharul A Rashid, Custodian Engineer, Instrument and Control at PETRONAS. A total of 54 participants attended the webinar.

*Ir. Chong Chew Fan (T&E Committee Chairman) with En. Sharul A Rashid.*



*En. Sharul A Rashid presenting his lecture.*

## TECHNICAL TALK ON APPLICATIONS OF FIBRE OPTIC SENSING TECHNOLOGY IN CIVIL ENGINEERING

The webinar was held on 30<sup>th</sup> July 2020 at ACEM Office. The speaker was Dr. Regine Lee Siew Cheng, Senior Engineer at Smart Sensing Technology Sdn Bhd. A total of 21 participants attended the webinar.

The talk briefly covered the application of the fibre optic sensing system within civil infrastructures, particularly emphasis on the applications in structural health monitoring and deep foundation testing. To further illustrate the advantages of the fibre optic sensing technologies, several case histories using Distributed Fibre Optic Sensing System and Fibre Bragg Grating System were also presented.

## DIALOGUE SESSION WITH MINISTER OF ECONOMIC AFFAIRS, DATUK SERI MUSTAPA MOHAMED, AND CONSTRUCTION INDUSTRY REPRESENTATIVES.

**Date:** 3rd September 2020

ACEM was represented by Ir. Sharifah Azlina, who raised issues and problems faced by the engineering consulting industry in Malaysia. ACEM urged the government among others to expedite :

- On award of projects.
- Award more non-physical projects such as feasibility studies of infrastructures, planning and design works.
- To bring forward some projects through stimulus packages.
- To consider and incorporate in the cost project incurred by consultants such as BIM.

## WORKSHOP FOR PUBLIC OPINION HEARING COMMITTEE ON DRAFT KUALA LUMPUR STRUCTURE PLAN 2040 (KLSP2040)

**Date:** 10 - 12<sup>th</sup> September 2020

**Venue:** Hatten Hotel Melaka, Bandar Hilir.

A committee consisting of 16 members was formed by special invitation from Datuk Bandar KL to preside over public hearings in addressing close to 500 views/comments from the public on the draft KLSP2040 earlier this year. ACEM was represented by Ir. Sharifah Azlina.



*Day 1: The entire committee.*

The public views/comments were heard by the committee over the course of 10 weeks from June 23 until August 28, 2020. Each of the views/comments were deliberated for its validity & appropriateness to be adopted in the final KLSP2040.



*Day 2: Smaller groups to facilitate assessment & report preparation.*



*In serious discussion.*

A 3-day workshop was held in Melaka to discuss and finalise reporting of the public hearing and their assessment that would be tabled to the Datuk Bandar and ultimately, for escalation to the YB FT Minister.



*In serious discussion.*



*In serious discussion.*



*In serious discussion.*

## COURTESY CALL TO JABATAN AIR SABAH

**Date:** 2<sup>nd</sup> July 2020

**Venue:** Jabatan Air Headquarters, Kota Kinabalu

**Attended by:** Ir. Lee Tet Fon, Ir. Joe Primus, Ir. Wah Kheng Haw, Ir. Razalie Sindong, Ir. Yong Lip Bing, Ir. Amirul Hisham, Ir. Heng Aik Sin, Ir. Joe Chow and Ir. Fung Yin Khun.

The main purpose of the courtesy call is to introduce the ACEM Sabah branch committee and to establish close cooperation between Jabatan Air Sabah and ACEM Sabah. It was mentioned in the visit that the Director may seek ACEM Sabah branch for support to conduct public awareness talks on the technical aspect of the purpose of water dams and its environmental impact and mitigation measures.



Presenting a souvenir to Director of Jabatan Air Sabah by ACEM Sabah Branch Chairman, Ir. Lee Tet Fon.



Discussion between ACEM Sabah Branch and representatives from Jabatan Air Sabah.



ACEM Sabah Branch Members who attended the Annual General Meeting.

## ACEM SABAH BRANCH 28<sup>th</sup> ANNUAL GENERAL MEETING

**Date:** 8 August 2020 (Saturday)

**Venue:** IEM Sabah Training Hall

The meeting was conducted in a hybrid manner which was attended physically by Exco Members and few members who managed to reserve the limited seats in the IEM Training Hall while the other members joined online via ZOOM meeting. The total numbers attended the AGM was 55 pax (Online-35 pax, Physical-20 pax). The Executive Committee for Session 2020/2021 comprises:

- |                         |   |
|-------------------------|---|
| Chairman                | : Ir. Lee Tet Fon   |
| Deputy Chairman         | : Ir. Joe Primus Kayau  |
| Honorary Secretary      | : Ir. Razalie b. Sindong  |
| Honorary Treasurer      | : Ir. Wah Kheng Haw   |
| Immediate Past Chairman | : Ir. Tan Kok Jyh   |
| Committee Members       | : Ir. Brandon S. Galimam<br>Ir. Benny Song Perng Yeu<br>Datuk Ir. Chin Shu Ying<br>Ir. Warrence Chan<br>Ir. Wah Kheng Haw<br>Ir. Chia Khuin Fung<br>Ir. Yong Lip Bing |



Group photo of ACEM Sabah Branch Executive Committee.



From left: ACEM Sabah Branch President, Ir. Lee Tet Fon; Honorary Secretary Ir. Razalie b. Sindong; and Honorary Treasurer, Ir. Wah Kheng Haw.

## ACEM SARAWAK BRANCH 27<sup>th</sup> ANNUAL GENERAL MEETING

The Association of Consulting Engineers Malaysia (Sarawak Branch) held their 27<sup>th</sup> Annual General Meeting on 25<sup>th</sup> July 2020 (Saturday), using ZOOM. It was the first time in the history of ACEM (Sarawak Branch) to organise the AGM via tele-video conferencing due to the COVID-19 pandemic in the year of 2020. The attendance of the ACEM Sarawak members met the minimum quorum required for the AGM. The Executive Committee for Session 2020/2021 comprises:

- |                         |   |
|-------------------------|---|
| Chairman                | : Ir. Lainus ak Lichok  |
| Deputy Chairman         | : Ir. Wong Leong Teck   |
| Honorary Secretary      | : Ir. Rudy Zulfika bin Yusof  |
| Honorary Treasurer      | : Ir. Wong Sie Ung  |
| Immediate Past Chairman | : Ir. Clarence Chieng Sie Yii   |
| Committee Members       | : Ir. Ong Chet Yun<br>Ir. Hii Tiong Koon<br>Ir. James Ling Chai Haw<br>Ir. Tom Chong Kuet Fung<br>Ir. William Tan Khoon Lee |



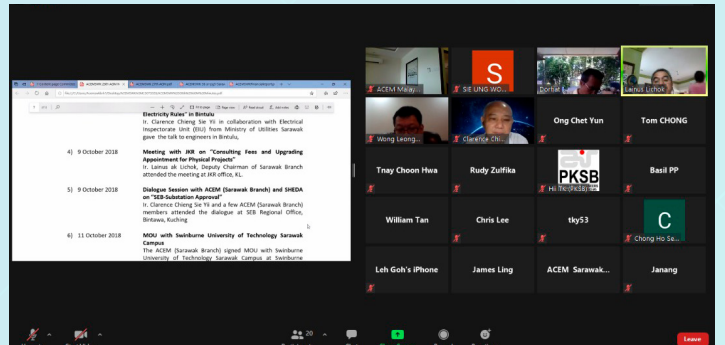
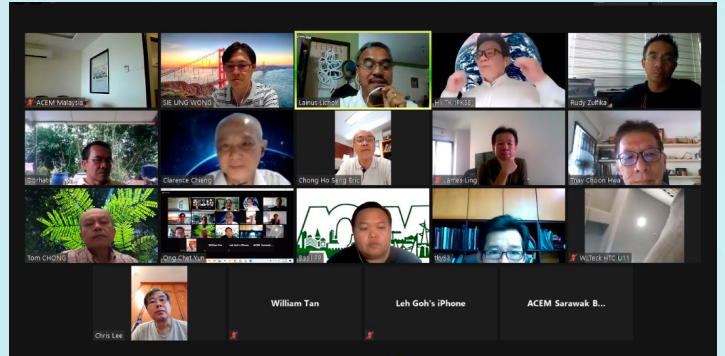
Standing (L – R): Ir. Ong Chet Yun, Ir. Hii Tiong Koon, Ir. James Ling Chai Haw, Ir. Tom Chong Kuet Fung, Ir. William Tan Khoon Lee, Seated (L – R): Ir. Wong Sie Ung, Ir. Wong Leong Teck, Ir. Lainus ak Lichok, Ir. Rudy Zulfika b. Yusof, Ir. Clarence Chieng Sie Yii.

## DIALOGUE ON “SARAWAK BUILDING ORDINANCE 1994”

The Ministry of Local Government and Housing Sarawak called for a dialogue on “Sarawak Building Ordinance 1994” on 3<sup>rd</sup> August 2020 and 4<sup>th</sup> August 2020 at MLGH’s conference room, Baitul Makmur, Petra Jaya, Kuching. Ir. Hii Tiong Koon, representative from the ACEM (Sarawak Branch) attended the dialogue. The Dialogue was held to discuss further details on the amendment to the “Sarawak Building Ordinance 1994”.



En. Hj Abu Bakar bin Haji Sepawi, representative from MLGH Planning and Housing Policy Section who is an architect by profession, chaired the dialogue at MLGH’s conference room.



Some of the members present during ZOOM tele-video conferencing.

## COURTESY VISIT TO DEPUTY CHIEF MINISTER, MINISTER FOR INFRASTRUCTURE DEVELOPMENT AND TRANSPORTATION SARAWAK

The delegate from the Association of Consulting Engineers Malaysia (Sarawak Branch) paid a courtesy visit to YB Tan Sri Datuk Amar Dr. James Jemut Anak Masing, Deputy Chief Minister, Minister for Infrastructure Development and Transportation Sarawak on 26<sup>th</sup> August 2020 at his office at Baitul Makmur, Petra Jaya, Kuching. The purpose of the courtesy visit is to thank YB Tan Sri and his team for the efforts in getting the cabinet’s approval to review and increase the Multiplying Factor (MF) for Site Supervision staff. The revised MF not only benefit the Consultants but also other professionals such as Architects and others.

Presenting a souvenir to YB Tan Sri Datuk Amar Dr. James Jemut ak Masing by ACEM (Sarawak Branch) Chairman, Ir. Lainus ak Lichok.

Standing from left to right : Dato’ Ir. Janang ak Bungsu, Ir. Mohd Dzulasri bin Hipeny, Ir. Wong Leong Teck, Ir. Alphonsus Dorhat Rahani, Ir. Hii Tiong Koon, Ir. Roland Ling, Ir. Philip Ng & Ir. Biliin ak Dandi (representatives for Ministry of Infrastructure and Port Development Sarawak) and Ir. Hii Yuh Tung.



# MALAYSIA DAM SAFETY MANAGEMENT GUIDELINES (MYDAMS)

Overview of the Guidelines

By: Ir. Zainal Abidin bin Othman  
Chairman & Director  
SMEC Malaysia Sdn Bhd

## 1. INTRODUCTION

**M**yDAMS was published by the Department of Irrigation and Drainage Malaysia almost three years ago in 2017. With inputs from dam owners, operators, other states and federal agencies, it provides a framework in the management of dam safety and guidelines for the implementation of dam safety management practices in the country.

It is a timely document for dam owners, designers, contractors, operators and those responsible for the health and safety of dams. Prior to this the reference document related to dam safety was the Malaysian Inter Departmental Committee on Dam Safety- Guidelines for Operation, Maintenance and Surveillance of Dams which was published in October 1989. Other publications especially those published by ICOLD and/or National Committees of developed countries such as Australia, United Kingdom, New Zealand etc. are the other reference materials available to those involved in dam safety.

As stated in the forward of MyDAMS, "It may be relatively difficult for engineers and professionals to get use of it for the first time." This is expected given the situation that some dam owners may not have experienced resources and the constraints on funding for training of dam engineers. This article will try to highlight the relevant areas of importance and also address the enforcement of the guidelines which is self-regulatory.

## 2. FOCUS OF THE GUIDELINES

Generally, the guidelines provide good practices to be observed by the stakeholders in managing dams from inception to decommissioning. It is a comprehensive guide and as expected the key player in making it workable is the Dam Owner.

Dam Owner appeared 89 times

throughout the entire document to emphasise the important role of the Dam Owner. Dam Owner is defined in MyDAMS as "the person, organisation or entity legally deemed to be the owner of a dam and reservoir. The dam owner is responsible for the safety of the dam." In other word whatever happens to the dam eventually the owner has to own up and be responsible for its safety.

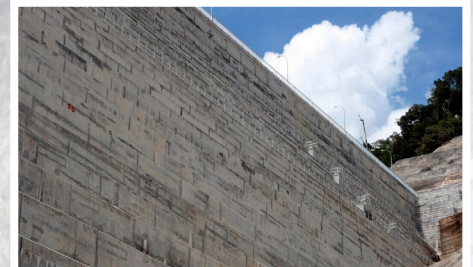
The next important stakeholder is the Regulatory Body/Regulator defined as the entity or organisation empowered by law to regulate dam safety. This entity cited 48 times in the document. These authorities such as the State Authority, Municipal Council and Federal Authority are the government organisations or authorities involved in administrating legislation relating to existing laws. There are areas that need to be addressed in the Regulatory sector. It is however highlighted in the Chapter 2 (Legal Requirements) that "The Guidelines are subject to update when the Federal Legislation on dam safety is established". No dateline is mentioned but this legal document when ready will hopefully enhance the application and regulatory oversight of the safety of dams.

The Engineer is the following entity with 16 counts appearing in MyDAMS. Equally important under this category are the Dam Designer (15 times), Contractor (11 times), Reviewer, Technical Specialist (10 times) and the Technical Advisors (1 time). This group represents the technical aspects of the dam safety regime covering design, construction, commissioning, operation, maintenance, surveillance, safety review, rehab, emergency preparedness and abandonment.

No less important is the Dam Operator which appeared 8 times in the document.

As shown above the business of dam safety is a collective responsibility of all stakeholders involved in dam related development. Right from inception to abandonment, safety cannot be compromised. The relevant issue to address is how do we ensure that the guidelines in MyDAMS are being followed without any reservation. The

application is a self-regulated as clearly stated in item 1.2 of MyDAMS, "Dam owners are encouraged to provide funding and resources to undertake dam safety programme that are essential to minimise the risks posed by dams." Without a formal regulatory body to regulate and enforce the guidelines, it is expected that some dams will fall between the self-regulated cracks.



## 3. PRESENT SCENARIO

As stated in MyDAMS the owner of the various dams is the only party responsible and expected to be knowledgeable on status of these dams in the country.

Apart from occasional public discourse in seminars, conferences and workshops there is no avenue for the public to check on the current safety conditions of these dams. The respective dam owners are solely responsible to ensure compliance with the requirements of MyDAMS. How effective is self-regulation in Malaysia? How are the rules or guidelines designed, who adopts them, whether and how compliance is monitored, and whether these rules actually achieve what they purport to achieve?

In Malaysia, we have not had experience of any catastrophic failures yet but as the dams get older, we cannot avoid but to face the reality that we have to take notice of the conditions of these dams from the safety point of view. We should not wait until failure occurs which may endanger public safety. As in other man-made structures such as cars, aeroplanes, buildings or power stations, a significant investment is essential to maintain the benefits and



assure safety that society demands. Deferred maintenance accelerates deterioration and causes any structure to be more susceptible to failure.

How will the MyDAMS guidelines change the behaviour and attitude of dam owners as well as the other stakeholders including the public? Will there be fund allocated to review the current status of the dams in the country to meet the criteria set in the guidelines?

The aim of MyDAMS is to obtain the compliance of all dam owners and operators to the safety practices enshrined within it. It is also stressed that the evidence that the dam owner had adopted and actively implemented the Guidelines may mitigate their liability in the event they are faced with an action for damages. In order to ensure this is followed a regulatory and enforcement body may need to be created to undertake the duties as regulator.

Like any other assets, funding to meet the maintenance safety standards is at times a tough asking. It is noted that Malaysia is a country with first world infra but a third world mentality when it comes to maintenance. It is a monumental challenge to organisations to correct this state of mind. This lack of maintenance is a fundamental issue in both the public and private sectors. The lack of planning or failure to allocate certain percentage of the infra cost as maintenance cost is also one of the main reasons there are not enough funds to carry out maintenance.

It is noted that the then Ministry of Water, Land & Natural Resources in 2017 established the Dam Safety Flying Squad to carry out dam safety auditing. It looks into measures taken by dam owners to ensure that the dams are safe. It is not known as to what is the status of such squad now.

#### 4. FUNDING

Dam owners are encouraged to provide funding and resources to undertake dam safety programme that are essential to minimise the risks posed by dams. Apart from maintenance, as the dam ageing more funding is required to rehabilitate deficient dams. Recognising these facts, dam owners have to initiate planning for current and future funding in order to sustain the safety operation of the dams. A clear policy by dam owners is expected to tackle the need for continuous funding for dam safety activities.

Dams are an integral part of our lives, providing flood control, recreational

opportunities, power generation, wildlife habitat, and other important functions. As usual rarely are tax provisions budgeted to prepare for and prevent the potentially devastating effects of a flood. Funding is much more commonly awarded once disaster has struck – and then it's in the form of disaster assistance rather than prevention. There must be a realisation from all stakeholders that any failure of these dams could result in the loss of life for people downstream, significant damage to structures and infrastructure, and loss of public services.

Efforts especially from dam owners to ensure adequate funding is made available for maintenance, upgrade and repair of existing dams. Dams must be maintained to keep them safe.

#### 5. RESOURCES

Maintenance of assets such as dams require trained resources. Generally, organisation would need to look at its resources development and work out strategic plan to build capacity in order to meet the standards required by MyDAMS in maintaining the dams. It is also beneficial if some initiative is taken to review the need of pooling the dam safety resources within Dam Owners with the view of economic and sustainability in the long run. It is also essential that the guideline is periodically reviewed and updated regularly which may come under the responsibility of the regulator with inputs from the various stakeholders.

Resources related to dam safety are usually a subset of an organisation and every effort should be made to ensure that the communication, authority, delegation and competency are well managed within the various subsets of the organisation to avoid conflicts and rivalry.

#### 6. DAM SAFETY FRAMEWORK IN OTHER COUNTRIES

It is not possible at this stage to judge the extent of acceptance and application of MyDAMS by the asset owners. It is important that moving forward there are public records to show the application of MyDAMS by all dam owners.

In the USA, the Federal Government took almost 30 years to protect Americans from dam failure through the National Dam Safety Program (NDSP). The NDSP educates the public and assists decision makers through the use of multiple databases, tools and other materials. The NDSP is led by Federal Emergency Management Agency, US Department

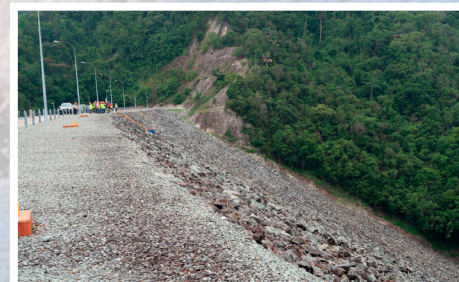
of Homeland Security (FEMA).

Apart from the FEMA role in monitoring dam safety in the USA, every four years, the American Society of Civil Engineers' Report Card for America's Infrastructure depicts the condition and performance of American infrastructure in the familiar form of a school report card – assigning letter grades based on the physical condition and needed investments for improvement. This of course included status of the dams throughout the USA.

In the UK, The Environment Agency (EA) is the enforcement authority under the Reservoirs Act 1975 ('the Act') for 1841 large raised reservoirs in England. The EA are also the owner and operator for 214 large raised reservoirs in England. The Agency published biennial report on reservoir safety recording work that have been done to secure compliance with the requirements of the Act.

In Australia the dam safety management and regulation are State based and there is no National Legislation. The development and surveillance of dams is controlled by legislation and regulations in Queensland, NSW, Victoria and Tasmania. The legislation varies but covers safety, environmental, cultural heritage and other issues of value to the community. The main body providing leadership and guidance is the Australian National Committee on Large Dams (ANCOLD).

There are already established framework in various countries with respect to monitoring and enforcing dam safety regulations as narrated above. It is prudent for the authorities to embark on looking at establishing a regulatory body to ensure that dam safety guidelines are followed, and any safety risks are being addressed. It is also important for the government to ensure the public that dam safety management is being practised by the dam owners diligently. It is not clear as to whether the established Dam Safety Flying Squad is the answer to this.



#### 7. RECENT DAMS FAILURE

In recent times there have been major dam failures namely the under-construction earth-filled saddle

dam D of the Xe-Pian Xe-Namnoy hydroelectric power project, in Laos which collapsed in July 2018 killing more than 40 and 6,600 others displaced.

In February 2017, Oroville Dam's main and emergency spillway were damaged, prompting the evacuation of more than 180,000 people living downstream along the Feather River and the relocation of a fish hatchery. No collapse occurred, but the water further damaged the main spillway and eroded the exposed slope of the emergency spillway.

In August 2019 the emergency spillway of the Whaley Bridge Dam collapsed after heavy spilling and causing a large hole in the upper left slab of the concrete spillway.

Both the Oroville and Whaley Bridge dams are old and it is inevitable that the dams in Malaysia will probably be facing similar situation in the future as the existing dams continue ageing.

There are lessons learned from the above recent failures and these should be incorporated in future updating of MyDAMS. Two primary lessons from the Oroville spillway failure worth pondering are

a) "An extended period of apparently successful operation and surveillance do not indicate and equally successful operation in the future"

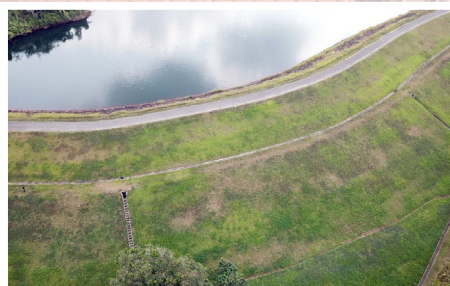
b) "Comprehensive periodic reviews of original design and construction, taking into account comparison with the current state of the practice, are needed for all components of dam projects"

## 8. CONCLUSION

Developing and building a dam and its associated auxiliary structures is the beginning of a journey for dam owners to ensure that the asset is safe throughout its operational life. MyDAMS provide the guidelines for dam safety but the dam owners play an important role to provide funds and resources to maintain the asset. If there are dams that are neglected, it is probably timely the owners have a serious review of the situation and not let disaster strike when it may be too late.

Trained resources on dam matters covering concept, design, construction, operation and maintenance are vital in supporting the dam safety management program in any organisation. Leaders of organisation have to take stock of the availability and competency of these resources for sustainability and to tackle future problems.

MyDAMS is self-regulatory and as practiced in other developed countries a monitoring regulatory body is warranted to ensure compliance to the guidelines. A single enforcement will provide consistent and efficient application of MyDAMS and also the proposed Dam Safety Act.



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