

SUBMISSION TO THE HKIE EXECUTIVE

REPORT OF

35th CONFERENCE OF THE ASEAN FEDERATION OF ENGINEERING
ORGANISATION

AND

24th YOUNG ENGINEERS OF ASEAN FEDERATION OF ENGINEERING
ORGANISATION CONFERENCE

16 – 18 NOVEMBER 2017 | BANGKOK, THAILAND

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1 INTRODUCTION

1.1 Background

The 35th Conference of ASEAN (Association of Southeast Asian Nations) Federation of Engineering Organisation (CAFEO 35) in conjunction with the 24th Meeting of Young Engineers of ASEAN Federation of Engineering Organisation (YEAFEO 24) is the highlighted event of the ASEAN Federation of Engineering Organisation (AFEO).

AFEO was commenced in 1973, from the engineering convention held between The Institution of Engineers Malaysia (IEM) and The Institution of Engineers Singapore (IES). The IEM/IES Engineering Convention was held primarily for the purpose of promoting interaction and relationship for their members in view of their common historical background and geographical similarities. IEM and IES took turn to host the convention. In 1976, while preparing for the 3rd IEM/IES Convention it was decided that all other ASEAN countries would be invited. In 1980, an agreement was signed for the formation of the ASEAN Federation of Engineering Organisation (AFEO). The formal date for the establishment of AFEO was 8th August 1982. AFEO is a non-governmental body affiliated with the ASEAN Secretariat. Its members are the national Institutions/Organisations of engineers of the ASEAN countries. AFEO is an organisation of the national engineering/technological institutions of the ten ASEAN member countries including Brunei Darussalam, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam.

CAFEO has been held annually at the different member institutions in a rotating alphabetical order since 1982. CAFEO historically attracts more than 200 foreign and 300 local engineering professionals from various industries, fields and sectors. CAFEO 35, hosted by the Engineering Institution of Thailand (EIT), was held in Bangkok, Thailand in November 2017.

Besides organising the annual conference known as CAFEO hosted in rotation by member Institution also held the yearly AFEO government board meeting. The idea that AFEO should also look into the interest of young engineers was first introduced at the 11th AFEO government board meeting in Philippines in 1992. In 1993, the committee of young engineers was set up and, in 1994, the Bylaws of the formation of a young engineer group were approved and the definition of the Young Engineer was agreed. The group name was Young Engineers of ASEAN Federation of Engineering Organisations (YEAFEO). Its mission is to be a dynamic and progressive organisation that leads to the development of young engineers in the ASEAN region. YEAFEO represents the young engineers of the national engineering organizations under AFEO, comprising members engaged in the common professional interest of engineering, awareness of the important role of engineering to the advancement of the social, economic and industrial development of the ASEAN region; concerted in the effort to

elevate and improve the quality of life of the ASEAN people's dynamic actions and productivity to increase employment opportunities and equitable distribution of wealth among the masses of the ASEAN nations, to participate actively in any industrial and technological programs of ASEAN, desirous of exchanging and sharing engineering technology; concerned in basic professional right, cognizant of the need to establish harmony and relationship among the members. This year is the 24th Meeting of YEAFEO.

CAFEO 35 has set the theme "Towards a Sufficiency Economy: pathways to sustainable development" for the conference this year and delegates discussed the green technologies and engineering practices in contributing to ASEAN cities towards continued and sustainable development, as well as their economy's development. Important topics in this discussion included furthering engineering education and accreditation and disaster preparedness, mitigation, and management, in facing the challenges that climate change presents.

This year, six delegates namely Ir TANG Whai-tak (Deputy Chairman), Ms Emily Hay Ting YU (Honorary Secretary), Mr CHEUNG Tin King (Committee Member), Ms Hidy YAN Tsz Tung (Committee Member), Mr Thomas LAM Chun Ho (Co-opted Member) and Mr Stanley LAI Ho Keung (Registered Young Member) represented the Young Members Committee of the Hong Kong Institution of Engineers (HKIE-YMC) to attend the CAFEO 35 and YEAFEO 24.

1.2 Objectives

The objectives of HKIE-YMC attending CAFEO 35 and YEAFEO 24 included:

- To gain exposure to large scale international conference;
- To nurture the leadership and communication tactics of younger generations;
- To gain knowledge on the current practice of other countries;
- To broaden knowledge through sharing with young engineers from other countries;
- To exchange technical knowledge/ideas/culture with engineers worldwide;
- To extend the network of our young engineers with delegates from other countries;
- To increase the horizon of young engineers through their participation;
- To promote the Hong Kong Institution of Engineers (HKIE) to other countries; and
- To promote the Young Members Committee (HKIE-YMC) to other countries.

2 CAFEO 35 & YEAFEO 24

CAFEO 35 was held from 16 to 18 November 2017 in Bangkok, Thailand. Details of the program are given in Appendix A.

2.1 16th November 2017

Working Group Reports

Upon arrival to the hall, the delegates attended various working groups to understand the views and progress of different countries in various important topics such as disaster preparedness, transportation, environment, and sustainable cities. Seminars on these topics were also shared during the conference, and will be discussed later in this report.

Technical Visit to G Tower

The delegates then joined the site visit to the featured G Tower. In the convention hall, the representative of Grand Canal Land Public Company Limited gave us an introduction of the concept and arrangement of the Grand Rama 9, which is aimed to build up a new CBD in Bangkok with total 1.2 million m² construction area. The whole area will developed as new neighbourhood which includes luxury residential buildings, shopping arcades, offices, conference center and hotel, featuring the G Tower and the Super Tower.



The representative of the K.C.S & Associates Co., Ltd. then gave us a seminar on the “Structural System of G Tower”. The leasable area of the G Tower would be 66,000 m² with 39 stories. The two main requirements for the structural design were that, firstly, the building structure is required to resist earthquake force from ground acceleration as stipulated in the “Thai Standard for Seismic Resistant Design” (DPT 1302, 2009); and secondly, the building structure must be able to resist wind loads in

accordance with the “Thai Standard for Wind Calculation and Building Response” (DPT 1311, 2007). The major challenge of the G Tower was the G-shaped super-structure. Along with the post tensioned slab, the columns are not only sustaining the gravity loads, but also to resist the lateral tension load such as wind and earthquake loads. In such, the column and life core are composite with steel jacketing to ensure ductility. Also, these columns and lift core are designed to act together as a rigid frame to sustain the lateral loads. The speaker also showed us step by step how they erected the extended platform which lets us to have good understanding.

The representative of KCS further introduced us to the structural analysis of the Super Tower, for which construction phase is scheduled to commence in the next year. The tower would be 615m high with 125 floors, which is 131m taller than the Hong Kong International Commercial Center. Similar to the G Tower, the Super Tower would need to follow the requirement of the wind load and the earthquake as stipulated in the Thailand standard. In the case of super high rise building like the Super Tower, the wind load would be a determining factor. While some factors could not be directly considered in the calculation of static wind load, such as the aerodynamics of buildings, building deformation under wind and the local wind effect, wind tunnel test with high frequency force balance method was also used to verify the structural loading.

After the seminar, we visited the site which is preparing to build the Super Tower and took a good photo with the G Tower. We all have gained new technical knowledge and insights through the visit.



Technical visit to G Tower

YEAFEO Board Meeting

Upon returning to the conference hall, the delegates attended the YEAFEO Board Meeting. As Hong Kong is not an official member of ASEAN, the HKIE-YMC delegates attended the Board Meeting as observers.

The meeting was chaired by the host country Thailand. After closing the discussions on matters arisen at the previous Board Meeting (the YEAFEO 23 Board Meeting in the Philippines), a report was presented on the Mid-term Meeting at The Institution of Engineers Singapore (IES) Green Building, Bukit Tinggi, Singapore. The Board then discussed new matters including the updating of the YEAFEO webpage, funding of representatives to CAFEO and Mid-term, proposed amendment to the Constitution, YEAFEO Outreach programme, cross boarder activities and the lack of participation from Laos Union of Scientist and Engineers Associations (LUSEA) and Vietnam Union of Science and Technology Associations (VUSTA).

Opening Ceremony & Welcome Reception

In the evening, H.M. King's representatives hosted the opening ceremony at Queen Sirikit National Convention Center, Bangkok to welcome all CAFEO and YEAFEO delegates, highlighting the importance of this event in Thailand. After the welcome speeches, the EIT arranged a welcome reception with relaxing live music which was a great opportunity for YEAFEO delegates to meet new delegates from different countries as well as taste the delicious Thai foods. Together with the fruitful sharing and exchanges with the delegates from other countries, we had a very enjoyable and memorable night in the welcoming reception.



The H.M. King's representatives officiating the opening ceremony

2.2 17th November 2017

Technical Seminars

The delegates attended various seminars where speakers from the ASEAN countries shared the engineering problems and latest research and technology of their home country. Below are reports of some selected seminars.



Environmental and Energy Engineering

The seminars related to environmental and energy engineering discussed technical approaches and potential solutions to a variety of engineering challenges in environmental control and clean energy. Through exchange of ideas and knowledge, engineers gained more insights on how to build an environmentally sustainable city in their own country. Two of the topics discussed are summarized below.

New Era of Hydrogen Energy Society

Leong Wai Yie, Institution of Engineers Malaysia

This session focused on the significance, production methods and technology development of hydrogen fuel. Hydrogen has immense potential as a source of sustainable fuel as it promotes energy saving and reduces carbon emission. The combustion of hydrogen fuel has a higher efficiency when compared to direct fossil fuel combustion and generates pure water and heat as the only byproducts. It also improves energy security as it can be produced using different processes and resources. Currently, it can be generated by reacting fossil fuels with high temperature steam or as a byproduct during coke refining, steel manufacturing, etc. In the future, technologies can be applied in its production to achieve a complete zero carbon system, such as carbon capture and storage and electrolysis of water using electricity from renewable energy sources. By gradually promoting the use of hydrogen fuel in vehicles

and power generation and continuously improving the production process, a sustainable hydrogen society can be realized.

Simulation Model of Dish-Stirling Solar Thermal Power Plant in Tropical Region

Hla Aye Thar, Department of Electrical Power Engineer, Yangon Technological University, Myanmar

Dish-stirling solar power generation is an efficient and reliable source of renewable energy that can be applied to supply electricity to rural areas in Myanmar. As the technology moves into commercialization, a model was established to simulate the system behavior under different operating conditions. A four cylinder stirling engine was simulated with the assumption of adiabatic expansion and compression of the working gas. The result showed that the output torque of the engine increased as the irradiance increased and two operating regions were identified. When the irradiance was above 250W/m², the heater temperature was almost constant at its maximum value and the torque was directly proportional to the pressure. Below that value, the pressure was maintained at its minimum value and the torque was primarily a function of the heater temperature. To build a more realistic model, non-ideal characteristics should be considered, such as imperfect sun tracking and frictional losses of the engine.

Electrochemical Activation to Control Legionella Bacteria, Algae & Scale in Cooling Tower Water Distribution System

Chow Kok Heng¹, Manippady Krishna Kumar² and Tang Pei Luen³

¹HVS Engineering Pte Ltd Singapore; ²A-Star IMRE Singapore; ³JTC Corporation

Cooling towers are an integral part to the central air-conditioning and plants which use high volumes of water. The warm, moist and sunny environment in cooling towers has turned them into ideal breeding grounds for a wide range of bacteria such as Coliforms, Escherichia coli, Legionella and algae. Improperly treated cooling tower water could comprising fine mist of water droplets may contain bacteria that could potential leading to several diseases. Thus it is very crucial in regular basis to prevent such public health scare.

The ECA System is designed to produce environmental-friendly disinfectants in the form of active oxidants to replace the traditional standard biocides and chemicals to kill water borne bacteria and mitigate calcium and magnesium scale without the use of harsh liquid-based and/or powder-based chemicals.

A testbed was successfully completed in Singapore and the speaker presented the results. The testbed is installed in Singapore at JTC Cleantech 1 cooling tower. The testbed project was executed in two phases.

Phase I consisted of understanding the cooling tower operations at Cleantech 1 to establish suitable sizing of the HVS-ECA System. HVS-ECA System treats the water by continuously generating disinfecting ions utilizing on-site electro-chlorination technology to remove bacteria and waterborne organics.

During their test, they have try more than 15 schemes in order to know the effect of different factor such as the pH values, ORP value, Salinity to the disinfection power.

Phase 2, consisted of on-site detailed laboratory testing of the HVS-ECA modules at JTC Cleantech 1 with systematic monitoring of the chemical and biological properties of the cooling tower water. Finally, the actual HVS-ECA testbed to treat 650m³ of cooling tower water was performed.



Test such as Legionella test, EDX Analysis, XRD Analysis, Electron Microscope Analysis have been done and all shown a good result in removal both bacteria and scales, as summarized in the below tables.

Time (Min)	BQ value	ATP value	pH	Salinity (PSU)	ORP (mV)	TDS (ppm)	Free chlorine (ppm)	Total Chlorine (ppm)
Cycle 10 Scheme 9 (NaCl 40gms,HCl 0ml)								
0	122368	246	9.13	0.5	292	598	0.02	0.02
50	6260	120	9.17	0.9	-15	1078	0.14	0.21
75	117	120	9.21	0.8	-19	1068	0.15	0.26
120	73	64	9.24	0.8	-3.8	1054	0.35	0.54
180	73	11	9.26	0.8	37	1060	0.60	0.70

Water quality during electrochemical activation against time

Scheme 9 - 100L:40g salt:0ml HCl	Baseline	After HVS -ECA Water Treatment
BQ value	122368	<73 (Below the detection limit)
ATP meter	246	64
Total Legionella count (cfu/ml) (Setsco lab test)	720	Not detected (After 3 hours of HVS-ECA treatment)
Heterotrophic plate count (cfu/ml)	110	9
Total Coliform count (MPN100 ml)	<1.8	<1.8
Total Escheria Coli count (MPN100 ml)	<1.8	<1.8

Water quality after electrochemical activation

Sustainable Cities and Infrastructures

Large cities are confronted with great challenges between environment and development. Infrastructures such as roads and bridges serve as the framework of urbanisation, reinforce the community connections and improve the quality of life. The concept of urbanisation has recently been extended to the sustainable city which is the disciplines related to environmental and urban risks.

Preparation and Characterization of Recycled Polypropylene Filled Bitumen for Waste Reduction

Associate Prof. Ir. Dr. Ching Yern Chee, BEM, CENG, Institution of Engineers Malaysia

Polypropylene is widely used in our daily life, such as for food storage packings, colanders and car parts due to their low cost and high strength; however, the non-biodegradable characteristic of polypropylene poses a threat to our environment. In the beginning, Ir. Ching introduced her study of mixing recycled polypropylene with bitumen, which would be an alternative measure of promoting recycling of plastic bags as the use of modified bitumen is more economically and financially viable than traditional bitumen. It would become a hero to alleviate the loading on landfills.

Her research was focused on the improved rheological properties of modified bitumen. The experiment was complying with the Manual on Pavement Design which stipulated the requirements of penetration, softening point, viscosity, ductility and shear resistance. The results indicated that, with the increase of softening point and decrease of penetration values, the viscosity and deformation resistance of modified mixture were improved at a low concentration of polypropylene content of 3% of weight. As a result of increased stiffness of modified binder, the higher temperature resistance and fatigue cracking resistance were increased by 10% and 20% respectively before it yielded.

At the end of presentation, the speaker also addressed that polymers are susceptible to the UV light when it is exposed to the sun. The sunlight causes the bonds holding the polymer together to break which weakens the plastic. It might make polypropylene unsuitable for uses that require long-term exposure to sunlight. Further studies on the UV resistance of polymer mixed bitumen should be conducted before application.

Transportation

Transportation and logistics management is an integral part for networks and connectivity between people. Everything and everyone involved in the delivery is encompassed by this supply chain management. Typically, in cities, it is crucial for the logistics experts monitor on transportation and implemental strategies closely, specifically on the efficient planning and procurement of transportation systems along the city's development and growth.

Challenges & Improvements of Urban Bus Services in Yangon, Myanmar

WaiWai Thaw, Transport and Traffic Engineering Technical Division, Myanmar Engineering Society

Yangon Bus Services is one of the predominant public transportation services in Yangon Metropolitan Area, accounting for over 50% of all transportation trips for Yangon's citizens. To ease the traffic congestion, a major reform of bus system was recently adopted. The new bus system included rescheduling the bus travels and upgrading the provision for vehicles and the monitoring services in bus stations. The speaker conducted the study which a survey with 600 regular travelers, to observe their perception on the bus services, which were factors with independent and subjective opinions. As well as the institutional backgrounds such as transport authority private-public partnership scheme and bus operators' viewpoint, all the data were analyzed in the research. The conclusion drew that hardware urban bus service was upgraded in Yangon, yet there was no improvement on the waiting time in the passengers' view, and no significant changes on other qualitative factors.

One of the engineers queried on the survey sampling size and the implications of the speaker's methodology for improving the bus services' quality in the open floor discussion, which the researcher and all engineers should take into consideration when conducting any assessment. Not only the customers' views on waiting time in different bus stations, vehicles' condition and environment, travelling journey time, there were loads of corresponding measurements for the services was not covered but shall be taken into account for bus services enhancement, including the promotion for new bus system, the bus routes connectivity, training plans, speed limit monitoring or even bus driving behavior towards the public.

Furthermore, it was noteworthy an engineer from Singapore shared about the speed indicators with alarm installed on the minibuses in Hong Kong, at which it was agreed that such measures could effectively improve the bus services performances.

YEAFEO Country Reports

In this part of the programme, young engineers from ASEAN and guest countries were given the opportunity to present their respective engineering organizations, past activities that they organized and the upcoming events they would hold. Following past practices, the sequence of the presentation was in accordance to the alphabetical order of each country, with the host country, Thailand, being the first.

From the reports of other countries, the six YMC delegates were pleased to learn more of the engineering organizations in the ASEAN regions. In particular, the host country, Thailand, had spent considerable effort in reaching out to the community by launching the Walk Together 2017 campaign to raise people's awareness on fire safety. They hosted a weekly radio show called "Engineering Clinic" that broadcast the knowledge on home construction. They gathered volunteer engineers to

work on disaster relief and went to site of damage to give advice to locals. They continued to bridge the experienced engineers with the future leaders in the profession through the “Seniors meet Youngs” series. Winners of the top student prizes would have the privilege to receive their awards from the King of Thailand, which demonstrated the engineering profession is highly valued by the monarch.



The Hong Kong delegates presenting at the YEAFEO board meeting

For Hong Kong, YMC Deputy Chairman Ir Tak TANG and Honorary Secretary Ms Emily YU introduced the history and role of the HKIE since its 70 years’ of foundation. Ir TANG presented YMC’s theme for this Session – “Redefine Engineering” – and its commitment to organize events that enhance young engineers’ professional development, encourage them to serve the community and expand their network locally and internationally. Then, other delegates echoed CAFEO 35’s theme of sustainable development and gave a detailed overview of Hong Kong’s current status. Ms Hidy YAN began by showing images of the powerful Typhoon Hato passing through Hong Kong in August 2017 to demonstrate the effect of climate change and, hence, Hong Kong’s Climate Change Action Plan 2030+. Taking the energy sector as a case study, Mr Thomas LAM examined the challenges and the pathway towards a low carbon electricity future. On the note of resilience, Mr Stanley LAI shared the flood control measures and new initiatives in blue-green infrastructure adopted in the congested urban area of Hong Kong.

Last but not least, Ir Tak TANG expressed that ASEAN young engineers were welcome to visit Hong Kong. The HKIE-YMC would be pleased to host them.

After the Board Meeting, there was a souvenir exchange session. Each attending country prepared souvenirs that could best represent them for exchange. YMC prepared a handcrafted dragonboat

signifying the spirit of the Hong Kong people who always strive for excellence. YMC Deputy Chairman, Ir Tak TANG presented the souvenirs to the countries. A group picture was taken at the end to mark the successful completion of the meeting.



The Hong Kong delegates exchanging souvenirs with the host country



The representatives from YEAFFEO member and observer countries

2.3 18th November 2017

YEAFEO Outdoor Activities

The weather was perfect for the YEAFEO outdoor activities after the conferences and working group discussions. A group of young engineers joined a day tour for sightseeing to appreciate the uniqueness of Thai culture. The excursion included the visit to the Grand Palace, a boat tour in Chao Phraya River and sharing of plentiful laughter between the YEAFEO delegates.

The Grand Palace

Visiting the Grand Palace next to the Chao Phraya River is a must do item in Bangkok. Without any hot pants or skirts, the Palace would be the one of the best places consisted with stunning views of traditional Thai style mansion and the essence of Thai's solemnity.

Chao Phraya River Boat Tour

The energetic Chao Phraya River is truly Thai's lifeline, with its constant parade of ferries and boats, surrounded by the structures and natural shapeliness of the municipality. The River has been witness to the transformation of Thailand's capital, from its origins as a small trading post, through the political struggles and uprisings, to Bangkok's ranking as one of the world's top tourist destinations with its heady mix of modern skyscrapers and traditional temples. It was a refreshing and meaningful journey to step aboard into the heart of the Bangkok city with the wind breezes and sunshine on the boat. Inspired by the recent TVB drama, "Line Walker: The Prelude", traveling through the river gave us a sense of excitement as if we were acting to conduct undercover agents' missions.



Sightseeing along the Chao Phraya River

Farewell Banquet

The farewell banquet took place at Queen Sirikit National Convention Center on 18 November to mark the end of 35th CAFEO and 24th YEAFEO Conference.

It commenced with Thai cultural dance performances, followed by speeches of Prof. Dr. Panich Voottipruex, Chairman of CAFEO 35, and Asst. Prof. Dr. Thanee Weerasiri, Chairman of AFEO. During the banquet, several AFEO awards were presented to recognize the awardees' contributions and achievements in the development of engineering and the organization. A Thai classical drama dance, the Khon, was performed, in which the actors performed on stage by expressive gesture without speaking any lines. The story was about a Thai prince named Rama, whose wife Sida was kidnapped by the demon king Tosakanth. With the support of monkey-god Hanuman, he was able to rescue his wife after battling Tosakanth and his soldiers.



Traditional Thai performances at the closing ceremony

After the wonderful dance, the AFEO flag was handed-over to Singapore, the host country of 36th Conference of AFEO. The evening ended with performances of AFEO and invited members. Engineers took turns to come on the stage to give cultural performances of their countries, including folk music, dance, drama, etc. At the end of the banquet, the delegates of the HKIE sang two Cantonese songs, Young Ignorance (年少無知) and Red Sun (紅日). Members from different countries joined on the stage to enjoy the performance, which demonstrated that the HKIE has built long term relationships with different Southeast Asian countries with the participation of CAFEO and YEAFEO conferences in the previous years.



YEAFEO delegates supporting each other for the country performances

3 BEHIND THE CONFERENCE

Dinner with Malaysian Delegates from IEM Branches

Prior to the conferences, seminars and meetings, a social gathering dinner was arranged between the Hong Kong young engineers and the Malaysian delegates. A themed restaurant, Cabbages & Condoms, was chosen with well-known traditional Thai cuisine for our evening.

Cabbages & Condoms used a quirky name to attract the visitors and highlight a serious issue, but actually it was a great place to take pleasure in some tasty food. Part of the money spent on food was used to support development programmes initiated by the Population and Community Development Association (PDA) in Thailand and promote AIDS preventive measures in education and public engagement.

From the gathering, it was understood that the Young Engineers Section of IEM has been well structured with 8 branches, namely Kuala Lumpur, Miri, Pahang, Penang, Southern, Sarawak and Kelantan. It is true that HKIE-YMC needs not to have more branches development, yet the cooperativeness between IEM-YES branches was surely meaningful to draw on the experiences from them.



Networking dinner with IEM-YES

Experience the Thai Culture

Food and culture were inextricably linked. In order to understand Thai culture, we signed up for a course at Silom Thai Cooking School with a 5-course meal, providing the delegates with an immersive experience in traditional cooking practice and market visits. Through the half-day workshop in market and cooking school, it was appreciated that various raw ingredients were in used in their natural state for a most flavorful Thai cuisine.



Learning about Thai cuisine at Silom Thai Cooking school

Bangkok is famous for its nightlife. In addition to the pubs, passionate ladies and the neon lights in Soi Cowboy, the roof top bars in the city provided glamorous and relaxing environment for chill-out with friends. Given that the venues were in open air atmosphere, it also gave a panoramic view of Bangkok while we spent a tranquil time away from the vibrant street life.



The night views of Bangkok

4 CONCLUSION

Delegates from HKIE-YMC have fulfilled the following objectives when participating in the CAFEO 35 and the YEAFEO 24:

- To gain exposure to large scale international conference;
- To nurture the leadership and communication tactics of younger generations;
- To gain knowledge on the current practice of other countries;
- To broaden knowledge through sharing with young engineers from other countries;
- To exchange technical knowledge/ideas/culture with engineers worldwide;
- To extend the network of our young engineers with delegates from other countries;
- To increase the horizon of young engineers through their participation;
- To promote the Hong Kong Institution of Engineers (HKIE) to other countries; and
- To promote the Young Members Committee (HKIE-YMC) to other countries.

The initiative of the participation of CAFEO 35 and YEAFEO 24 of HKIE-YMC was in line with the President in his HKIE Presidential Address 2017/2018 and his goals to nurture young engineers, facilitate exchange of knowledge and ideas, and expand members' horizons. In the past few years, delegates from the HKIE-YMC attended the conference as guests and observers.

The CAFEO 35 and YEAFEO 24 this year was a valuable experience for professional engineers, especially young engineers. The six YMC delegates have gained exposure to attending large scale international conference, increased their engineering knowledge, improved communication skills and developed inter-personal qualities to work with engineers of different countries. Furthermore, it has broadened the delegates' world view and understanding of global interconnectivity. Observer institutions, including Japan and Taiwan, were inviting delegates of different countries to conduct visits to their regions, beginning with an exchange programme to Taipei City as early as March 2018. After years of active participation at YEAFEO, it has been suggested that YMC could utilise the network and the experience to host a similar international conference in Hong Kong to strengthen the bonds between engineering societies and raise the awareness of our local engineers on global issues. Next year, CAFEO 36 and YEAFEO 25 will be held in Singapore in November 2018. The HKIE-YMC will continue to encourage more young engineers to attend this meaningful event.

5 ACKNOWLEDGEMENT

We would like to express our sincere gratitude to HKIE by sponsoring our six delegates to attend the CAFEO 35 and YEAFEO 24 held in Bangkok, Thailand. We would also like to give thanks to the IET for their excellent arrangement of the conference. They have planned an itinerary rich in content for all the delegates to enjoy a wonderful, memorable and educational conference.



The Hong Kong delegates at CAFEO 35 / YEAFEO 24

6 FEEDBACK

Ir Tak WT TANG (Deputy Chairman)



Having been at the centre of the local young engineer community through serving the HKIE-YMC, it was a remarkable experience to attend CAFEO and YEAFEO. In keeping with the HKIE's theme for the 2017/18 Session, this delegation has served as an excellent opportunity for our members to expand our horizon by meeting young engineers of our neighbouring regions at a single venue. Building on the long established relationship and network, I was delighted to work with our counterparts who were passionate about enhancing the sustainable development of their countries. In an age of globalization, YEAFEO is an annual showcase of how our future leaders come

together in collaboration to combat common worldwide issues. I wish to congratulate the board of YEAFEO in continuing the tradition and having organised another successful conference. I also wish to extend my gratitude to our good team of HKIE-YMC delegates for their contribution in researching and sharing the Hong Kong experience, and joining hands in strengthening our ties with our neighbours.

Ms Hidy YAN (Committee Member)

“Sawadeeka!” It was my very first to be a YEAFEO delegate, and it was also my foremost visit to Thailand. I enjoyed a lot on the programme including the working group discussions, seminars and cultural exchanges between the young engineers from various countries. During my stay in Bangkok, I was amazed by the vitality of the city and the exclusivity of the Thai culture as much as with the strong passion and hospitality from the YEAFEO delegates. It had been a valuable opportunity that we shared our working experiences and the social engagement in different parts of the world. The theme of this year's conference was promoting our pathways to sustainable development for a sufficiency economy and community, and I certainly would encourage more young engineers to participate such international events to enrich ourselves and help developing a more harmonious place on Earth.



May I take the opportunity to send my sincere thanks to Tak, Emily, King, Thomas and Stanley for the unforgettable massages, skybar's drinks, lobster noodles and all the fond memories within the delegation team. “Kob Koon Ka!”

Mr King CHEUNG (Committee Member)

This year is my first year participating in the CAFEO and YEAFEO. I am glad to have the chance to join the event as a delegate and it really impressed me a lot. The section of country report provide a platform for all the ASEAN to know more about the development of our neighbouring countries. During the YEAFEO meeting, we could learn from other young society on how they organized the event in the past year. One of the highlighted events were the technical seminars, we could learn a lot more about their pioneering technology and research topic from the 10 participating ASEAN countries.



Another exciting part of the CAFEO was the time with the YEAFEO delegates. As we are in the similar age and background, it is easy for us to get close and build up friendship fast in just a few days. I felt strong passion and hospitality from all these delegates. We share our though, ideas and know more about various cultures and engineering topics. We make many friends from the CAFEO meeting and I am sure that the friendship could be long lasting. I would also appreciated the delegate from the host country, Thailand, which bring us to their taste their local food and visit their landmark building and have tried their best to make all the delegates to be well looked after.

All of all, The YEAFEO is a good platform for young engineers of different countries to exchange ideas and learn valuable experience from each other. I am delighted to have this valuable learning experience and benefit greatly from the high level of interaction, knowledge exchange and networking during the conference. I would like to thanks the HKIE for your support and would like to encourage more young engineers to participate in this kind of conference.

Mr Thomas LAM (Co-opted Member)

I was honored to represent the HKIE to join the 35th CAFEO and 24th YEAFEO Conference in Bangkok. This was a fruitful experience for me to learn engineering knowledge in various disciplines and meet engineers from Southeast Asian countries. I would like to thank the HKIE for sponsoring this event.

Through attending CAFEO board meetings, I understood the status of engineering development in different countries in terms of government policy, infrastructure, economy, education and employment. The research topics on the environmental and energy engineering seminars were so inspiring that some of the technologies



discussed could be applied to tackle engineering problems in Hong Kong. The technical visit to G Tower was informative and interesting in which I understood the design, construction and engineering challenges of the amazing civil work. Also, the YEAFEO boarding meeting provided me an excellent opportunity to introduce the climate change action plan of power sector in Hong Kong and know more about other engineering organization for young engineers.

In addition to acquiring engineering knowledge, the conference was a favorable platform for me to exchange ideas and have fun with engineers from different background. We had a lot of great memories and the most unforgettable moment to me was the closing ceremony. I was excited to see that engineers from different countries came on the stage during our performance to share the joy with us even though we had cultural differences. I hope our friendship can be maintained and look forward to our potential cooperation in the future.

In conclusion, the conference provided a valuable opportunity for young engineers to learn and build professional network. Once again, I would like to thank the HKIE and other delegates for your support on this wonderful journey.

Mr Stanley LAI (Registered Young Member)



It is my great honour to be one of the Hong Kong representatives to join the 35th CAFEO to understand the development in Southeast Asian Countries and strengthen the network with Asian young engineers. CAFEO 35 was supplemented with conference sessions, technical visits, culture experiences and on-stage performance. Through the conference, I appreciated that the spirit of intergovernmental cooperation between ASEAN regions promoted the unity of Asian engineers to work collaboratively as well as establish engineering standards and directions for 10 country members. It was very encouraging that federal countries alternately host the conference on an annual basis to exchange their ideas and share the best practices to all members in the ASEAN Federation.

The theme of “Towards a Sufficiency Economy: Pathways to sustainable development” in this year is a worldwide consensual goal aimed to protect the planet and tackle the facing difficulties. The presented researches had reinforced my knowledge of various interesting topics, such as, modification of bitumen properties by using polypropylene wastes and the performance-based seismic design for tall buildings in Myanmar. Accompanied with the technical visit to the G Tower in Bangkok, I gained a better understanding how the planning strategy of “Centre Business District” is a benefit of city urbanisation with a commercial, business and leisure centre.

In comparison to the development strategy of “Hong Kong 2030+”, both planning strategies share the same idea that builds a liveable, competitive and sustainable city. Nevertheless, I truly felt that young engineers in this generation should pursue technical competencies as well as do more to contribute to community development.

The conference was ended in a grand closing ceremony which was an indescribable moment that Hong Kong delegates were singing a song with the young engineers of YEAFEO on the stage. During this unforgettable delegation, we shared the experiences as well as the happiness. Their hospitality deeply impressed me and the journey was marvellous.

Last but not least, the delegation not only extended my engineering experience to Southeast Asian regions, but also made me understand the importance of intellectual and global horizons. It expanded my social network to another region for cultural and experience exchange. I would highly recommend this type of delegation to other young engineers.

Ms Emily YU (Honorary Secretary)



I was especially excited this year to join the CAFEO 35 and YEAFEO 24 in Bangkok; not only would I get to see my old friends again, but I would also get to share this experience with a new team of 5 young engineers who were joining this conference for the first time. Since the first year I joined CAFEO in 2012 to Cambodia, the number of young members and their respective institutions have continued to grow, and the influence from other countries is very clear. While catching up with old friends and meeting new ones, there was always mentions of visiting other ASEAN and Asian countries in the past year. During the country reports, members would report that they had new

initiatives due to the inspiration from other countries. Networking was always pleasant and easy-going; even though we were all speaking in a second language, the passion for engineering and love of their home country was easily expressed. It is this passion and this love that allows young engineers to be open to new ideas that will ultimately lead to the betterment of the lives of others.

I was happy to see our team enjoy the Delegation and really embrace the experience, making new friends and memories together. I hope we can continue to build on these relationships to tackle the many engineering challenges that lay ahead together.

Appendix A

Conference Programme



The 35th Conference of the ASEAN Federation of Engineering Organizations

Theme: Towards a Sufficiency Economy - Pathways to Sustainable Development

16 - 18 November 2017 at Queen Sirikit National Convention Center (QSNCC) Bangkok, Thailand



Update 8/11/2017

Date	Time	Technical Program			
Tuesday 14 Nov. 2017		Arrival of Participants and Delegates			
Wednesday 15 Nov. 2017	05:00 - 12:00	Friendly Golf Game / Please register by 15 Oct. 2017 (Krungthep Kreetha Sport Club)			
	08:00 - 17:00	Technical Visit (Program 1 / Program 2)			
Thursday 16 Nov. 2017	08:00 - 08:30	Registration of Conference Delegates & Participants			
	08:30 - 10:00	Transportation WG (Boardroom 2)	Education & Capacity (Boardroom 3)	Energy WG (Boardroom 4)	WEAFEO Meeting (Boardroom 5)
	10:30 - 12:00	Disaster WG (Boardroom 2)	Sustainable Cities WG (Boardroom 3)	Environmental WG (Boardroom 4)	AEI - Electrical (Boardroom 5)
	12:00- 13:00	Free Session & Lunch			
	13:00 - 14:30	Awards Meeting (Boardroom 2)	YEAFO Meeting (Boardroom 3)	WEAFEO Country Report (Boardroom 4)	AEI - Building+Boiler (Boardroom 5)
	14:30 - 15:30	Rehearsal of the Opening Ceremony to the Presidents (Ball Room)			
	16:00 - 19:00	The King Representative presides over the opening ceremony of CAFEEO 35 & National Engineering 2017 (Ball Room) Government official: Formal white uniform, Guest: Formal dress			
	19:00 - 21:00	Welcome Reception (Thai Pavilion Zone)			

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 16 - 18 November 2017 at Queen Sirikit National Convention Center (QSNCC) Bangkok, Thailand



Update 8/11/2017

Date	Time	Technical Program			
Friday 17 Nov. 2017	07:30 - 08:30	Registration AER Certificate			
	08.30 - 09:30	March in together with : AFEO Chairman and Presidents of Member Organizations			
	09:30 - 10:00	Keynote Address by Dr.Twarath Sutabutr, Director-General of EPPO		Conference Session (Boardrooms 2, 3, 4) Start 09:00	
	10:00 - 11:30	Country Report 10 minutes/country (Ball Room)	FEIAP Engr. Guidelines Meeting for Technicians and Technologists (Boardroom 5) 09:00-10:00		
	10:00 - 12:00	Certificate Presentation Ceremony for AER (Ball Room)	FEIAP Engr. Guidelines Meeting for Engineers (Boardroom 5) 10:00-12:00		
	12:30 - 13:30	Lunch			
	13:30 - 15:00	YEAFO Board Meeting (Boardroom 2)	Mobility of Engineers Forum (Boardroom 5)	Conference Session (Boardroom 3)	Conference Session (Boardroom 4)
	15:00 - 17:30		AER Meeting (Boardroom 5)		

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Date	Time	Technical Program				
	15:00 - 17:30	(Boardroom 2)	AER Meeting (Boardroom 5)	(Boardroom 3)	(Boardroom 4)	
Saturday 18 Nov. 2017	08:30 - 10.00	FEIAP Meeting (Boardroom 2)		YEAFO Outdoor Activities*	WEAFO Activities ** Boardroom 4	
	10:00-11:00	AFO/CAST Dialogue on Collaboration under the Belt and Road Initiative (Boardroom 2)				
	11:00 - 12:30	AFO Governing Board Meeting (Boardroom 2)				
	12:00 - 12.30	Signing Ceremony for the Bangkok Declaration (Boardroom 4)				
	12:30 - 13.00	Exchange of Souvenirs and Photo Session				
	12:00 - 13:00	Lunch				
	14:00 - 16:00	Business Networking Session (Seminar Center Room of National Engineering 2017)				
	17:00 - 18:00	Registration for Farewell Banquet and AFO Awards 2017 and Closing Ceremony (Ball Room)				
	18:00 - 21:00	Farewell Banquet (Delegate performances, flag handover to incoming President CAFEEO 36, AFO Awards 2017 presentations) (Ball Room)				

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Update 8/11/2017

Date	Time	Technical Program
Sunday 19 Nov. 2017		Check out and Leave for Home Country

***Outdoor Activities**

****WEAFEO Network Activities**

Remark: Please see agenda for all programs at page CAFE0 35 at link: <http://eit.or.th/CAFE035.html>

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Appendix B

Financial Report