CIDB MALAYSIA

HEIGHTS

Construction, from a New Angle

Volume 4 | 2016

ICW 2016

16TH INTERNATIONAL CONSTRUCTION WEEK

SPECIAL EDITION

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HEIGHTS

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SHAPING UP

The construction industry in Malaysia demonstrated its resilience once again, weathering the storm of the recent global economic downturn with grit and tenacity. The construction industry is expected to remain strong with an estimated RM136 billions of construction jobs in the pipeline this year alone, including the Merdeka PNB118 project which is set to overtake the iconic Petronas Twin Towers as Malaysia's tallest building.

The Merdeka PNB118 will be 118-storeys high and is expected to be completed by 2020. The tower will stand grandly against the Kuala Lumpur skyline at 630 metres and is expected to given the MSC Malaysia Cyber Centre status, while also bagging the title of 5th tallest building in the world.

Construction companies are also trading at the highest level relative to the Malaysian equity benchmark, with the Bursa Malaysia Construction Index rising 21% from an August low and priced at 1.2 times net assets, nearly the most expensive level in almost a year.

Guided by the visionary Construction Industry Development Board (CIDB), shortages in skilled labour were quickly remedied by the hard work and effort of the Akademi Binaan Malaysia (ABM), while gradual transitions for major and upcoming construction players in the industry to world-class standards were made via the Construction Industry Transformation Programme (CITP).

The timely arrival of the International Construction Week 2016 (ICW16) consolidated the efforts carried out by CIDB over the last few months. The ICW16 was a vital outreach program, setting up opportunities for education and exposure while providing a platform for collaborative efforts.

In this issue, we highlight the 16th instalment of the region's biggest trade event for the construction industry, covering segments that range from the advances in building methods and materials, to the role of women in construction, and new business opportunities in overseas markets.

From here on now, we look forward to embracing a good year for Malaysian construction.

The Editorial Team

A SHOWCASE OF PRODUCTIVITY

International Construction Week 2016 (ICW 2016), the 16th instalment of the region's biggest trade event for the construction industry, was launched on 12 April 2016 at the Kuala Lumpur Convention Centre by Dato' Sri Haji Fadillah Bin Haji Yusof, Minister of Works Malaysia, on behalf of the Prime Minister Dato' Sri Mohd Najib Tun Razak.

Organised by the Construction Industry Development Board (CIDB) and United Business Media (UBM), this year's trade event with the theme 'Driving Productivity in Construction' addressed one of the four strategic thrusts under the Construction Industry Transformation Programme (CITP) to raise productivity of the construction industry. CITP is a five-year plan designed to take Malaysia's construction industry to the next level.

The ICW2016 was organised to place emphasis on the cutting-edge technologies and methodologies that are meant to improve productivity and sustainability in construction, particularly Industrialised Building Systems (IBS) which was showcased in the IBS Housing Expo and was the main highlight of the entire event.

"The theme of this year's ICW is driving productivity further by increasing technology adoption and modernising construction methods. This is an important aspect of our national economy for it is through increased productivity that we can properly target becoming a high-income nation by 2020," noted Prime Minister Dato' Sri Mohd Najib Tun Razak.

"Increasing construction sector productivity also means employing modern construction methods, such

Works Minister Datuk Seri Fadillah Yusof officiated the opening ceremony on behalf of Dato' Sri Najib Razak. He is flanked by (from left) UBM Asia managing director (Asean Business) M. Gandhi, CIDB Chief Executive Dato' Ir Ahmad Asri bin Abdul Hamid, Chairman of CIDB Malaysia Tan Sri Dr Ir Ahmad Tajuddin Ali, Deputy Minister of Works Datuk Rosnah Abdul Rashid Shirlin and Secretary-General of the Ministry of Works Dato' Sri Zohari bin Haji Akob.

"The ICW 2016 is a product of strong collaboration among government agencies and industry stakeholders which are committed to drive productivity in construction."

– Tan Sri Dr Ir Ahmad Tajuddin Ali, Chairman of CIDB Malaysia

as increased mechanisation and such technologies as Industrialised Building Systems. While the labour productivity of the construction sector is expected to rise to RM61,939 per worker by 2020 from RM39,116 in 2015, it remains imperative that skills be enhanced to raise productivity and handle more sophisticated building methods," he said.

"The IBS construction method uses building components that are prefabricated in factories and installed at sites, and it has proven to speed up the construction process resulting in lower labour costs. By using IBS components produced in controlled environments, we can ensure that all building components conform to stringent quality assurance requirements," he said.

Additionally, IBS is the ideal building system that will promote environmental sustainability resulting in less wastage of materials compared to conventional methods of construction. "The implementation of IBS in the construction industry will also reduce the number of unskilled labour in the country and focus on prefabricated and modular construction, a move that will encourage more locals to enter the construction industry as skilled workers, IBS component installers and machine operators," he commented.

The Prime Minister's opening speech was read by Works Minister Datuk Seri Fadillah Yusof, who represented him at the opening ceremony.

Also present was Chairman of CIDB Malaysia, Tan Sri Dr Ir Ahmad Tajuddin Ali, who delivered the welcoming speech. Tajuddin thanked the Minister of Works for officiating event and stated that his presence reaffirmed the importance of the construction industry for Malaysia in driving the country towards becoming a developed and high income nation. He also thanked UEM and Gamuda for being the platinum sponsor of ICW 2016. Tajuddin continued to express his appreciation towards the government agencies and industry stakeholders involved, whom he noted were "committed to drive productivity in construction." He also thanked those who played an important role in success of ICW 2016, applauding how "ICW 2016 is well positioned to be the premier event for the construction industry in the region."

Datuk Seri Fadillah Yusof, together with (from left) Datuk Rosnah Shirlin, Tan Sri Dr Ir Ahmad Tajuddin Ali and Dato' Ir Ahmad Asri at the IBS Housing Expo.

"We hope to change the perception of those in the industry concerning Ecobuild, and to encourage industry players to employ 'greener' methods during construction in order to achieve sustainability, for example rainwater harvesting which is the accumulation and deposition of rainwater for flushing toilets, instead of using water"

– M. Gandhi, UBM Asia Managing Director (Asean Business)

"The construction sector has an important role to play. It is expected to grow at an average of 10.3% annually in the next five years driven by continued civil engineering works, residential housing demand as well as affordable housing for low-income groups."

– Dato' Ir Ahmad Asri Abdul Hamid, CIDB Chief Executive

ICW 2016 also hosted a Construction Career Fair 2016 with a series of career talks and interview sessions for university students such as the Arena of Youth Competition, Rebuild it Green Competition and the Mechanical Design Competition to encourage youth to explore opportunities in the industry. Co-locating with ICW 2016 was the third edition of Ecobuild South-East Asia. The opening ceremony was followed by a press conference with CIDB Chief Executive Dato' Ir Ahmad Asri Abdul Hamid and UBM Asia Managing Director M Ghandi, held at the venue of the IBS Housing Expo (IHE), which was hosted by Ecobuild.

UBM Asia managing director (Asean Business) M. Gandhi stated that Ecobuild was South-East Asia's leading event for sustainable design, construction and built environment. "The objective of Ecobuild is to give foresight to technological development in building by providing sustainable design solutions that conserve natural resources. The biggest development innovation that is happening in the environment globally is related to sustainability," explained Gandhi. Ecobuild also hosted the IBS Housing Expo (IHE), which was to showcase new IBS products and technology which can be used for the construction of affordable housing.

"The theme for ICW 2016 is in line with the 11th Malaysia Plan which begins this year in the country's final stretch towards realising Vision 2020, where the focus is on productivity to drive economic growth," said Asri. "We are also building on the momentum of the Construction Industry Transformation Programme (CITP) that was launched by the Prime Minister at ICW last year, as a national agenda to transform and modernise the construction industry. CIDB will use this opportunity to continue to highlight the benefits of IBS especially in helping to achieve housing targets to meet the demand," Asri told the press.

As the leading platform for the construction industry in Southeast Asia, local and international industry players, government agencies, professional bodies and research institutes convened for the 16th instalment of the trade show which saw more than 100 exhibitors, both local and from abroad, and drew about 10,000 visitors. It is also now mandatory for all government projects costing more than RM10 million and private sector projects costing over RM50 million, to achieve the 70 IBS score, in order to reinforce the usage of IBS in construction projects, to boost efficiency and quality in building, and to also eventually lower the number of unskilled, foreign labour in Malaysia. ■

ENHANCING INDUSTRY EFFICIENCY

The Ecobuild Southeast Asia (Ecobuild SEA) exhibition was held in conjunction with the International Construction Week (ICW) 2016 at the Kuala Lumpur Convention Center in Malaysia. ICW 2016 and Ecobuild SEA 2016 were held as part of the Construction Industry Transformation Programme (CITP), an implementation plan designed to elevate Malaysia's construction industry to greater heights.

This year's ICW and Ecobuild SEA 2016 saw the gathering of local and international construction players, government agencies, professional bodies and research institutes for the biggest construction event in the country. The events featured cutting-edge technologies and methodologies that enhanced the productivity and sustainability in construction, particularly the Industrialised Building Systems (IBS).

Co-locating with ICW 2016, Ecobuild 2016 is the third instalment of its kind. Ecobuild also held the IBS Housing Expo that showcased new IBS products and technology which can be used for the construction of affordable housing.

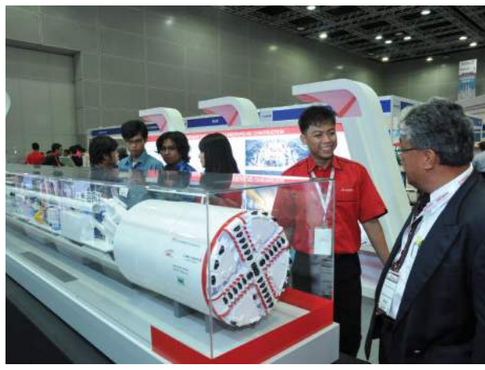
"The objective of Ecobuild is to give foresight to technological development in building by providing sustainable design solutions that conserve natural resources," said UBM Asia's Managing Director (Asean Business) M Gandhi.

There were also various competitions held throughout the Ecobuild event, including Rebuild It Green, Malaysia Icon Lego Competition, Open Ideas Competition, and IEM Mechanical Design Competition.

Prime Minister Datuk Seri Najib Tun Razak, who was represented at Ecobuild by Works Minister Datuk Seri Fadillah Yusof, said that the construction industry was recognised as a prime economic mover in Malaysia and was projected to remain robust in 2016 with high investments in infrastructure projects from both the public and private sectors.

Ecobuild SEA has received positive response, and UBM's vision is to make this an even bigger regional event, drawing more visitors from around Southeast Asia. ■

▲ Datuk Seri Fadillah Yusof being shown state-of-the-art construction equipment, at the IBS Housing Expo.



Above: Works Minister Datuk Seri Fadillah Yusof the opening ceremony of Ecobuild Southeast Asia 2016 on behalf of Prime Minister Datuk Seri Najib Razak.

Right: The IBS Housing Expo was organised to showcase new technologies in construction.

BOOSTING PRODUCTIVITY THROUGH TRAINING

ATTRACTING LOCAL TALENTS TO REDUCE RELIANCE ON FOREIGN LABOUR

In conjunction with International Construction Week (ICW) 2016, Akademi Binaan Malaysia (Malaysian Construction Academy – ABM) exhibited at the *CIDB-IEM CONSTRUCTION CAREER FAIR 2016*. ABM's main function at the fair was to encourage youth or interested individuals to participate in their courses. Keeping in line with ICW's theme, which was 'Driving Productivity in Construction', ABM also focused on recruiting talents in order to produce more skilled and semi-skilled local labour. This is to aide in eventually decreasing the Malaysian construction industry's reliance on foreign and unskilled labour.

Youth participants and industry professionals who attended the career fair were invited to sign-up and participate in one of ABM's 58 comprehensive training courses. Of the 58 course available, nine of them have been designated as 'high-impact courses'. Some of these courses include training for crane operation, welding, non-destructive testing and heavy equipment management, all relevant skills for the industry. General Operating Officer of ABM Eastern Province Endut Maliki said that potential trainees interested in enrolling for the courses should take on these courses as an addition to their skillset as these were skills that are highly in demand.

ABM works directly with the construction industry and conducts apprenticeship programmes to help students secure internship positions after completing their training. The *'Train the Trainers Program'* and the *'Apprenticeship Programme'* focuses on expanding the network to strengthen the quality of skill training for the building sector. These youth training programmes are entirely funded by CIDB. ABM also provides safety training equipment for the youth, such as shoes, clothing, and helmets for use in the work rooms, workshops and lectures for free. As for working professionals who intend to undergo training at ABM's campuses, the registration fee is RM80, RM50 deposit dormitory, and all trainees are also required to undergo a urine test that costs RM30.

▲ A representative from CIDB at the ABM booth, during the CIDB-IEM Career Fair 2016 demonstrates the latest equipment in construction to interested students.

Besides that, CIDB Holdings Sdn Bhd Chief Executive Abdul Latif Hitam mentioned that in terms of job security, ABM ensures that every alumni and graduate of ABM are readily employable according to their field of study once they have completed their training. To further enhance the development of human resources in the industry, CIDB is working with other agencies and organizations across the country to coordinate skill training in construction. "It is our goal under the Construction Industry Transformation (CITP) programme to ensure training centres do not overlap with each other in offering training courses," Abdul Latif said.

"Through ABM, youth and industry professionals can attempt at improving their vocational skills in the construction industry to a much higher level. Equipping one's self with these high-impact skills can help one to increase their value and expertise, as having more skills increases one potential in also working abroad in countries that lack workers with high-impact skills."

– Endut Maliki,
General Operating Officer of ABM Eastern Province

At the career fair, alumni Mohammad Saifullah Shaharudin was also present to share his success story. Saifullah joined ABM in July 2013, under the 'scaffolder' course. The ABM graduate now acts as Project Manager at HSA Resources Saifullah, a company that he started on his own two years ago. "ABM has helped improve my standard of living, especially at a time when I was faced with a difficult career path and stiff competition," he said. He also added that through the course, he managed to acquire skills that have been instrumental in helping him set up his own company and also building the foundation to gaining a stronger foothold in the industry.

ABM graduates have the capabilities to compete with graduates of the higher education institutions and colleges. They also have the potential of expanding their skillset to create more value for themselves and also leading a higher quality of life by climbing up the career ladder locally or abroad. The aim of the courses is to equip locals with the adequate construction skill, especially high-impact skills in order to make them readily hireable by construction companies here. This is to eventually decrease the industry's reliance on foreign and unskilled labour an issue that received much attention during the ICW 2016. ■

LEANING TOWARDS THE FUTURE

The Master Builders Association Malaysia (MBAM) supported by the Construction Industry Development Board Malaysia (CIDB) organised the 7th Malaysian Construction Summit (MCW) 2016 in conjunction with the International Construction Week (ICW) 2016. The theme of the summit was Increasing Productivity through Technology and Processes.

A Productive Start

The summit was officiated by the Guest of Honour, the Minister of Works Malaysia Dato' Sri Haji Fadillah Haji Yusof. In his official opening speech, Dato' Sri Haji Fadillah highlighted the importance of improving productivity via technology within the construction sector. He stressed on workforce, technology and processes in construction as being the key drivers of productivity, as part of the Malaysian government's 11th Malaysian Plan.

"When we talk about building sustainably, we have to put emphasis on Industralised Building System (IBS); it has been made mandatory for all government projects costing RM10 million and above to contain at least 70 IBS score," said Dato' Sri Haji Fadillah, as he further expanded on the advantages of employing IBS technology within the construction sector.

He also pointed out the benefits of using the Building Information Modelling (BIM) technology, an off-site modular construction method that has proven to be cost-efficient and a sustainable alternative to conventional methods of construction. BIM, like IBS, is also cost-saving and allows for efficient and effective life cycle management of the built environment. The importance of employing green construction was also highlighted by Dato Sri Haji Fadillah in his speech, as he mentioned how Malaysia has embarked on initiatives under the Construction Industry Transformation Programme (CITP) and the 11th Malaysian Plan to reduce energy consumption in construction.

MBAM President Matthew Tee presented the welcome speech for the summit, in which he expressed his gratitude towards Steven Aroki, MBAM Council Member and Chairman of the Organising Committee of the 7th MCW, and also towards the sponsorship and support from various companies, such as UOB Bank, Bina Puri Holdings, Sunway Construction Group, and Temokin Holdings among others, for ensuring the success of the event.

Tee stated that the summit's theme reflects the nation's goal of becoming a developed country. He also highlighted how advancements in the construction industry in Malaysia had resulted in the country being placed among the world's top 20 most competitive economies, and is also ranked in the highest among developing countries in Asia, as stated in the Global Competitiveness Report 2015-2016.

Despite these achievements, Tee pointed out that Malaysians need to work harder so as not to be left behind by other developing countries such as Thailand, Bulgaria and India that have been observed to be closing the gap with Malaysia. "Malaysia needs to identify leading indicators of real growth opportunity, particularly where there are gaps between our current performance and the global benchmark," Tee said.

Industry Leaders

Various pioneers from the construction industry around Asia were invited to speak at the event. Divided into two parts, the first half of the summit was moderated by Kwan Foh Kwei, MBAM's former President and Non-Independent, Non-Executive Director and Advisor to Sunway Construction Group.

Dr Roslina Md Isa, the director of Productivity and Competitiveness of the Malaysian Productivity Corporation began the first session titled Leveraging on the Relevant Strategy to Improve Productivity in Construction Sector. In her presentation, Dr Roslina highlighted the relevant challenges, strategies and recommendations for the construction industry in Malaysia.

"'Create, raise, reduce and eliminate' are important for a growing industry," she stressed. "Adopting IBS is a necessary ingredient for larger projects, as it will help to reduce the need for foreign workers in the construction sector and improve productivity." She also recommended that a regulatory environment for construction be set up in Malaysia to

The last panel discussion focused on the benefits of employing technology into construction and how it has proven to increase productivity and efficiency was moderated by MBAM Vice President Ir Chuan Yeong Ming (first from left). Professor Sam Ho (second from left) is seen answering questions from the floor while flanked by (from right) Dr Wi Sung Yoo and Professor Dr Low Sui Pheng.

Minister of Works Dato' Sri Haji Fadillah Haji Yusof (third from left) and Deputy Minister of Works Datuk Rosnah Shirlin (second from left) officiated the opening ceremony of the 7th Malaysia Construction Summit (MCS) 2016. They are flanked by (from left) CIDB Chief Executive Dato' Ir Ahmad Asri bin Abdul Hamid, MBAM President Matthew Tee and MCS 2016 Chairman Seven Aroki.

facilitate development and efficiency, and ensure consistency across ministries, agencies, federal, state and local government. "Boosting productivity nonetheless is imperative to achieving a more sustainable, inclusive and high rate of economic growth," Dr. Roslina said.

The second speaker of the day, Ir Julian Lee, Senior Manager of R&D at the Construction Industry Council, presented on the practices and research that drive construction productivity in Hong Kong. Lee pointed out how Hong Kong's construction industry is characterised by high-quality output and a high percentage of skilled workers, as a result of efforts by the Construction Industry Training Board (CITB).

Despite a thriving construction industry, Lee highlighted how there was still room for improvement, as productivity faces hindrances such as insufficient demand pull from private developers, an abundance of sub-scale players, insufficient readiness of the supply chain, lack of a supportive research structure and insufficient attention paid to opitimising buildability and standardisation in the design stage.

Toshihiko Makiuchi, General Manager of Taisei Corporation's Kuala Lumpur office, presented his paper titled Workforce Development Plan for Malaysian Construction Industry. Makiuchi, who possesses 27 years of experience in the construction field, highlighted the necessity of ICT in increasing construction productivity and efficiency in Malaysia, through reducing construction cost, labour cost and maintenance cost.

Various ways that ICT has been employed in construction include design drawings developed from BIM, virtual construction of build-ups, demonstrating electrical set-ups of buildings and more, Makiuchi stated. Makiuchi added, however, that developed countries such as Japan and the USA, despite employing ICT experimentally, were yet to fully utilise ICT in construction.

IBS is a construction technique where components are manufactured in a controlled environment and assembled into a structure with minimal additional site works. The main advantages include high utilisation, increased quality, reduced dependency on labour and that it is environmentally friendly.

The second session of the summit commenced in the afternoon, and was moderated by Ir Chuan Yeong Ming, MBAM's Vice President and Managing Director of Paramount Engineering and Construction. Professor Sam Ho, the fourth speaker of the day, presented his paper titled Increasing Construction Productivity Through the Construction Green 5-S (CG5S) for Malaysia's CITP. Prof Sam demonstrated how efficiency and productivity in the construction in Malaysia could be improved through the adoption of the '5S organisational method,' or the SIRIM Green 5-S for global competitiveness and organizational excellence, which stands for Structurise, Systematise, Sanitise, Standardise and Self-discipline.

The method implements safety-health, quality-productivity, green-environment and energy-efficiency, and enables participants to gain information and knowledge in identifying and improving the safety, quality and productivity aspects while increasing the competitiveness of an organisation. Prof Sam stated that the implementation of SIRIM Green 5-S resulted in improvements in the workplace environment, quality of work, the organisation's productivity and cost efficiency, teamwork among employees, company image and competitiveness.

The fifth speaker for the day, Professor Low Sui Phen, Director of the Centre for Project Management and Construction Law at the National University of Singapore, presented his paper titled Regulating Productivity through Buildable Technologies and Construction Processes. Professor Low highlighted the ways in which productivity could be maximised through regulating the demand and supply of low cost, lower-skilled foreign workforce through worker levies and entitlement systems, enhancing the quality of the construction workforce, imposing regulatory requirements through labour-saving technology, and providing financial incentives to encourage manpower development.

He also lauded the use of IBS in construction but highlighted the obstacles that discouraged engineers from implementing it, which include a lack of education and familiarity, design constraints, supply inadequacy and that IBS is 18% more costly than conventional construction.

Nonetheless, Professor Low stated that the Singaporean government had taken initiatives to encourage IBS in its construction industry through certification programmes and seminars, a construction productivity gallery to showcase the game-changing technologies, the Construction Excellence Awards (BCA), and also by demonstrating how using IBS meant that construction firms would only require 24-40% of labour and that construction time would be cut short by 15-20%.

The last speaker for the day, Dr Wisung Yoo from Korea, presented a comparative analysis of labour cost and productivity, and practices for technology-based productivity improvement. Dr Yoo illustrated the labour costs and productivity in industry level between various countries, and demonstrated a distinct gap of productivity between engineers and workers in Malaysia. He also presented how IBS had been utilised to aide in overcoming a lack of skilled workforce in the construction industry, reduce the rate of occupational accidents and incidences while enhancing productivity and efficiency of construction.

> "IBS will be difficult to implement if Malaysia continues to hire foreign and unskilled workers. To attract the local (Malaysian) workers into the industry, we need to pay them well and create an adequate environment for them to thrive in order to improve productivity and efficiency in the local industry."
>
> *– Ir Chuan Yeong Ming, MBAM Vice President*

At the end of the ceremony, MCS Chairman Steven Aroki delivered the closing speech for the summit. Aroki stated that much needs to be done, and that the construction sector "must turn towards new avenues of processes and technologies in the bid to leave behind labour-intensive construction methods." He also pointed out that Malaysia could look to – and learn from – developed countries such as Japan and Hong Kong's successful construction industries in order to further improve.

The 7th Malaysian Construction Summit aimed to highlight the need to improve productivity and efficiency in the construction industry while also lowering the cost through a reduction in foreign skilled labour, especially with encouraging local construction firms to employ IBS in their production. The construction industry development is a deliberate process to improve productivity, capacity and effectiveness in order to meet the demand for building and civil engineering, and to support sustained national economic and social development objectives. ■

Building Information Modelling (BIM) technology is an important element in enhancing the efficiency of construction projects in Malaysia.

LIVE IN ACTION

Building Information Modelling (BIM) uses virtual 3D models to generate a building's lifecycle from beginning to end. This technology effectively saves time and money during the development and construction phases, while improving the quality of the finished product to match the expectations of the client. Despite these benefits, implementation of BIM in the Malaysian construction industry remains low since it was first introduced to the country in 2009.

Organised by the Construction Industry Development Board (CIDB), BIM Day 2016 was held in conjunction with the International Construction Week (ICW) 2016 to showcase and encourage the use of BIM among local contractors and developers. Attending the exhibition was Secretary General of Works Dato Zohari bin Haji Akob, and CEO of the CIDB Dato Ir Ahmad Asri Abdul Hamid.

BIM Day 2016 was officiated by Deputy Minister of Works Datuk Rosnah Haji Abdul Rashid Shirlin, who stressed on the importance of efficient construction and modernising building techniques in national development. "BIM technology is in line with the sixth strategic thrust of the 11th Malaysia Plan, which is the re-engineering of economic growth for greater prosperity." Dato Sri Zohari also referred to government projects that had used BIM in their construction: the National Cancer Institute in Putrajaya and the administration building of the Malaysian Anti-Corruption Commission in Shah Alam.

Living up to its tagline Live in Action, the exhibition's main highlight was a live re-enactment of BIM technology implementation in an actual scenario. BIM specialists acted out the roles of a client, main contractor and architect among other characters to create a detailed and realistic portrayal of how exactly BIM could solve conventional problems frequently faced by all parties.

Led by CIDB's Information Technology Construction Division Senior Manager Mohd Harris Ismail (playing the client in this re-enactment), the first segment of the stage-play involved a dialogue between the client and his main contractor. This segment identified two common challenges: the main contractor not understanding the client's wishes, and the client's inconsistency on the project specifications. Both challenges were easily solved when the BIM architect (played by a third actor) was able to demonstrate the 3D-rendered massing

Living up to its tagline *Live in Action*, the exhibition's main highlight was a live re-enactment of BIM technology implementation in an actual scenario.

Students from the CIDB's Malaysian Construction Academy (Akademi Binaan Malaysia - ABM) were present at the BIM Day 2016 event to see first-hand how Building Information Modelling is implemented from the beginning to the end of a building's lifecycle.

of the ground layout using BIM tools and methods. Thanks to the flexibility of the 3D model, the client was able to make as many changes as he wanted in real-time, while the main contractor was able to see exactly how the building would look like.

This theme was repeated several times over the course of the re-enactment, with BIM technology improving procedural speed and efficiency in each scenario, while solving many of the problems involved in construction such as last minute amendments, incompatibility between file formats during the design phase, and human error and miscommunication.

The re-enactment was followed by a lively Q&A Session, with members of the audience ranging from foreign contractors to local students actively participating in engaging BIM specialists on their opinions. Among the primary concerns of attendees involved how the transition to BIM technology would look like, and more importantly, how much it would cost.

In terms of the time required to train a proficient BIM user, all the specialists agreed that the learning curve is subjective to the aptitude and motivation of the individual learner in order to master the software, workflow and processes involved. An estimated time of between one to six months was given. As for the start-up costs, the licensing for 10 BIM software would cost around RM130,000, with 3 licences being sufficient for a small team. According to Mohd Harris, a change of mindset is required when investing in new technology like BIM. "Too often, contractors are unwilling to spend now to save even more costs in the future," he said.

BIM is certified by building SMART, the worldwide authority on international construction standards. With "internationalisation" being one of the four strategic thrusts under the Construction Industry Transformation Programme (CITP), BIM is set to play an integral part in transforming Malaysia's construction industry. ■

EMPOWERING THE WOMEN OF TOMORROW

In conjunction with the International Construction Week 2016, CIDB organised the Convention of Women in Construction, (Konvensyen Usahanita Binaan – KUBINA) at the MATRADE building in Kuala Lumpur, on the 14th April 2016. Themed 'Women Importance in Nation's Sustainability', KUBINA's aimed to serve as a platform that brings together professional women involved in the construction industry. The convention's main goal was to build intellectual space as well as an active and proactive discussion, opportunities and business potential, develop a culture of science and exploration, and to exchange ideas and network among women in the construction industry.

Co-organised by the Public Works Department (JKR), the Association of Highways Concessionaires Malaysia (PSKLM) and Women in Construction Malaysia (WIBM), the full-day event was attended by about 200 female participants from the construction industry. Giving the opening speech, Puan Zuraida Shaharudin, the Chairwoman of the KUBINA 2016 organising committee, praised the revolutionary achievements by female professionals in the industry, noting that "these successes by women are in line with the nation's development, as we work towards achieving 'Wawasan 2020'." She also stated that she hoped that speakers from various industries partaking in KUBINA would inspire the participants to pursue innovations in their respective fields and to drive sustainable development in the construction industry.

A role model in her own right, Tan Sri Rafidah Aziz relayed to the audience how despite her 'superwoman' image in the media, she too had her struggles juggling work and life at home, but noting that it was possible to achieve balance.

"In an ever-evolving industry like construction, it's important to remain relevant. Learn the jargons, engage with relevant stakeholders and challenge your comfort zone. As Eleanor Roosevelt said "A woman is like a tea bag, you can't tell how strong she is until you put her in hot water."

– Dato' Noorizah Hj. Abdul Hamid

Various women professionals from the construction industry from around Malaysia, presented speeches on their personal achievements and the challenges faced from working in a male-dominated industry. The first speaker of the day was Datuk Ir. Rosaline Ganendra. Titled 'The Challenges of being a Woman Director' Datuk Rosaline elaborated on the personal struggles that she had faced as a female engineer. Currently sits on the Board of Directors of Minconsult Sdn Bhd and with over 30 years of experience, Datuk Rosaline has played an active role in encouraging and promoting the involvement of women in engineering. She stressed that women should actively push themselves towards achieving a position on the Board of Directors, including sharing her wisdom on steps that women could employ in their careers in order to achieve such success.

The second speaker of the day, Dato' Normaziah Sheikh Mohamed, affectionately known as 'Dato' Azie', spoke about her own set of challenges and successes that she had faced throughout her career. Titled 'Dare to be Different', Dato' Azie elaborated on the obstacles she had faced as a result of her gender. Nonetheless, she encouraged the need to "stand out in a man's world in order for women to achieve success". Dato' Azie also highlighted how there were many opportunities for women to pounce on and that the key to career growth was to being resourceful and confident. A strategist and an idealistic businesswomen, with 15 years and 20 years of experience in both the piping and beauty industry respectively, Dato' Azie relented that women also needed to possess the tenacity to view problems not as challenges, but as opportunities for them to better themselves and to grow.

The Chief Executive of PLUS Malaysia Berhad, Dato' Noorizah Hj. Abdul Hamid shared how just like Datuk Rosaline and Dato' Azie, she too was tasked with excelling at a job that was usually assumed by a man, and that it had been no easy feat to get to where she was today. With over 30 years of experience in the industry, and belt of awards and achievements tied to her name, Dato' Noorizah stressed to the audience that it was imperative for women to challenge their comfort zone through enhancing their social skills in order to advance their leadership skills. "Learn the jargons and build trust with not only your peers but also the company's stakeholders," Dato' Noorizah advised.

"Attitude is everything in order for one to stand out from the crowd. One should always approach problems from a positive angle. Don't see problems as an obstacle, but a challenge where lessons can be gained and how you can grow it from it. Think outside the box. Think extraordinarily!"

– Dato Normaziah Sheikh Mohamed

(From left) CIDB Chief Executive Ir Ahmad Asri bin Abdul Hamid, Director General of Lembaga Lebuhraya Malaysia Dato' Ir Hj. Ismail Bin Md. Salleh, Chairwoman of KUBINA 2016 Puan Zuraida Shaharudin, Deputy Minister of Works Datuk Rosnah binti Hj. Abdul Rashid Shirlin, Works Minister Datuk Seri Fadillah Yusof, Non-Executive Independent Chairman of AirAsia X Tan Sri Rafidah Aziz and Ministry of Works Secretary General Dato' Sri Zohari Bin Haji Akob and Ministry of Works representative Dato' Abdul Razak bin Jaafar officiated the closing ceremony of KUBINA 2016 event.

The event was also graced by former Minister of International Trade and Industry and current Non-Executive Independent Chairman of AirAsia X, Tan Sri Rafidah Aziz who served as the last speaker of the day. Tan Sri Rafidah encouraged women to strive towards diversifying their skillset and knowledge and to not possess 'tunnel-vision', so that women could increase their career marketability and versatility. "A positive mindset and having the right frame of mind is necessary to continue growing and learning. The discipline to follow through and to apply this newly gained knowledge will help in adding value to yourself," Tan Sri Rafidah told the crowd. She also advised the audience that surrounding oneself with supportive people was important as "success is meaningless if you do not have loved ones to share it with" she noted, and that it was important for women to find work-life balance when juggling multiple roles.

"Malaysia is the only APEC economy with government-driven quota or target of 30% for women board directors of either publicly listed or state owned companies. We are definitely moving towards a more gender equalised society."

– Dr Rosalind Ganendra

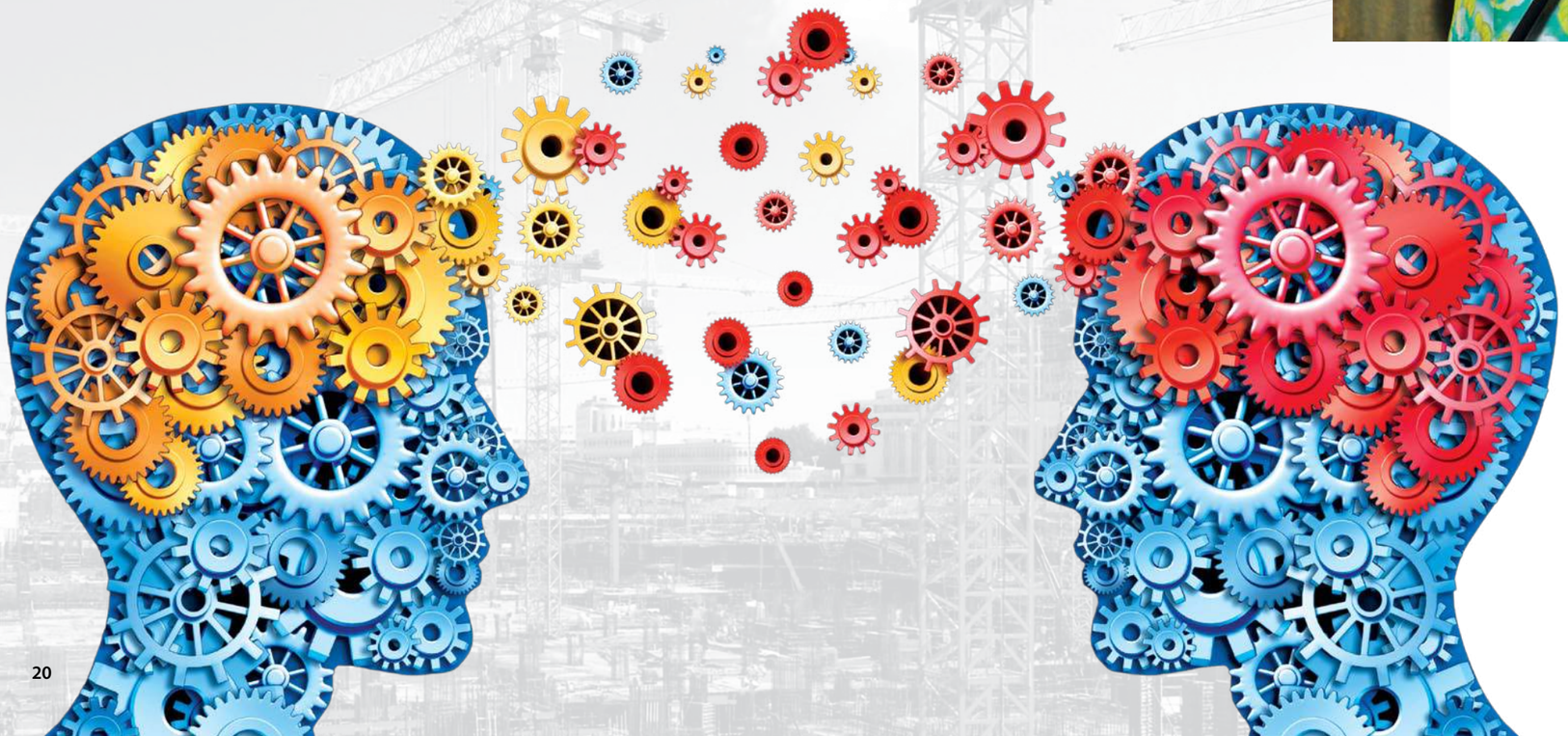
The closing ceremony was officiated by the Minister of Works, Dato' Sri Hj. Fadillah bin Hj. Yusof and the Deputy Minister of Works, Datuk Rosnah binti Hj. Abdul Rashid Shirlin. Datuk Rosnah, who also served as a matron for KUBINA event, stated how she hoped that women continued to work towards achieving more successes for themselves and to strive to make a name for themselves on not only the national platform but also the global scene. Datuk Rosnah also congratulated the participants at the event citing that they were an "aspiration and were examples of women, whom despite their busy schedules, managed to stay grounded and true to the development of their families, society and the nation".

Dato' Sri Hj. Fadillah delivered the closing speech at the event. He applauded the decision of women to partake more in the construction industry, noting how the industry was once completely male-dominated, but that "the willful participating of women had only aided in contributing further towards the development of the country's economy." Most notably, Dato' Sri Fadillah announced that he would urge agencies under the Works Ministry to appoint professional and qualified women as members of their boards of directors. He said this was to ensure that this group could be involved in policy making especially concerning the country's building industry.

"We look at the CIDB and the ministry will propose that professional women who can fill up the posts, as members of the boards of directors in the agency be appointed to represent the women's voice in the construction industry," he said. Dato' Sri Fadillah also added that 50% of the posts in the Malaysian Highway Authority (MHA) which is an agency under the ministry had been filled by women, and subsequently focus would be given to filling up the posts in its board of directors. ■

EMPOWERING CONSTRUCTION PIONEERS OF TOMORROW

In conjunction with the International Construction Week (ICW) 2016 and the Malaysian Construction Industry Excellence Awards (MCIEA), CIDB organised a best practice seminar titled *TOWARDS EXCELLENCE IN CONSTRUCTION – A TIME FOR SHARING*. Held at The Corus Hotel in Kuala Lumpur on the 13th of April 2016, the seminar served as a platform for recipients of the MCIEA to share their best practices and experiences, while also lending opportunities in delivering long-term competitive advantages to all parties involved.



"Commit yourself, communicate, educate yourself, think out of the box, work hard and have humility."

– Prof Sr Dr Hjh Wan Maimun binti Wan Abdullah, Royal Institution of Surveyors Malaysia

An industry driven by excellence will ensure its sustainability and earn its players a favourable reputation. Excellence in construction should not merely be the ultimate goal enjoyed by a select few, but rather a means by which knowledge and experience could be transmitted to a wider audience. Reinforcing the importance of construction quality and effective processes as critical success factors was on the main agenda of all the award recipients cum speakers at the seminar.

Recipient of the *Builder of the Year MCIEA 2015* award S Ramesh Subramaniam began the seminar by sharing with the participants his presentation titled *Achieving Success with a Quality Mindset*. The Senior Manager at IJM Construction shared the practices that he and the company had adhered to in their drive towards excellence.

"Possessing an adaptive mindset is necessary in going far," he stressed to the audience. "Success is also based on investing in the key assets, that asset being our employees. Equipping and empowering them with the right skills, fostering teamwork and getting them into the right mindset are the driving factors of the acceleration of a company," Ramesh said.

Expounding on Ramesh's presentation, Mohd Razin Ghazali, the Managing Director of UEM Builders, mentioned that maximum productivity in construction cannot be achieved without constant monitoring and pushing of every stage and element of the building process. "Planning productivity of a project must be executed, monitored and controlled consistently to assure improvement and a learning curve in each activity. Gauging productivity continuously is also necessary in uncovering the areas that need betterment, and only then can firms gain achievements such as early completion of projects," the recipient of the *IBS MCIEA 2015* award told the crowd.

The third speaker of the day, Khor Thiam Chay, General Manager of Gamuda Engineering, shared his experiences and knowledge with a presentation titled *Achieving International Success: A Global Solution Provider Perspective*. Citing Gamuda's foreign construction development projects, such as the New Doha International Airport in Qatar and the Sitra Construction Bridge in Bahrain to name a few, the recipient of the *International Achievement Award MCIEA 2015* advised that construction companies must stay abreast and be aware of factors such as business environment in the host country they intend to work in. Work culture, competency, macro-economic risks, and bureaucracy and red tape were some of the challenges that Gamuda encountered during their overseas projects. "Employing trustworthy staff, understanding local authority requirements, communicating with relevant contractors and understanding the different laws in different countries are some lessons that Gamuda has learned in our dealings on foreign soil," Khor said. He also mentioned that he hoped more firms would engage in the 'Internationalisation Initiative' programme, which is a part of CIDB's Construction Industry Transformation Programme (CITP) 2016 – 2020, in order to encourage local construction firms to expand outside Malaysian borders.

CIDB Corporate and Business Sector Senior General Manager Dr Sariah Abdul Karib (fifth from the left), is flanked by the speakers and staff at the seminar.

Beh Chun Chong, CEO of Paramount Property Development, mentioned that consistency across all projects was important to solidify a positive company reputation. Speaking on *Best Practices in Maintaining an Impressive Track Record*, Beh explained that consistency should be practiced in all levels of management in a company, from the board of directors right down to the employees, in order to build a positive and productive work culture.

Beh also shared with the crowd that providing recognition such as incentives and awards to stakeholders and team members is important in demonstrating value towards the employees and driving the company towards success. "Trust, respect, bravery, integrity and energy are the core values that we actively promote towards the employees," the recipient of the *Best Project Award (Building – Small) MCIEA 2015* stressed.

"Trust, respect, bravery, integrity and energy are the core values that we actively promote towards the employees."

– Beh Chun Chong, Chief Executive Officer, Paramount Property Development

The last speaker of the day, Prof Sr Dr Hjh Wan Maimun binti Wan Abdullah from the Royal Institution of Surveyors Malaysia, elaborated on the challenges of being a woman in the construction industry, as well as her personal achievements. Encouraging the women of the seminar to pursue a work-life balance, Dr. Wan Maimun inspired the crowd to also get more involved and to drive themselves towards to success.

"Don't sell yourself short," she said, adding that while gender inequality was an issue, the feeling of self-doubt, also known as the 'the sticky floor syndrome,' acted as a hindrance for women being unable to break the glass ceiling. "Commit yourself, communicate, educate yourself, think out of the box, work hard, be humble and have humility," Dr. Wan Maimun said, noting that these are necessities for women to excel in the industry.

The Towards Excellence in Construction seminar aimed to reinforce the significance of construction excellence and best practices as critical success factors. Participants of the seminar were provided with the chance to gain knowledge and learn from the experiences of successful industry pioneers, while also having the chance to network and collaborate with them, indicating a successful event for both the organisers and attendees. ■

Artist impression of Songjiang Quarry Hotel with its awe-inspiring concept and award-winning design. It is one of the world's most challenging construction project where a hotel is to be built into the side of a disused and abandoned quarry.

RISING ABOVE LIMITATIONS

Urban development in today's world progresses at an unprecedented rate. The speed and scale of urbanisation and mega constructions pose challenges to the construction industry in matching with the accelerated demand for city growth, better infrastructures, and improved services. This situation requires the construction industry players to be robust and proactive in keeping up with the global economic and technological growth. It is on this reason that The Chartered Institute of Building (CIOB) put together a one day conference on the theme "Challenges of Global Mega Projects – Survival of the Fittest for Project Excellence" in conjunction with the International Construction Week (ICW) 2016.

In the keynote speech by the Chairman of CIDB Malaysia, Tan Sri Dr Ir Ahmad Tajuddin Ali noted that the challenges faced by the construction industry players are not solely from the external factors but also from within the industry itself. To address this, the conference highlighted challenges from different angles – external and internal – that could potentially harm the progress of mega construction projects and the way it had been managed with real examples shared by the invited speakers.

Innovative Demolition

The first challenge of construction is deconstruction. With new buildings constantly being added in major cities, there is a need to take down old ones. Conventional demolition method usually utilises temporary scaffolding with crawler cranes and heavy machinery to tear down the building. Problems such as safety, scattering of dust particles and construction noise are common with buildings demolition. But for Toshihiko Makiuchi, the General Manager of Taisei Corporation who presented the first paper in the conference showed that the Taisei Ecological Reproduction System (TECOREP) system is a much safer and better demolition system for high rise building.

The TECOREP system utilises the top floor structure of the building and creates a 'cap' where the demolition work is done. The method works from top-to-bottom as each floor is demolished from the top until all of the structure is completely removed. The method had been successfully used to take down the Grand Prince Hotel Akasaka in September 2011 and took 10 months to co mplete. Even though the time taken was longer than the traditional method, Toshihiko believed that the TECOREP system is more appropriate to be used in dense cities packed with other buildings and infrastructure surrounding the area where traditional method would be very challenging to be employed.

"However challenging it may be, there must be a concerted effort from all of the industry players to position Malaysia as one of the global champions in the construction industry and become a model of environmental sustainability for the emerging world."

– Tan Sri Dr Ir Ahmad Tajuddin Ali, Chairman of CIDB Malaysia

Quarry Hotel

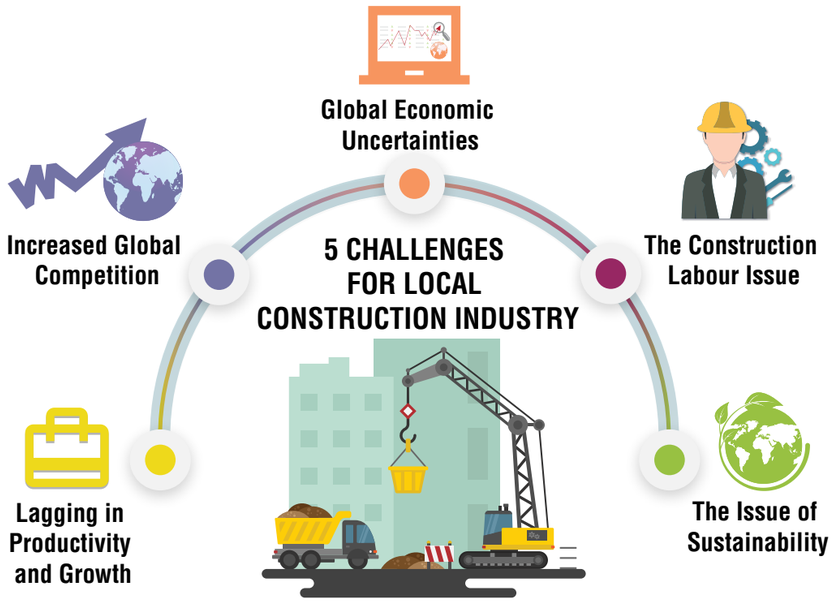
For Martin Jochman, the Principal Designer Director of Architectural Design Studio on the other hand that manages the Shimao Wonderland Intercontinental Hotel project, the challenges he faced were slightly unusual. The project is to build a hotel in a large disused 90m deep rock quarry in Songjiang, China. This unique location poses some important considerations for the designs and technical construction of the hotel. To overcome that, the building is designed in an inverted nature, a 'groundscraper' that goes downward to fill the deep quarry. Other challenges come from the structural and seismic issues of the location to mechanical services and operational matters in bringing raw materials to the site. By utilising the best possible knowledge, technology and strategy in facing the technical challenges and unusual locations, Martin illustrated the kind of perseverance required by the construction industry in managing a mega project.

Going Deep

All high rise buildings are supported with a strong foundation. In doing so, the base and underground infrastructure construction can be challenging for projects that are located in soft soil environment. John A. Davies, the senior consultant in the Arup Singapore Infrastructure Group presented the limitations of the construction sector in Singapore. With a packed urban environment and the high density of marine clay in site locations, restraints in carrying out mega projects such as Marina Bay Sands and Bugis underground railway station came from the geological problem of the area. John illuminated the audience with his team's innovative approaches including the use of large reinforced concrete cofferdams in reducing bulk excavation and shoring of difficult soil types.

The Q&A session for the first three speakers was moderated by Mohd Nazli Ahmad Mahyadin, General Manager (Personnel & Contractor Development) of CIDB (second from left).

From left: John A. Davies, Nazli Ahmad Mayhadin, Martin Jochman, Toshihiko Makiuchi



The Show Must Go On

As for Dennis Wilson, the Project Director for the refurbishment of London National Theatre from 2011 – 2014, his challenge was to carry out the project while the theatre remained fully operational with shows throughout. Dennis and his team had set up intricate construction methodology and logistics sequence to minimise noise disruption when the theatre production was on play. Public perception of 'business as usual' was also important for the team to ensure that there was no decrease in the number of audience and sales due to the refurbishment project. By bringing together the construction team and the theatre group team, Dennis managed to synergise the two parties for a better understanding of each team's work process and needs. His excellent project performance despite the challenges granted him the CIOB Construction Manager of the Year award for 2015 – 2016.

Never Walk Alone

For David Hooper, the Mott Stadium Consortium Project Manager & Responsible Engineer for the Wembley National Stadium Project on the other hand, the challenge they faced was internal. With the largest legal claim in construction history amounting to Ł253 million and disputes between different construction teams, David demonstrated the importance of time, risk and quality management in carrying out mega projects. A delay in the construction timeline, the wrong used of materials as well as miscommunications had contributed to the challenging and costly construction project. David emphasised that it is important for the industry players to work well together and synergise effort when it involved mega project and numerous contributing experts.

The Rising Star

In the final presentation, Ar Lillian Tay, Senior Principal at VERITAS, an architecture firm based in Kuala Lumpur shared her experience in managing mega projects in the heart of Kuala Lumpur and the challenges that she had. As key buildings were build including the Menara Binaji, DiGi Corporate Head Quarter and Star Residences, Lillian believed that the local architecture firms must aim for global projects and adopt an international mind set. She encouraged the industry players to step outside of national border and showcase the strength of architecture and construction firm of Malaysia.

The conference had highlighted several examples of challenges the construction industry players can come across – both from the external and internal. In order to survive, the speakers had shown that it requires strategic and innovative approach to solve the problems. In providing the best services, quality and excellence, the use of modern technology can be of great help too. With that only the best of the best can excel in the construction world full of challenges and difficulties. ■

EYEING INDIA

Held on the 14th of April 2016 at the Kuala Lumpur Convention Centre (KLCC), the Incredible India Business Opportunity Seminar aimed to promote India as an ideal location for Malaysian businesses to invest, in light of new policy directions and inter-country facilitative measures. With a landscape ripe with business opportunities, CIDB and Indian representatives unanimously agree – Malaysian construction companies should set course for the South Asian subcontinent.

The seminar was capped off with a panel session consisting of the industry experts. Left to right: Global Head of Business Development at VA Tech WABAG Rajnesh Chopra, Managing Director of Grupo SANJOSE India Jean Claude, Chairman of CIDB Holdings Dato' Sri Ir Dr. Judin Bin Abdul Karim, High Commissioner of India in Malaysia His Excellency T.S. Tirumurti, Corporate Finance and Business Restructuring Services Leader of PricewaterhouseCoopers Munesh Khanna and Chief Business Officer of Export-Import Bank of Malaysia (EXIM Bank) Mohd Chairil Mohd Tamil.

Strong Ties

"Malaysia remains as one of the key trading partners for India and India on the other hand, remain as the largest trading partner for Malaysia among the countries in the South Asia," Ministry Of Works Malaysia Secretary General Dato' Sri Zohari bin Akob said in his opening address during the seminar, underlining the firm economic handshake between the two countries.

Malaysian investment in Indian construction projects plays a big part of this, as mentioned by Chief Executive of CIDB Malaysia Dato' Ir. Ahmad Asri bin Abdul Hamid in his welcome speech. "Malaysian construction companies have made their presence in India for more than two decades. Beginning in 1996, Road Builder Sdn. Bhd. together with PATI Sdn. Bhd. had a joint-venture project with B.Seenaiah & Co. Ltd. for the upgrading and strengthening of National Highway No.2 from Barwa Adda to Barakar in the State of Bihar, and soon after that, many more Malaysian companies embarked into the Indian market."

Beyond road, highway and bridge projects, Malaysian companies are also involved in other construction in India, including mix development of new township, residential, water management as well as power plant projects. Companies such as UEM, IJM and SCOMI have also gained a foothold in the country, and are well established in various Indian states and cities.

A look at the CIDB database indicates that Malaysian contractors have completed 81 projects in India worth RM12.95 billion as of the end of 2015, while 11 projects – worth RM5 billion – remain under construction. Additionally, statistics also show that the largest presence in terms of number of projects and value of contract for overseas projects are awarded to Malaysian contractors.

Chief Executive of CIDB Malaysia Dato' Ir. Ahmad Asri bin Abdul Hamid (right) presents a token of appreciation to High Commissioner of India in Malaysia His Excellency T.S. Tirumurti.

In 2015, the total trade value between India and Malaysia stood at RM46.83 billion, while the overall foreign direct investment (FDI) invested in India by Malaysia from 1980 until 2015 reached RM4.45 billion. This figure was racked up through 130 projects.

Land of Opportunities

International consultancy giant PricewaterhouseCoopers (PwC), via its Corporate Finance and Business Restructuring Services Leader Munesh Khanna revealed that, under the current government, India is expected to experience increased economic growth along with more foreign investment, which will boost the demand for construction over the coming years. An estimated USD1 trillion would be spent on infrastructure till year 2017.

To entice further participation of Malaysian contractors in the roads and highway sector, Vijay Chhiber, the then Secretary General of MORTH has presented to the Malaysian construction industry players in April 2015 the newly adopted Hybrid Annuity Model.

Under the model, the project costs will be shared with the private sector in a 40:60 ratios; whereby the government will provide 40% of the project cost to the developer to start the work while the remaining investment will have to be made by the road contractor.

"I was happy to know that CIDB was the only foreign participant invited to participate in the special lab organized by the Ministry of Road Transport and Highways India (MORTH) to formulate the hybrid annuity model," Dato' Sri Zohari said.

Summing up the Malaysian perspective, Dato' Ir. Ahmad Asri said, "Malaysian firms can contribute their experience among others in urban development, city planning, transportation network planning, highway and road planning, environmental management, mass housing development, water and waste water treatment. Indian firms would be able to strengthen the alliance with design, project management and facility management skills."

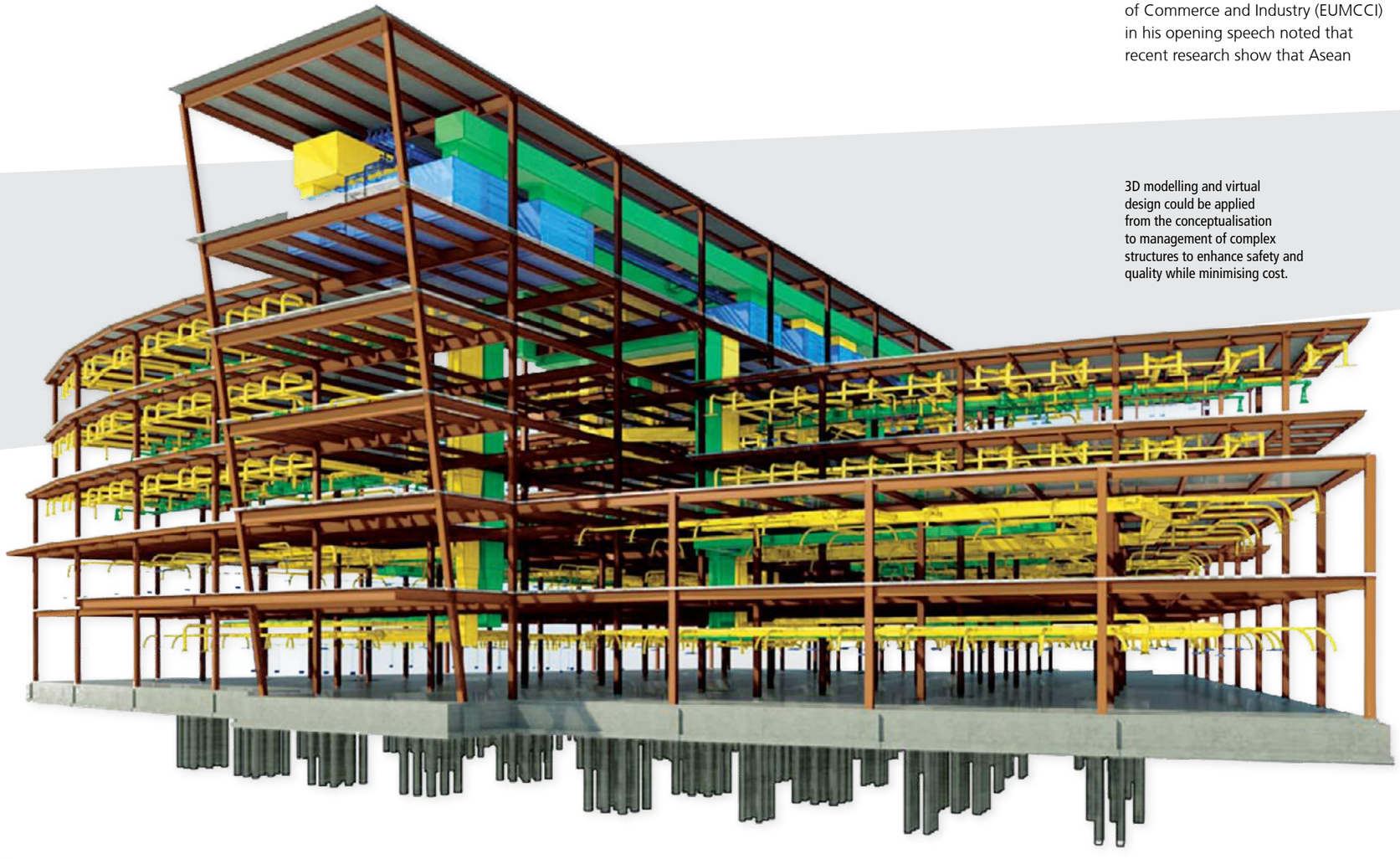
The seminar also saw representatives of industry players that are old hands in the Indian construction sector, who disseminated their experiences of being involved in the Indian construction sector. This included VA Tech WABAG, one of the world's largest water and wastewater treatment companies that is active in over 25 countries, and Grupo SANJOSE, a global diversified group with a presence in over 20 nations.

India is ripe with infrastructure projects that Malaysian companies can be involved in. For instance, many of the country's existing road networks require upgrading, and several large-scale highway projects are being planned.

As the expert speakers concluded their respective presentations, they were called to sit in the panel session which was moderated by Chairman of CIDB Holdings Dato' Sri Ir Dr. Judin bin Abdul Karim, during which questions from the participants were taken. At the end of the session, Dato' Sri Ir Dr. Judin brought the seminar to a close, and invited those present to seize the opportunity to network with the relevant stakeholders from both countries. ■

SAFETY, SUSTAINABILITY AND STANDARDS

ENHANCING THE ASEAN CONSTRUCTION INDUSTRY THROUGH EFFECTIVE TRAINING, QUALITY AND PROFESSIONALISM



3D modelling and virtual design could be applied from the conceptualisation to management of complex structures to enhance safety and quality while minimising cost.

As one of the world's fastest growing regions, Asean holds a lot of potential for investors from around the world. Across the region, a number of countries that have lagged behind in the past in terms of infrastructure are beginning to see the inflow of increased foreign ventures.

Fermin Fautsch, Board Director and Chairman of the EU Malaysia Chamber of Commerce and Industry (EUMCCI) in his opening speech noted that recent research show that Asean will require US$7 trillion over the next 15 years to bring the region's infrastructure up to a level that will sustain the growth that it needs. He was speaking at the Construction and Virtual Design Seminars by European Service Provider organised by the EUMCCI as part of the International Construction Week 2016.

"This is also a good opportunity, not only for Malaysia, but for many countries in the region. For instance, the construction sector in Laos in booming and growing faster than Malaysia's because Laos is more underdeveloped compared with Malaysia. But I think the good news is that there are a lot of openings for Malaysian and European companies there now," he said.

With the increased rate of development in the region however, more effort has to be put towards ensuring sustainability, as well as growing a global outlook. This is expected to help organisations and nations maintain a competitive edge in attracting investors even in the rapidly changing and volatile economic environment around the world.

"Sustainability in construction, engineering and architecture is a matter of utmost importance as affordable housing, intelligent building management and practices address environmental, social and economic issues simultaneously in a holistic manner," explained Puan Sariah Abd Karim, Senior General Manager at the Construction Industry Development Board (CIDB) in her opening remarks.

She added that the awareness of conducting business in a sustainable manner has seen increased implementation in recent times through initiatives by a number of organisations in the region, and encouraged more companies to adopt conscious investment and design decisions.

Building Information Modelling

One of such measures to enhance the construction industry is the use of Building Information Modelling (BIM), a 3D, digital representation of the physical and functional characteristics of projects that provides construction professionals with more tools to effectively and efficiently plan, design, build and manage construction projects. Around the world, governments and companies have already adopting the technology and implementing it in their projects.

In the United Kingdom for example, the government has mandated the use of BIM in all centrally procured

"Meeting the needs of Building Information Modelling (BIM) requires a change in the attitude to training in the construction industry. We expect people to be trained: showing up and already knowing what they are doing. We have to undo that and go back to when we had training programmes to develop the skills in the industry."

– Ir. Ronan Collins, Managing Director of InteliBuild Technyx Asia Ltd

"The Construction and Virtual Design Seminars is part of a project running in eight countries in Asean in collaboration with the EU. This is the Malaysian component, as part of the Support for European Business in South-East Asian Markets Malaysia Component (SEBSEAM-M) project. The idea is to bring more SMEs from Europe into Asean, and in particular what we are doing for Malaysia is promoting the country as a gateway hub to the Southeast Asian region."

– Fermin Fautsch, Board Director and Chairman of the EU Malaysia Chamber of Commerce and Industry (EUMCCI)

public sector projects with centrally funded government departments required to provide a clear and complete employer's information requirements (EIR) with all contracts. In Malaysia, the target for the adoption of BIM in all government projects has been set for the year 2020 under the CIDB's Construction Industry Master Plan 2016-2020.

Ir. Ronan Collins, Managing Director of InteliBuild Technyx Asia Ltd noted that the use of BIM is being driven by the clients, from the private to public sectors. "The clients are driving the adoption of BIM with different objectives: reducing the risk of cost overruns, better plant and overall project coordination and access to data to better manage the facility," he said. BIM was instrumental in the construction of Terminal 2B of London's Heathrow Airport with 10 million passengers per year in order to effectively manage the airport's massive network of utilities and facilities.

He noted that BIM still has some challenges to overcome in the industry before the technology can be significantly effective. He called for all the players involved in the industry, from architects to consultants, from contractors to construction managers to adopt and use BIM tools. "We have an industry that is based on 2D documents, a culture where we have engineers working on paper and technicians working in 2D CAD, and we have this completely separate BIM environment. And it does not work," Ir. Ronan said, noting that training of manpower in the industry is another major challenge for the industry.

Maximising Safety and Quality

Rainer Klima, Head of Technology at PERI Malaysia Sdn Bhd in his discussion explained that quality is the degree of excellence of a product and how well it performs. He pointed out that "the key to quality and safety in the construction industry is professionalism, which can be strengthened by training individuals

"The Construction and Virtual Design Seminars organised by the EU Malaysia Chamber of Commerce and Industry (EUMCCI) is part of a long term project promoting EU-Malaysia business partnerships for SMEs focusing on professional services in the construction industries. Today's seminar allows to attendees to learn the tools and know-how for a sustainable built environment based on EU case studies through presentations and dialogues."

– Puan Sariah Abd Karib, Senior General Manager at the Construction Industry Development Board (CIDB)

in the industry." To do that however, the candidates have to be interested in improving and the training needs to be conducted through a structured programme.

Ensuring safety in the construction industry also requires internal and external quality control, as well as intelligent product design. Rainer explained that this can be done by testing a product to failure and strategically locking up fail points to allow a fool-proof system, preventing potential users from misusing the products. In essence, such products have to meet internal and external safety and quality standards.

B Veeralakshmanan, Head of Inclusive Business and Sustainability at Covestro Thailand in his discussion concurred, noting that safety and security forms one of the four main focus points in providing sustainable and affordable homes to underserved people in developing countries. The other three factors are affordability, environmentally-friendly, and comfort and people-centric homes. "That means that it has to be designed in line with what the culture and daily lives of the people are," he said.

"The Eurocode is a set of generic codes and every country has a chance to include their national annex to customise the codes to the country. Britain, France and Germany already have a national annex, and Malaysia has set up a committee to develop its own national annex of the code."

– Evan Ho, Regional Manager of Tony Gee and Partners Sdn Bhd

From design to the final completion of the project, predetermined standards have to be followed as a basis for construction and engineering works and in order to have a unified framework for construction projects that meet international mechanical, strength and stability and safety requirements. Across the world, countries—such as Hong Kong, Singapore and Malaysia—are already moving from British Standards to the newer European Standards which is seen as more robust for construction specifications.

Evan Ho, Regional Manager of Tony Gee and Partners Sdn Bhd notes that the standards are especially important to construction technology such as BIM, as designing a project using Eurocodes provides a better competitive advantage compared to doing so in British Standards. He explains that "The Eurocode is a set of 10 generic codes and every country is expected to include a National Annex customised to the country but designed in a non-contradictory manner to the rest of the code system. Britain, France and Germany already have a National Annex and Malaysia has set up a committee to develop and add one of its own." ■

ARENA OF YOUTH 2016

My City 2050

EMPOWERING THE NEXT GENERATION

The Arena of Youth (AoY) is a construction-related competition held by the Construction Industry Development Board (CIDB) as part of their 20th anniversary celebrations. The competition aims to harness the skills and creativity of Malaysian youths in fields related to construction. The AoY involves two different competitions based on age group: My City 2050 (MC2050) for youths aged between 15-17 years, and Rebuild It Green for university students.

"The world is facing too many problems of flash floods and even traffic congestion because the best minds thought about designing the best buildings, but do not take into account traffic flow, drainage of rain water, supply of clean water and even the supply of adequate energy,"

– Dato' Sri Zohari bin Haji Akob,
Secretary General of the Ministry of Works

▲ The students and teachers from SMK Seri Kota Paloh were proud to be announced as the champions as their model city (left) won over the jury. They took home the RM6,000 prize.

Grand Designs

MC2050 is a city-planning competition, conceived as a means to develop the next generation of builders, involving schools under the *Promoting Intelligence, Nurturing Talent and Advocating Responsibility* (PINTAR) Foundation as well as international schools.

The teams from these schools were set the challenge in November 2015 to envision, design and build a model of a sustainable city in 2050, which was then presented before the panel of judges, comprising representatives from the Ministry of Works Malaysia, CIDB, Dewan Bandaraya Kuala Lumpur, Institute of Engineers Malaysia, Universiti Teknologi MARA

and other prominent individuals from the industry. The grand finale was held at Dewan Tun Mahfuz,Public Works Department on the 12th and 13th of April.

A Bank of Ideas

"The world is facing too many problems of flash floods and even traffic congestion because the best minds thought about designing the best buildings, but do not take into account traffic flow, drainage of rain water, supply of clean water and even the supply of adequate energy," said Dato' Sri Zohari bin Haji Akob, Secretary General of the Ministry of Works, in his opening address to the AoY.

Dato Sri Zohari expressed excitement at the prospect of listening to the ideas that teams had on city sustainability, and how those ideas could be adopted and implemented.

"I believe that regardless of which team will win the Arena of Youth Challenge, we will all win as we have accumulated a bank of ideas that will definitely make our country and the world a better place," he said.

Healthy Competition

The teams competing in the finals of MC2050 were SMK Kompleks Sultan Abu Bakar and SMK Seri Kota Paloh, both from Johor; SMK Munshi Abdullah, SMK Ampang Pecah and Sunway International School, all three from Selangor; Nexus International School from Putrajaya; SM Sains Sultan Haji Ahmad Shah from Pahang; SMK Sg Ara from Pulau Pinang; and SMK Kota Kuala Muda and SMK Ayer Hangat, both from Kedah.

SMK Seri Kota Paloh took the first place and RM6,000 prize, for their winning Nusantaria city design. Nusantaria was conceptualized as a zero waste city, zoned into prefectures each with their own shield to protect it against natural disasters. This ingenious design featured a floating city built on a former landfill, utilizing four renewable energy sources:

Clockwise from top left:

The participating students were given several minutes of stage time to present their 2050 concept city before the jury and audience.

Upon his arrival, Chief Executive of CIDB Dato' Ir Ahmad `Asri Bin Abdul Hamid was taken around to view each model city, and was briefed about it by the respective team's representatives.

After the presentations, a discussion session ensued where team members fielded questions from the audience.

The effort that went into creating the models is evident in the attention to detail observed in each design.

The jury scrutinised each team; scoring them based on their model, concept and presentation, amongst other considerations.

solar, wind, tidal and biomass, with electricity transfer affected by advanced tesla towers to distribute electricity without the use of wires.

"Alhamdulillah, our success in achieving first place proves that the students of SMK Seri Kota Paloh are able to compete with other schools. We may be a small school in the interior of Johor but we have a large spirit," said Nur Fazlina Syuhada, Mayor of Nusantaria.

Taking second and third place, winning RM4,000 and RM2,000 respectively, were SM Sains Sultan Ahmad Shah (SEMSAS) from Pahang and the other Johorian school in the competition, SMK Kompleks Sultan Abu Bakar.

Prizes for the best city model were also given out, with SMK Kota Kuala Muda, from Kedah, taking first place, SMK Munshi Abdullah from Selangor taking second place and SM Sains Sultan Ahmad Shah taking third place, making them the only school in MC2050 to win two awards.

The inspiration behind the AoY came from the fact that Malaysia youths below 14 years of age represent 28.8% of the population, making it imperative to equip them with the skills and leadership necessary to transition to working life and become active citizens who are innovative and able to develop solutions to various issues and implement them successfully. ■

Rebuild It Green

VISIONARY MINDS

The university level competition for the Arena of Youth (AoY) brought together four universities to develop solutions in mitigating the impact of natural disasters in Malaysia. With the theme Rebuild It Green, each team was required to conceptualise and design ideas that would be presented to a team of expert jury during the grand finale held at The Petroleum Club, Petronas Twin Towers on the 14th of April. The competition not only aimed to bring out the youthful energy and spirit of the university students but also as a holistic learning experience to train them in solving real life construction problems.

Solving Problems

The idea for Rebuild It Green (RIG) competition was born out of the increasing number of natural disasters striking Malaysia in the past few years including floods and earthquakes. As a result, having a system or infrastructure in place to deal with the events are of great importance before it's too late. In taking up the challenge, each team was provided with mentors who are senior members from large and successful construction organisations such as IJM Corporation, Sunway Construction and Ekovest Berhad to guide and assist the students in completing the project.

"The traditional way of doing things will soon be replaced with a new paradigm. But we need to ensure that the youngsters heading out into the working world are equipped with the right skills, both in terms of aptitude and attitude. This is why programmes such as the Arena of Youth are vital, for they impart the values and knowledge important to shape the youths of today," said Datuk Ir Elias Ismail, Senior General Manager of CIDB Malaysia in the opening speech of the RIG finale.

Innovative Approaches

The teams competing for the grand prize were Universiti Teknologi MARA (UiTM), Universiti Kuala Lumpur (UniKL), KDU University College Penang (KDU) and Asia Pacific University (APU). UniKL had come up with a floating house idea that consists of hydrophobic brick, porous tiles, rainwater harvesting system and emergency energy kit. The house is said to be able to float during a flood disaster.

CIDB's Senior General Manager of Technology Development Sector, Datuk Ir Elias Ismail (centre) presented the grand prize worth RM40,000 to the winning team from UiTM.

Team from APU on the other hand developed a Building Monitoring System (BMS) that measures the condition of a building in real-time. With this system, structural damage and stability can be detected beforehand to avoid major accidents after natural disaster strikes.
As for UiTM, their idea for natural disaster mitigation was to focus on the policy and guideline that can be used before, during and after a natural disaster events. Lastly, the team from KDU focused on preventive measures that can be implemented by the authority and at high risk locations.

Commercial Importance

RIG was also intended to turn the students' ideas into a commercially viable business, and became one of the important parameters in judging the participating teams. The jury, who comprised of leaders in the construction industry and representatives from Junior Enterprise were looking at the sustainability of the ideas in terms of business values on top of the design concepts that the students came up with.

With a final prize of RM 40,000 to start up a business from the idea, it is no wonder why this particular parameter was emphasised. The grand fund was finally taken home by the UiTM team as the jury agreed that their approach were more integrated and comprehensive in mitigating natural disasters phenomenon.

Hope for the Future

Speaking to Heights, Kamarul Ariff, the team leader of UiTM said, "after extensive reviews of the problems and consulting our mentors, we finally decided to come up with guideline and management plans instead of something physical so that when a natural disaster strike, people already know what to do." When asked about their plan for the future, Kamarul said, "we will consult the Junior Enterprise to develop our business plan, then we will also collaborate with the Malaysian Academy of SME & Entrepreneurship Development (MASMED) to gain greater connectivity and expertise."
The jury also expressed their appreciation to CIDB in organising the event such as RIG that nurtured the youth to think out of the box.

As all four teams strived to be the champion in the competition, the grand finale was an event filled with many brilliant ideas being shared. Feedbacks and questions from the experts and audiences were answered by the students in such a way that showcased their great understanding of the real world issue. Their tenacity in doing their best demonstrated their passion in building a better future for all. As the youth of today, they are the key in ensuring a continued growth and prosperity of the country. ■

MODULAR AND AFFORDABLE

DELAYS IN HOME DELIVERY, WANTS AND NEEDS OF AFFORDABILITY, AND THE ROLE OF IBS

The availability of accommodation plays a crucial role in the development of any nation. To this end, the Malaysian government has since implemented a number of initiatives that will see the construction of affordable homes for Malaysians in different income levels. The 1Malaysia People's Housing Programme (PR1MA) is for those who earn between RM2,500 and RM10,000, while the Programme Rumah Mesra Rakyat and People's Housing Programme (PPR) are for Malaysians who earn below RM3,000 and RM2,500 respectively.

At the *Sustainable IBS in Accelerating Delivery of Affordable Quality Housing*—organised by the Construction Industry Development Board (CIDB) as part of the inaugural IBS Housing Expo 2016 (IHE 2016) under the umbrella of the International Construction Week 2016—Dato' Ar Aminuddin Abdul Manaf, Chief Operation Officer of Perumahan Rakyat 1Malaysia (PR1MA) noted that the Malaysian Prime Minister tasked his government to build one million affordable homes.

500,000 will be developed by PR1MA and the remaining will be managed by other government agencies. He noted however that to date, only about 71,000 have been constructed, which does not augur well with the public especially the part about affordability. He pointed out the importance of first understanding the meaning of affordability and the demands of the market.

"When we talk about demand, there are two questions that have to be answered – the questions of wants and needs. People need a house but they want a lifestyle that goes with it and this varies between income levels and even states," said Dato' Ar Aminuddin. He added that for PR1MA, "we have been mandated to tackle the middle income group, primarily in urban areas because the middle-income homes are no longer within the affordability of this group compared to just ten years ago."

According to the World Bank, affordable housing is one that does not exceed one-third of a household's gross income. While this differs between countries, Dato' Ar Aminuddin notes that for the middle-income group in Malaysia, affordable house prices can range from RM300,000 to more than RM500,000.

The delivery of affordable homes also depends on the individual state governments because planning and land are a state's constitutional rights. This means that the type, size, height and most importantly, the price of homes vary significantly among states in the country. He cited Sarawak as an example, where due to the availability of land and the need for high-density development, landed home projects are restricted to eight units per acre and 24 units per acre for high-rise buildings.

"The state wants high density but how about mobility? People want to stay close to the cities, close to their work places, not 40km away. After about three years of negotiating with the state government, they allowed PR1MA 50 units per acre for high-rise buildings and 12 units per acre for landed homes," said Dato' Ar Aminuddin.

"PR1MA has been mandated to tackle the middle-income group, primarily in urban areas because the middle-income homes are no longer within the affordability of this group compared to just ten years ago."

– Dato' Ar. Aminuddin Abdul Manaf, Chief Operation Officer of Perumahan Rakyat 1Malaysia (PR1MA)

Cause of Delays

Puan Aminah Abdul Rahman, Director of Research and Technical Legislation Division at the Local Government Department, Ministry of Housing and Local Government (KPKT) agreed that approval from local governments is one of the major causes of delays in deploying affordable homes. She also pointed out that other challenges include unawareness about existing laws and policies, and affordability.

"There are 32 types of applications that can be submitted to the authorities for approval and each has its own client charter for a decision to be made. For instance, in the KPKT client charter, approval on a land that has a prepared design and plan requires the authorities to reach a decision within 67 days, whether it is approved, rejected or approved with conditions." She noted that in many cases however, this is not done, and project owners have to wait for months and sometimes years to receive permission to commence a building project.

"For instance if an engineer from the project owner's company needs to go to the authorities to check on the approval, there is an unnecessary waste of man hours, and cost in parking fees and charges," she added. These delays translate into expended costs by the project owner that is included in the overall building cost and paid eventually by the consumers leading to unaffordable housing.

The KPKT has created manuals in its online One Stop Centre Version 3 (OSC 3.0) with information for consultants on how to submit plans to the local authorities and what to submit. She explained that as long as all the requirements are met as stipulated in the manuals, no local authority or agent has the right to deny approving or endorsing any building application.

"In Malaysian construction law, the planning and project permission is vested in the project owner, and that includes the safety and health of the project, and it means that the person who is responsible for the entire project is the project owner. But we don't necessarily see that here."

– Aminah Abdul Rahman, Director of Research and Technical Legislation Division at the Local Government Department, Ministry of Housing and Local Government (KPKT)

CIDB demonstrates the installation of modular construction components, which can be used to create high quality and affordable buildings to meet the needs of Malaysians.

While inspection agencies traditionally visited projects sites one after the other, on different days and sometimes weeks, the KPKT is advocating for all the technical agencies to align their plans and inspect project sites on the same day with the presence of the consultants and project owner. It hastens and streamlines the entire inspection and saves cost in the process.

"IBS is not cheap, and the primary motive for implementing IBS was not to build cheap houses, but rather to develop affordable ones while ensuring high quality in a shorter time frame, supposedly 40% faster."

- Ar Prof Datuk Dr Amer Hamzah Mohd Yunus, Public Works Department (Jabatan Kerja Raya Malaysia - JKR)

The IBS Effect

One measure suggested as an efficient means of developing affordable homes is the Industrialised Building System (IBS). The modular building method is also touted as a means to reduce overdependence of foreign labour and create skilled jobs for locals.

Ar Prof Datuk Dr Amer Hamzah Mohd Yunus of the Public Works Department (Jabatan Kerja Raya Malaysia - JKR) however pointed out that the primary purpose for the adoption of IBS in Malaysia was not to ease or hasten construction time. "The IBS policy is bigger than that. The reason why the system was introduced was to reduce dependence on foreign workers in the country, boost the number of skilled locals, and increase the quality of building components," he said.

While many see IBS as being a cheaper alternative to traditional building methods, Datuk Dr. Amer Hamzah also noted that IBS was not implemented to build cheaper homes, but rather "affordable ones while ensuring strict quality." IBS industry players, particularly those in the manufacture of the components, will have to have a more crucial role in strengthening the advancement of the industry through additional services such as professional installation.

More than just the IBS components, the support system also needs looking into. These include the logistics, transportation, leakages, and services and maintenance of these components from factory to the site and during the lifespan of the homes. In addition, manufacturers of IBS components have to take into account the Malaysian lifestyle, traditions and culture, such as not using bathtubs, which increases the likelihood of leakages from floor components if not properly considered. ■

Producing high strength self-consolidating concrete at optimum cost is one of the biggest needs of the construction industry.

NEW HORIZON IN CONCRETE TECHNOLOGY

On the 14th and 15th of April, the International Highest Early Strength Self-Consolidating Concrete Cube Competition (i-HESSCCC) 2016 was organised by the Construction Industry Development Board (CIDB) in conjunction with the International Construction Week 2016 (ICW 2016).

As the host of the competition, Universiti Teknologi Mara (UiTM), Shah Alam, opened its doors internationally to provide an opportunity for undergraduates and industry players across the globe to gather, compete and present their innovative ideas on producing self-consolidating concrete at the highest possible strength within 24 hours. Witnessing the event was the American Concrete Institute Kuala Lumpur Chapter (ACIKL Chapter) in collaboration with the Concrete Society of Malaysia (CSM) and the Institute of Infrastructure Engineering and Sustainable Management (IIESM) of UiTM Shah Alam.

Forty two teams comprising local and international participants took part in this year's challenge, doubling the numbers from last year's i-HESSCCC 2015, which was limited to Malaysians only. Arak Undergraduates representing Azad University from Iran, and Diponegoro University, Sebelas Maret University, and Institut Teknologi Sepuluh Nopember from Indonesia filled up the international quota. Malaysian higher education institutions were represented by Universiti Tun Hussein Onn Malaysia (UTHM), University of Malaya (UM), UiTM, Universiti Tunku Abdul Rahman (UTAR), National University of Malaysia (UKM), Universiti Malaysia Perlis (UniMap), Curtin University Sarawak Malaysia , INTI International University and Infrastructure University Kuala Lumpur (IUKL). Participants from Hume Concrete made up the remaining slots.

In the judging criteria, two major categories were taken into consideration. The first was concrete flowability during its fresh state, and the second was compressive strength after 24 hours of casting. Flowability was measured using the "inverted slump cone" method. The diameters of the slump must be 500mm in diameter for the contestants to be qualified to proceed with the compressive strength test. This criterion provided a huge challenge to participants who had instead focused on early strength and reaching the self-consolidating level of concrete. Teams were also required to provide an A1 sized poster displaying the materials used and their prepared mix formulation design. An oral presentation explaining their prepared poster was given to the judges, followed by a Q&A discussion.

After much deliberation, Arak Azad University were announced the winners, sweeping the grand prize of USD1000. HUME Concrete came in second place and took home USD500. UKM ranked third, bagging USD300. In the special awards category, the Indonesian university Diponegoro University won the "Best Presentation" award and USD200. UTAR was declared the "Most Efficient Team" and the team with "Most Flowable Concrete", earning them USD100 for each award, while UTM won the title of team with the "Most Consistent Cube" and USD100.

i-HESSCCC 2016 Winners

1st Highest Early Strength
Winner: Arak Azad University, Iran
Prize:US$ 1000

2nd Highest Early Strength
Winner: HUME Concrete
Prize: US$ 500

3rd Highest Early Strength
Winner: Universiti Kebangsaan Malaysia (UKM)
Prize: US$ 300

Best Presentation
Winner: Diponegoro University, Indonesia
Prize: US$ 200

Most Flowable Concrete
Winner: Universiti Tunku Abdul Rahman (UTAR)
Prize: US$ 100

Most Efficient Team
Winner: Universiti Tunku Abdul Rahman (UTAR)
Prize: US$ 100

Most Consistent Cube
Winner: Universiti Teknologi Malaysia (UTM)
Prize: US$ 100

Scenes at i-HESSCCC Day 1

The competition, which tested and enhanced the innovative and technical skills of students, researchers and industry players in creating high early strength self-consolidating concrete, saw the participation of 42 teams.

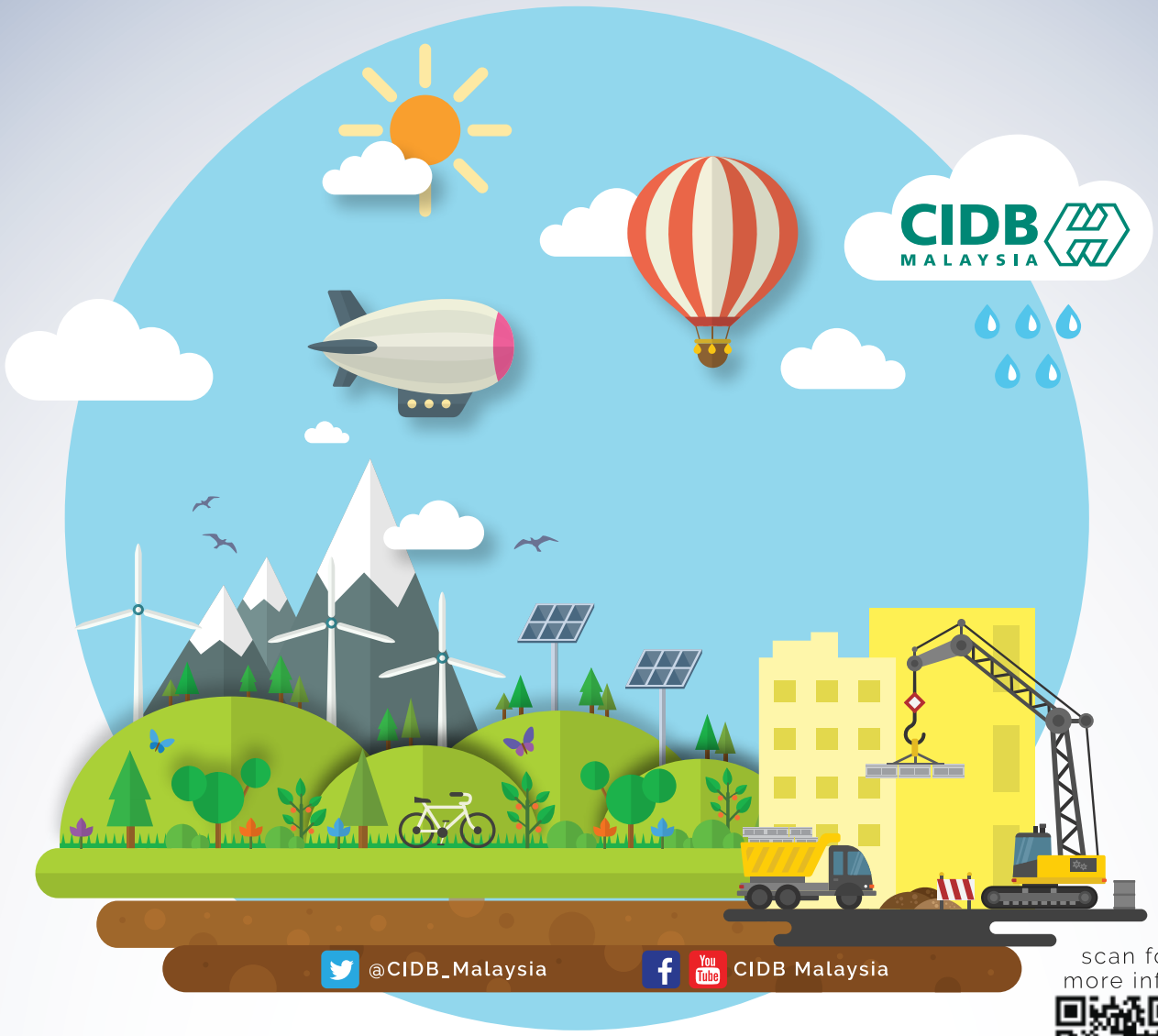
Scenes at i-HESSCCC Day 2

Dr Mohd Fadzil Arshad and Prof Dr Hamidah Mohd Saman presenting token of appreciations to the panel of judges.

Dr Lai of HUME Cement gave a speech on the company and their initiatives in improving the construction industry.

"The objective of the event is to encourage students, researchers, and industry players to test their innovative and technical skills in producing very high early strength self-consolidating concrete. Such improved innovation will also reduce the dependent on intense labour needed during concreting and it's a good platform for the students to interact among the industry players" said Serina Ho Chia Yu, President of the ACIKL Chapter.

The event was seen by participants as a successful and productive one. "I hope that the proactive initiative and cooperation in organising this competition will continue for other activities in the future for the continued success of the profession and the betterment of mankind" said Assoc. Prof. Dr. Ahmad Ruslan Mohd Ridzuan, President of CSM. ■



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The Construction Industry Development Board was established under the Construction Industry Development Act (Act 520) to develop the capacity and capability of the construction industry through enhancement of quality and productivity by placing great emphasis on professionalism, innovation and knowledge in the endeavour to improve the quality of life.

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