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"SGBC will continue championing new frontiers and technologies while staying connected to many like-minded "Green Warriors" who are green enthusiasts such as myself to forge a greener, healthier, climate-resilient and future-ready built environment."

– An interview with Dr. Ho Nyok Yong, President of Singapore Green Building Council

Dr. Ho Nyok Yong.
Photo: © Samwoh Corporation

The Singapore Green Building Council (SGBC) celebrated its 10th anniversary in September 2019. This non-profit organisation with a concerted private-public sector partnership aims to achieve a world-class and sustainable built-environment in Singapore. *SEAB* spoke to Dr. Ho Nyok Yong, the current president of SGBC on his role and his vision for SGBC in its anniversary and the coming years.

SEAB: You took on the role of President of SGBC in March 2019. Prior to this appointment, you were the Immediate Past President of the Singapore Contractors Association Limited as well as the current Chief Operating Officer of Samwoh Corporation. How is your background and experience in the construction industry helping you in the presidency role of SGBC?

DR HO: Growing up, I always dreamed of becoming an Engineer, just as my brother did. My interest in Civil Engineering developed after having understood the job scope: planning, designing, overseeing construction and also the maintenance of building structures and infrastructure work. I thought to myself: "This is a profession that can contribute significantly to the wellbeing of a community."

Even at that young and tender age, I understood that a Civil engineer is both planner and designer, and I wanted to be the one to find better ways to build structures. I strongly believe that this profession was a stepping stone to making a positive impact on how people live, work, play and learn. To this day, that belief has given me a sense of responsibility towards humanity, and I have enjoyed every stage of my career.

I have more than 30 years of diversified experience in civil & environmental engineering, project management, design & consultancy, business development and management,

SGBC celebrated its 10th anniversary with a cake cutting ceremony in the presence of Dr. Amy Khor, past presidents of SGBC and industry partners at the SGBC Gala Dinner 2019.
Photo: © Singapore Green Building Council

materials research as well as academic work. In those years, I also worked with a number of large construction organisations which gave me the opportunity to undertake a wide range of projects including industrial and residential buildings, wafer-fabrication factories, flyovers, bridges, jessties and airports using various construction techniques in Singapore as well as in overseas markets such as China, Hong Kong, Taiwan, Malaysia, Thailand, Indonesia, India, and Australia.

Presently, I am the Chief Operating Officer and a Board Member with the Samwoh Group of Companies, a leading integrated engineering and construction enterprise. I hold a Doctorate in Civil Engineering from the University of Dundee in Scotland, and am also a registered Professional Engineer of Singapore and Malaysia, and Chartered Structural Engineer of United Kingdom.

During my tenure as the President of Singapore Contractors Association Ltd (SCAL), the largest association championing the construction industry in Singapore, I initiated various initiatives to promote and proliferate environmental sustainability to many stakeholders. I successfully established various platforms to create awareness about sustainable construction and to encourage the industry players to minimize environmental impact of businesses. For instance, I organised the inaugural annual Environment Sustainability Conference in my first presidency term and to date, this conference has become an important green event for the industry.

Additionally, I serve on the boards of several professional bodies, as well as chairpersons / committee members for a number of building and construction related committees. Currently, I am the co-chair of the BCA Green Building Masterplan committee. I am also invited to sit on the advisory panels for a few institutions of higher learning. I have previously held positions as the Chairman of the Construction Industry Joint Committee and President of the Singapore Concrete Institute.

These industry appointments, coupled with decades of practical expertise in Singapore's building and construction scene, has equipped me for the presidency of SGBC. Building on the solid foundations, I work closely with fellow Board Members as well as the SGBC Secretariat to accelerate green building as the norm for all construction as a concrete climate action.

SEAB: What are some of the issues that you wish to address as the President of SGBC?

DR HO: Singapore is committed to play our part as a responsible member of the global community even though we only contribute around 0.11 percent (or 52.5 million tons in 2017) of global carbon emissions. However, this does not mean there is nothing we can do to help as concerted international effort is required to achieve a significant cut in global carbon emissions.

While the green building efforts of our property developers and real estate owners are well-publicised, the emphasis on green placed by contractors and builders are not so immediately apparent.

As an ardent green campaigner of the industry, I recognise the need to optimise the use of natural resources and to improve Singapore's resource resilience. I delved into numerous ground-breaking research and innovation projects in close collaboration with government agencies and industry institutions for recycling materials and green technologies. One of my high-profile research projects on the use of recycled materials for construction applications resulted in an innovative breakthrough with the construction of the Samwoh Eco-Green Building. This landmark building structure, a first in the region to be constructed using up to 100 percent recycled concrete aggregate, is a prime example of reducing Singapore's dependency on raw materials imported from foreign countries.

As an integral part of the green building ecosystem, the builders and contractors must also be onboard, for they are the ones who put the materials together into a high-performance structure.

Recently, I am taking my green journey to the next level with the construction of the first positive-energy industrial building in Singapore (as well as in the region) – the Samwoh Smart Hub. This 5-storey building is an ambitious project, which aims to surpass BCA's latest Green Mark Platinum Super Low Energy building standards.

The Samwoh Smart Hub will adopt numerous state-of-the-art technologies to lower its energy consumption. These include a solar powered DC water chiller plant, smart fan coil units (FCU), smart plugs, intelligent sensors and IoT sensors for the efficient use of energy. When completed in the third quarter in 2020, the building will be a showcase and champion of sustainable construction. This positive energy building will also be constructed with various types of recycled materials, processed from construction and industrial wastes. In addition, the Smart Hub will incorporate extensive greenery to blend in seamlessly with the green corridor of the 150km Round Island Route (RIR) park connector, right outside the compound.

I hope that this iconic building will continue to spur the onus towards greater sustainability among the built environment community, create a learning eco-system to nurture our next generation and push the boundaries of innovations beyond the shore of Singapore.

Many of our Founding Members found that SGBC's vision and mission to create more sustainable cities struck a chord with their own business beliefs and pathways, that sustainability is the way forward. Hence, they looked to SGBC for knowledge, expertise and access to green building resources in Singapore and worldwide. Companies in the business of manufacturing building materials also came to SGBC to get their products assessed and certified in order to more meaningfully contribute to the germinating green building scene in Singapore.

As global emphasis on climate change shifted for the positive after the ratification of the historic Paris Agreement in 2016, the building and construction industry began to embrace green building and infrastructure in a bigger way. While companies continued to come to SGBC to get their building materials certified, new members joined to gain access to the burgeoning green building scene in the region, and Singapore was steadily establishing itself as a leader for tropical green building. In order to get in on the action, so to speak, joining SGBC as a Member was the fastest way to meet the movers and shakers of the green building industry.

Ten years on, the green building and infrastructure movement is accelerating and growing at unprecedented rates, catalyzed by growing awareness of the effects of climate change as people

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SEAB: SGBC has achieved a lot over the past 10 years. It has seen a big increase in the number of its members and it has also rolled out a number of initiatives to help the building and construction industry to grow and achieve positive results. Upon your interaction with the members, what concerns did they have back then and what concerns do they have now?

DR HO: When SGBC first started in 2009, the green building and infrastructure movement was only starting to take off, spurred by the fledging Green Mark certification programme by BCA along with steadily growing demand for greener, more sustainable buildings.

began to fully experience extreme weather phenomena and other impacts on their daily lives. Green buildings and infrastructures have also been identified and recognised as a valuable ally in any climate mitigation strategy both in Singapore through the Construction Industry Transformation Map as well as worldwide through the work of the World Green Building Council. Our members now see SGBC as a thought leader and facilitator for all things green building, from the organisations involved to the materials, professionals and the actual green buildings themselves.

SEAB: How do you think technology is impacting the way green buildings are being constructed in Singapore?

DR HO: For the past decade or so, sustainable building design has always been an integral part of all architecture and construction. We have been incorporating sustainable design principles to build healthy, liveable places that are in harmony with local natural environmental conditions.

With every other industry, technological advancements permeate building and construction as well, with buzzwords such as smart buildings just interchangeably or in conjunction with green building. Indeed, we are seeing novel ways of designing, building operation buildings with the help of technology.

Advances in Building Information Modelling (BIM) software help designers to better visualise and actualise their designs, advances at worksites improve productivity and safety and smart building control systems help facility managers keep a better handle on their portfolios' building performance. Technology not traditionally utilised in the building and construction industry such as blockchain are also being slowly adapted for the building scene, used to optimise energy management among other uses.

Besides, technological breakthroughs in materials science offer more options of sustainable construction materials for stakeholders. The ever-expanding list of SGBC certified green building products exemplifies our efforts in green, sustainable construction. Under this certification scheme, SGBC not only focuses on the environmental performance of each green building product but also on its embodied carbon emissions.

Even though green building initiatives have successfully promoted the adoption of sustainable design practices and materials over the years, green buildings still remain fixated on standards and compliance. In a nutshell, the focus is still very much on design and materials whereby building operations are rarely being addressed.

Thanks to the emergence of Industrial 4.0 and disruptive technologies, I envisage there will be a paradigm shift in passive design principles towards more active ones. Today, green buildings need to provide a dynamic response to occupant needs, operating policies and changes in space management. Definitely, technology will drive operational efficiencies, reduce energy consumption, improve occupant experiences and enhance financial performance in the long-run.

The rapid pace of technology advancement has created a multitude of new opportunities for SGBC to address green building challenges. Presented with such a golden opportunity, I opine to marry the existing green buildings with smart technologies to bring sustainability to new heights.

SEAB: Compared to other countries in the ASEAN region, where does Singapore currently stand for its green building efforts?

DR HO: According to a Solidiance study published in 2016, Singapore is second in the world for green buildings, behind Paris. Cities worldwide were assessed for their green building performance across four categories: city-wide green building landscape, building efficiency and performance, green building policies and targets and, green city culture and environment.

Singapore stood out as a forerunner by topping the category of green building policies and targets, chief of which is the aim of greening 80 percent of its built-stock by 2030. Singapore has set am ambitious vision of becoming a global leader in green buildings, especially for the tropical and sub-tropics. Amendments in the city-state's Building Control Act in 2008 also requires all new buildings and existing ones to undergo major retrofitting to achieve, at the minimum, a certified rating under the Green Mark

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Scheme, Singapore's green building certification scheme. By 2014, more than 25 percent of the city's entire built-stock were green buildings and the number is close to 40 percent as of 2019.

Then-CEO of the World Green Building Council, Ms Terri Willis said: "Singapore can certainly be considered a leader in the field of green building. The city target for 80 percent of buildings to achieve BCA Green Mark standards by 2030 is ambitious but achievable, and the Singapore Green Building Council (SGBC) will play a key role in delivering this.

Moreover, in order to push the envelope of building energy efficiency, Singapore has just rolled out the next wave of support for the green building movement: BCA's Super Low Energy (SLE) Programme. It aims to harness cost-effective energy efficiency and renewable energy solutions in the Built Environment.

SGBC has also played mentorship roles to budding green building councils in the region and as far as Tanzania, providing much-needed advisory for these organisations to get their operations up and running and begin to green their own built environments.

SEAB: What is your vision for SGBC in 2020?

DR HO: SGBC will continue championing new frontiers and technologies while staying connected to many like-minded "Green Warriors" who are green enthusiasts such as myself to forge a greener, healthier, climate-resilient and future-ready Built Environment.

In 2020, SGBC will ramp up activities and initiatives designed to help the built environment address embodied carbon emissions. As put forth by the World Green Building Council's recent report on bringing embodied carbon up front, global emphasis is now shifting towards reducing embodied carbon emissions of buildings. Alongside the SGBP certification scheme which is designed to take into consideration a building product's (and its manufacturer's) carbon footprint specifically when the product is in use, SGBC also runs a regular course intended to impart familiarity on the environmental impact of building products as well as acquire knowledge to produce a recognised assessment report to communicate a product's carbon footprint. SGBC will also build general awareness on embodied carbon emissions and why it matters through educational campaigns and cognizance programmes.

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The other area that SGBC will be focusing on is educating the general community through intensified public outreach efforts. SGBC will step up efforts to share knowledge and expertise with the general public to help everyone understand what green buildings and infrastructures are about, and how to make more informed, sustainable decisions on the buildings that we spend our time in and how to also make our homes greener and healthier.

Another important field for SGBC to focus is engaging and upscaling of professionalism of the green building workforce. By 2025, BCA expects the green industry to need 25,000 trained professionals in order to support the Green building pillar of the construction ITM. Just a few months ago, SGBC has taken over the management and administration of the Green Mark Specialists Scheme from BCA now refreshed as the Green Mark Professional Qualification Scheme. We have introduced many new enhancements on the scheme to raise the standard of the accreditation. Moving forward, we will work even more closely with the industry and all relevant government agencies to better understand the future needs of the nation's green building talents. We will then further enhance the existing professional scheme to suit the market different needs.

The impact of climate change on the world cannot be ignored any longer. As the warning call of global warming increases in severity, scale and volume, the built environment is in a prime position to mitigate the effects of climate change while providing better places for people to live, work and play in.

Indeed, going green and sustainable must no longer be the exception rather than the norm: going green must become the new "business as usual".

A holistic approach must be taken to fully address the issue. While the government and authorities institute legislation and policies from the top down, demand for a greener, healthier built environment can be simultaneously aggregated from the bottom up. SGBC will proactively lead the charge, working closely with both the public and private sectors to champion green building.

We will ramp up activities and events to drive green building awareness, hold leadership dialogues to engage with key appointment holders, support the growing climate action movement led by youths and the younger generation as well as encourage the business community to institute greener and more sustainable features into their operations, such as opting for renewable energy to power their businesses.

Last but least, I would like to reiterate that going green should not be just a symbolic gesture but should be the aspiration of all socially responsible businesses and individuals. It is the duty of everyone to drive the common goals of mitigating climate change as well as shaping Singapore into an active and gracious nation supported by a leading green economy.