

SEPTEMBER 2011 • Issue 4  
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ISSN 2231-8135



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# Singapore's green innovator of the year

**Technical director of Samwoh Corporation Dr Ho Nyok Yong is Singapore Building & Construction Authority (BCA) Green Innovator of the Year for 2011. He tells *Suvarna Beesetti* in an email interview about his work and achievements in sustainable construction.**

**Growing up in a village in Ipoh, Malaysia, surrounded by abundant greenery Dr Ho Nyok Yong learnt to love nature. However, as his village embraced urbanisation, large tracts of forests were sacrificed for new townships. Trees were felled and hills flattened. Having witnessed such destruction, Ho was driven to do something meaningful to conserve the environment.**

The technical director of **Samwoh Corporation**, an integrated construction and sustainable recycling company did his doctorate research on the efficient use of industrial waste for structural applications. Since then, he has not looked back, and has been involved in R&D work on material science, recycling of waste materials and industrial by-products, green building and sustainable construction, and green asphalt pavement engineering.

Ho has authored over 50 technical papers, and has spoken at conferences and seminars all over the world. He has received a number of awards, the latest being the BCA Green Innovator of the Year 2011 award, in recognition of his contribution to the industry.

## **How do you feel about being named the BCA Green Innovator of the Year and how has this changed your life?**

It is a great honour to me, my research team as well as my company. It will definitely motivate us to be more involved in green work. I have been involved in R&D work on sustainable technologies for more than 20 years, and I do not think I will ever stop campaigning for the green cause.

## **Do you think that more businessmen should follow in your footsteps?**

My passion is to convert waste into useful material as well as to formulate new green products and technologies that can benefit the industry. It is my



SAMWOH CORP

- Born in Ipoh, Malaysia
- A registered professional engineer of Singapore and Malaysia, and a Chartered Engineer of UK
- President of the Singapore Contractors Association Limited
- Chairman of Recycled Material taskforce at Singapore Green Building Council
- Past president of the Singapore Concrete Institute

hope that my green R&D work will also inspire everyone, especially the younger generation, to think green.

Both my company and I strongly believe that going green should not be symbolic. It should be the aspiration of all socially responsible business corporations. We share our knowledge and experience by opening up our R&D centre to schools, higher institutions and the public via educational

tours to raise awareness on environmental issues.

We hope that the inspirational stories on how we came to embark on green R&D work will encourage everyone to make a commitment to be green in their schools, their communities, their homes and their personal lives.

It is heartening to receive feedback, often from young people, after the tour that they learnt a lot on green activities, and were inspired and motivated by our efforts.

## **What is your personal contribution to the environment in your daily life?**

I am active in green activities organised by the **BCA, National Environment Agency (NEA), Land Transport Authority (LTA), Civil Aviation Authority of Singapore (CAAS), Singapore Environment Council (SEC) and Singapore Green Building Council (SGBC).**

I have also initiated a number of research partnerships with tertiary institutions as well as local authorities on green technologies and the efficient use of waste materials for construction. Most of the research work has received the authorities' approval. I am currently president of the Singapore Contractors Association Limited (SCAL) and chairman of the Recycled Materials taskforce at SGBC. These roles enable me to guide and advise on sustainable construction.

## **What is your personal philosophy on green technology?**

I believe in a pragmatic approach to R&D. In my more than 20 years of experience in the fields of civil and environment engineering, I have always been inspired and driven by



The Samwoh Eco-Green Building. Ho's pride and joy, is the first building in the region to use concrete with up to 100% RCA and was awarded the BCA Green Mark Platinum Award

the need to recycle waste materials as there is a lack of natural materials in Singapore for construction.

Most industrial wastes can be turned into reusable materials through R&D. They can substitute natural materials as well as alleviate waste disposal problems. This is in line with the government's call for the 3Rs (i.e. reduce, recycle and reuse).

The continuous development and invention of new green products by our team, which strongly emphasises practicality, efficiency and environmental protection, will complement the government's efforts to meet the target of greening 80% of all buildings by 2030. This will then make Singapore a truly sustainable built environment.

**What is the biggest challenge for developers to adopt sustainable construction and concrete technology? How can they overcome it?**

It is common public perception that recycled materials are a poor substitute for natural materials. Another challenge is the initial cost of adopting green technology.

I believe education plays a big part in changing this perception. The government also plays a major role in the adoption rate of green technology. By supporting green initiatives, it can encourage developers to work towards sustainable construction.

**"I envision a future where nothing will go to waste. More developers will embrace the idea of sustainable construction."**

**What is your most successful green technology project to date?**

I would say my proudest achievement was to lead a dedicated research team comprising researchers from Samwoh, BCA and Nanyang Technological University (NTU) in the study and application of recycled concrete aggregate (RCA) for structural concrete applications.

Our extensive research led to the construction of the Samwoh Eco-Green Building, the first building in the region to use concrete with up to 100% RCA. The building represents the biggest leap of faith that any building owner has taken with regard to the use of recycled materials and it was awarded the BCA Green Mark Platinum Award.

The building was officially opened on March 22nd last year by then Senior Minister of State for National Development and Education, Grace Fu. The building has received much media publicity and attracted over 3,000 visitors from Singapore and around the world. During such visits, I shared my

**A building almost entirely constructed from recycled concrete aggregate (RCA)**

Some 2 million tonnes of construction and demolition (C&D) waste is produced every year in Singapore. As land is limited on the island state, the disposal of C&D waste is a problem. On top of this, Singapore lacks natural construction aggregates.

As a solution, Samwoh Corp set up plants to process the C&D wastes, which contain mainly aggregate and cementitious materials, into recycled concrete aggregate (RCA) for road construction, civil engineering precast concrete components, and more successfully, the construction of the Samwoh Eco-Green building (picture on left).

Officially opened last year, the three-storey building has attracted the interest of industry players as it is the first in the region to be built with concrete that contains up to 100% RCA.

The building serves as a research project to evaluate the use of RCA in structures and its incorporation in building standards. To monitor performance, fibre-optic sensors are embedded in the support columns.

According to the developer, the replacement of natural aggregate with RCA did not increase nor decrease the construction cost of the building. The costs are comparable.

Apart from the use of sustainable construction materials, the building was also designed with green features like low-energy lighting, water-efficient fittings, and recycled materials for interior fittings.

experience and knowledge on green technologies and initiatives, and this has helped to promote the use of green materials in construction.

**What do you think is the future of green technology in the next ten or even fifty years?**

I envision a future where nothing will go to waste. I believe more developers are embracing the idea of sustainable construction. Consumers are also becoming more educated about sustainable development. With this increasing focus on the environment, I foresee a Singapore that is going to be even greener. ☺