

New lab by Sembcorp and NUS will increase research in energy, water and waste



1 of 4 Research fellow in NUS Dr Huang Zhenyu (left) demonstrates the density difference between a piece of floating concrete and a piece of normal concrete as part of a waste-to-resource project that involves fast track volumetric construction using lightweight high performance materials. ST PHOTO: NEO XIAOBIN

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SINGAPORE - Future buildings could be constructed with a new type of concrete that retains strength but is light enough to float on water.

This will not only make building construction greener - as lighter material means less resources are used - but also make it quicker as more parts can be pre-fabricated.

Currently, pre-fabrication involves mostly only walls and poles, as these tend to be lighter and can be transported from the factory to the construction site and be put together easily.

The secret to "super concrete" lies in its ingredients.

Scientists and engineers from the National University of Singapore (NUS) and homegrown energy and water company Sembcorp Industries have found that ash left over from power plants and incineration plants contain compounds that can be used to make ultra-light composites that can be used in construction.

This makes the building process even greener, since what was thought to be waste (ash) can be "upcycled" and used.

Such waste-to-resource research is one of three research thrusts under a new partnership inked on Wednesday (April 20) between Sembcorp and NUS.

The new Sembcorp-NUS Corporate Laboratory, supported by the National Research Foundation, will also look at developing new, competitive and sustainable solutions in the energy and water sectors.

The new lab will be based in the NUS Faculty of Engineering, and will tap on the expertise of 45 full-time researchers from NUS, who will be specially hired for the lab, and 35 engineers from Sembcorp.

The \$60 million lab was launched by Deputy Prime Minister Teo Chee Hean, who is also chairman of the NRF, at a ceremony held at NUS on Wednesday.

"Through such collaborations between universities and companies, we seek to align public sector research more closely to industry needs, to bring about greater positive impact to our society and economy," Mr Teo said in his speech. "This could include new products, services or processes, and good jobs for Singaporeans."

Mr Tang Kin Fei, group president and chief executive of Sembcorp Industries Group, said: "The Sembcorp-NUS Corporate Lab will look at cutting edge solutions that are highly relevant to industry.

"These have the potential to help us increase efficiency, lower costs, make better use of scarce resources and improve productivity. In addition, they can also help us improve safety performance and reduce our environmental impact."



2 of 4 Professor Wang Chi Hwa (second from left) talks to Deputy Prime Minister Teo Chee Hean (centre) during a tour of the exhibition at the launch of Sembcorp-NUS Corporate Laboratory. ST PHOTO: NEO XIAOBIN



3 of 4 Deputy Prime Minister Teo Chee Hean (second from right) tours one of the exhibition booths during the launch of Sembcorp-NUS Corporate Laboratory. ST PHOTO: NEO XIAOBIN



4 of 4 Deputy Prime Minister Teo Chee Hean (fourth from left) tests out a piece of floating concrete as part of a waste-to-resource project that involves fast track volumetric construction using lightweight high performance materials. ST PHOTO: NEO XIAOBIN