

The unique house of oil palm at UMS

01 April, 2005

Kota Kinabalu: It is a low-cost house like any other in Sabah but this single-storey building located in the campus of Universiti Malaysia Sabah (UMS) here is unique.

For one thing, the room temperature of the house - which has two bedrooms, a living room, a kitchen, a study, a toilet and a shower - is lower by about two degrees

But that's only a minor difference. The main feature is that the house is built with hollow blocks shaped from oil palm shell solid wastes - a material derived after lengthy research that even landed a gold medal and which is set to revolutionise the construction industry in the country.

The blocks are the invention of Dr Md Abdul Mannan, Associate Professor at the UMS School of Engineering and Information Technology, and hence the reason for the location of the model house at the university's campus in Teluk Likas, here.

Apart from offering a form of construction material that is cheaper than clay bricks but equally as durable, the oil palm shell hollow blocks can help the oil palm industry with a solution to the disposal of its solid wastes in a manner less detrimental to the environment.

More than 2.6 million hectares in Malaysia come under oil palm, and about one million of this acreage is in Sabah. The plantations have the capacity to produce oil palm shell solid wastes of over three million tonnes annually.

Dr Mannan, 43, whose invention won a gold medal at the 32nd International Exhibition of Inventions in Geneva, Switzerland, last year, said there is a huge commercial potential to be tapped from agricultural solid wastes, especially oil palm shell.

"Oil palm shell can be used as the coarse aggregate in concrete for the construction industry ... this is one of the promising solutions to the solid wastes problem," he told Bernama today. Explaining his invention, he said the disposed oil palm shells had to undergo three stages of quality improvement that begins with pre-treating for impurities and micro-organisms followed by water proofing and bonding before they are mixed with other materials.

The hollow blocks produced out of the mix are made in such a way that they have 32 per cent void in them, he said.

Dr Mannan said the blocks are much lighter as well as cheaper than the conventional bricks and building blocks.

Elaborating on the model house, he said tests conducted there and at two conventional houses in Kota Kinabalu showed that the room temperature of the model house was cooler by about two degrees.

"This is due to the void inside the blocks that lessens the thermal conductivity. It prevents the heat from going inside the house and, at the same time, traps the cool air within," said Dr Mannan, who was assisted in the UMS project by a team of researchers and lecturers.

This would provide thermally comfortable walls for a low-cost house and therefore minimise electricity usage for fan or air-conditioning, and since the material is lighter than conventional clay bricks, the amount spent to reinforce the foundation would also be less, he said.

Not only the walls of the model house are constructed from oil palm shells. Other material such as the mosaic tiles as well as the pavement are also constructed with oil palm wastes.

According to Dr Mannan, the model house needed about 2,400 blocks to construct and each block, which is equivalent to about 6.5 pieces of clay bricks, cost only about RM1.

The hollow blocks are an environment-friendly product which does not pose any health hazard, he said.

He admitted that despite its huge potential, the new product has yet to be developed commercially.

"However, inquiries have begun to come in after the success in Geneva last year. Several companies have expressed their intention to know more about the product and to use it in their projects," he said.- Bernama