Wealth from waste

IIT know-how turns industrial trash into model house

M R Venkatesh

CHENNAIDHNS: “Phosphogypsum,” a waste product from fertiliser industry, may well be the key for sustainable, earthquake-proof, rapid and low-cost mass housing in the days to come.

The Indian Institute of Technology-Madras has used the waste product to build a two-storey "demonstration building" on its campus here in just 29 days after the laying of foundation stone, to showcase its "affordable mass housing" technology.

Even as Union Finance Minister P Chidambaram underscored the need for low-cost, sustainable mass housing while presenting the Budget in Parliament on Thursday, IIT-Madras Director Bhaskar Ramamurthy unveiled the "GFRG demonstration building"—a structure that is built with Glass Fibre Reinforced Gypsum panels in a quiet ceremony here. IIT-Madras used the phosphogypsum, the industrial waste, from the Fertilisers and Chemicals Travancore Limited (FACT) plant in Kochi, Kerala and Rashtriya Chemicals and Fertilisers, Mumbai, to make the GFRG panels, the IIT-M director disclosed on Saturday. He added that the IIT's idea was based on the "calcination technology" developed by Rapidwall Building Systems, Australia. The IIT-M's "model housing apartment" with four flats—two each for the economically weaker sections (EWS) and the lower income group (LIG) people—is built in an area of 1381 sq ft. The building is the culmination of 10 years of effort. A research group of the IIT-M's Civil Engineering Department, led by Prof Devas Menon and Prof A Mehra Prasad, started working on it in 2013. The research group conducted extensive studies on the use of the GFRG panels as "structural members for earthquake resistant design". These panels, called "Rapidwall panels," were used in Australia for "rapid erection of walls". The IIT-M group got Rs 1.32 crore aid from Department of Science and Technology, Government of India, to complete the research work and bring it to the stage of technology transfer. "We extended the application of the product (GFRG panels) for the entire building, including slabs, staircases and other systems," Prof Ramamurthi said.

He said the GFRG building, which is fit for occupation, showcases the efficacy of the "rapid construction technology" and is "reliable for mass housing, vertically and horizontally". The use of prefabricated light weight GFRG panels (43 kg/sq m) not only implied faster overall construction time but also a safer working environment and the cost of the construction, with all amenities, has been reduced to about Rs 1,200 per sq ft," he added.
INDIA’S MOST REPUTED

Times Higher Education India Reputation Rankings 2013:

1. Indian Institute of Science B’lore (pic)
2. Indian Institute of Technology Bombay
3. All India Institute of Medical Sciences
4. Indian Institute of Technology Kanpur
5. Indian Institute of Technology Delhi
6. University of Delhi
7. Indian Institute of Technology Madras
8. Indian Institute of Technology Kharagpur
9. Aligarh Muslim University
10. University of Hyderabad

This is UK’s Times Higher Education magazine’s first-ever Indian top 10 list. Indian educational institutions continue to trail way behind the developed world.
IISc buys ₹3cr device already gifted to it, lets it gather dust

Seethalakshmi | TNN

Bangalore: An unopened carton, the size of a dining table, lies at the Centre for Earth Sciences in the sprawling Indian Institute of Science (IISc) campus. The carton that weighs about 2,000kg contains a state-of-the-art thermal ionization mass spectrometer. Purchased by the department for Rs 3 crore, it has been lying there unopened since July last year. And in a couple of months, a similar equipment will be shipped from Canada, courtesy the University of Toronto, which has gifted IISc exactly the same mass spectrometer.

The question is, why did the IISc spend Rs 3 crore on an instrument, when the University of Toronto had agreed months in advance to gift the same to the institute. And why is the Rs 3-crore equipment lying unused over the past eight months?

The ₹3 crore mass spectrometer has been lying unused at the Centre for Earth Sciences in the IISc campus.

The institute has no ready answers. Prof A G Menon, chairman of department of Earth Sciences, admitted to TOI that the equipment was purchased using the Government of India’s money. “It is lying unused. I have heard about some gift agreement but I have not seen any document pertaining to that. This is all I can say,” he said.

The case of the spectrometers dates back to 2011. On April 7 that year, University of Toronto vice-provost Edith Hillian wrote to the IISc that they would be happy to relocate the mass spectrometer to Bangalore at no cost. This came about after year-long negotiations between the IISc and the university.

But on January 31, 2012, the institute floated a tender for purchasing a similar spectrometer.

The orders were placed in the third week of February and the equipment arrived on the institute campus in July 2012. The same month, disregarding the purchase of the Rs 3 crore equipment, the IISc went ahead and signed a gift agreement with the University of Toronto on July 20, 2012.

While the Toronto equipment is set to arrive in the next few months, the same instrument purchased by IISc is gathering dust and lying unused.
Course restructuring a rush job, say DU profs
‘Only Handpicked Teachers Involved In Process’

Manish Pratim Ghain | TNN

New Delhi: Delhi University teachers are concerned over the hurried manner in which course structures are being prepared for the proposed four-year-undergraduate degree. In various departments, ‘select’ college teachers have started discussing the structure but many teachers are complaining that the colleges, teachers-in-charge and senior subject teachers have not even been informed about these meetings. And their demand for a general body meeting (GBM) has been ignored.

According to DU sources, the administration has asked the departments to get the curriculum prepared by the “select” designated teachers and submit the report to the vice-chancellor by March, giving effectively two to four weeks’ time to them.

The department of mathematical science convened a meeting of the teachers on Monday. “Eighty-three mathematics teachers had presented a GBM requisition last month but only a select few teachers were called for yesterday’s meeting,” said Nandita Narain, mathematics teacher-in-charge of St Stephen’s College. “We were not even informed about the meeting. The teachers working on the course structure don’t have any briefs on the admission process and other policies for the four-year structure. And the teachers were first asked to submit their suggestions by March 15.” The physics teachers, too, had asked for a GBM but to no avail.

There are teachers who decided not to be part of the committee, describing the exercise as a mockery of the process of course preparation. Science teachers, in particular, are alleging that the curriculum is being structured without any clarity on practicals and postgraduate structure.

Executive Council member, who was selected for the committee set up by the physics department, Abha Dev Habib, dissociated herself stating that the department had not called a GBM to discuss such a major overhaul. She said the committee consisted of a few handpicked teachers and there was no rationale behind the selection. “Physics teachers have always enthusiastically participated in curriculum designing. It is unfortunate that the department did not write to the teachers-in-charge of the physics departments in colleges seeking those who could represent them in this process,” said Habib.

“We were told that we have to confine ourselves to syllabi framing and that a critique will be sent along with the designed curriculum... It is unfortunate that the department does not feel it’s only right to first raise the apprehensions and problems related to the structure with the authorities,” she added.