

New bricks for better homes

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Housing is one of the key issues in a rapidly growing and urbanizing India or for that matter in any country that is on the path of development. Efforts are being made by both the public and private sectors to provide shelter the growing needy.

The challenge is to provide higher quality housing, using construction materials that can be produced in a socially, environmentally and economically sustainable way.

In India, clay bricks have been used for centuries and are the predominant construction material even today. According to a estimation, current demand is over 100 billion bricks a year. The suppliers range from industrialized modern manufacturers to old-fashioned small-scale operators.

Workers in the clay brick industry in India, mostly in rural and semi-urban areas, are not well organized and live in poor conditions with little support to improve their lives.

The manufacture of clay bricks in the traditional way results in heavy environmental damage. Clay-brick manufacturing using typical kilns is also very energy- intensive 200 tons of coal is used in sintering every one million bricks. The Government of India has already committed to banning clay bricks in urban centers, however, economical technological solutions have to be found to achieve this goal.

Mr. N. Kalidas and Dr. Bhanumathidas the inventors of the FaL-G technology and the founders of the INSWAREB (Institute for Solid Waste Research and Ecological Balance). They received the prestigious CANMET/ACI International Award for their "Sustained and Outstanding Contribution in the area of Fly Ash utilization in Bricks and Concrete in India" over the past two decades.

Talking to Bay News, they said that the INSWAREB is the only organisation in the country, outside the purview of the government-owned laboratories that has been working both for basic and applied research with the objective of utilising industrial and solid wastes in the cement and building materials. With this approach, this organisation is striving to cut about 65-70% of industrial solid wastes i.e. 120 million tons as of now.

INSWAREB intends to protect the ecology through the following methods - waste utilisation in pollution abatement, energy conservation, mineral conservation towards ecological balance, enlargement of scope for building materials and cement at affordable cost with increasing availability, sustainable development by virtue of propagating blended cements applicationally proven for more durability over conventional cement, simultaneously working at popularising the utilisation of blended cements that would save about Rs 10,000 crore to the country.

And the expert-duo is presently working to initiate rice husk-based power plants in order to integrate rice husk ash (RHA) to the production of high-performance concrete.

"FaL-G is a technological renaissance of the age-old pozzolanic chemistry, proven for its strength and durability," says Dr. Kalidas.

FaL-G is a ground blend of fly ash (Fa), lime (L) and Gypsum (G) in suitable proportions which, upon hydration, yields strengths in the range of 60 - 400 kg/cm², rendering a totally water impervious hard matrix, with the formation of mineralogical phases during hydration similar to those of Ordinary Portland Cement (OPC), he informs.

The proportions of lime and gypsum are dependant upon the chemical constituents and the behaviour of fly ash. The technology is thus custom built, with process parameters to yield a product of superior technical virtues. Whenever lime is in short supply, Portland cement can be used as source of lime. Thus this technology can be adopted both in lime route and cement route without disturbing the ultimate technical parameters and economics.

They also assist in promoting FaL-G technology for realizing sustainable development and CO₂ mitigation in the Third World countries, including India, with specific emphasis on community development.

"We had a lot of problems in promoting this technology from many quarters at the beginning. Some of them rising out of envious and prejudicial approach of certain people, continues Dr. Das.

"Only when the international faculty appreciated our work, the local faculty kept quite. It is an interesting journey of over 18 years. We had problems at the beginning but now FaL-G is a well-accepted technology having more than 4,000 plants right from Roorkee in extreme north to Tuticorin in down south. FaL-G blocks are in short supply today and there is potential to promote over 50,000 plants in the country'.

INSWAREB also conduct Project Management like Techno-Economic feasibility study, raw materials quality assessment, demand/supply studies, production capacity scoping/sizing, basic and detail engineering, procurement supply, erection, commissioning of equipment, in addition to training. Dr. Das explained how one could participate in the FaL-G Bundle and earn Carbon Revenue.

Production and sale of each million FaL-G bricks equivalent to 1,540 cu.m. earn over Rs. 40 to 50 thousands per year. This money is available for over 6 to 8 years, subject to verification of production and sales records. The first criterion is that the Micro Industrial Plants (MIP) should be a bonafide licensee of FaL-G Technology from INSWAREB. Those Micro Industrial Plants (MIPs), engaged in the production of FaL-G bricks and blocks, started on or after 1 January 2004 would be eligible to participate in the Bundle.

The application should necessarily be enclosed with the copies of following: - SSI Registration certificate.- NOC/Clearance on Pollution. - Salestax registration/TOT registraton.The Project Entity, Eco Carbon Pvt. Ltd., reserves the sole discretion to accept or reject an application based on its own judgment and monitoring logistics.

Those, who are interested in participation may access the application, fill up the same and forward to Eco Carbon Pvt. Ltd.

Once the application is approved, the entrepreneur needs to sign an agreement with M/s Eco Carbon Pvt. Ltd., Clarifications, if any, may please be sought from Mr N Kalidas, to the e-mail ID, inswareb@sify.com or over the mobile 98481-91453.