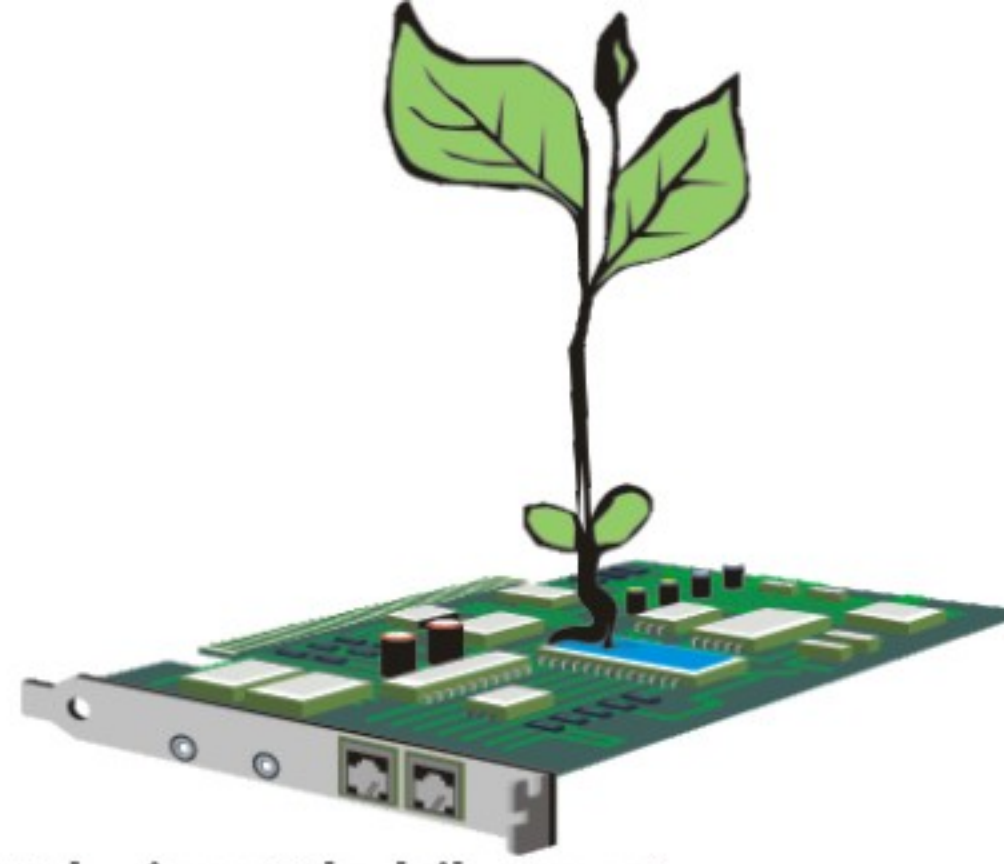


Green Tech



DHAKA, MONDAY, DECEMBER 12, 2011, E-MAIL: business@thedailystar.net

In climate battle, smart brick kilns pay off

SUMAN SAHA

BRICK makers should adopt environment-friendly technologies in their manufacturing processes as it will help the country mitigate the adverse impacts of climate change and earn money from carbon trading, say experts.

Brick making is one of the largest sources of greenhouse gas emissions and local pollution in the country, says Sarwat Chowdhury, a climate change specialist.

She says the sector emits over six million tonnes of carbon dioxide a year that is equivalent to the gas emissions of 230,000 passenger vehicles.

Around 33 percent of the fuel used in brick kilns comes from wood fuel, Sarwat says. "Simultaneously, the brick making industry is exerting unsustainable pressures on farmlands because of the extensive use of topsoil."

Since the necessity of brick making in a country can not be denied, it is time to introduce environment-friendly technologies in the brick manufacturing process in Bangladesh, she adds.

The government has already published a notification to transform the fixed chimney kilns to modern kilns by September 2012.

Even though the fixed kilns pollute the environment heavily, most brick makers in the country prefer it for its low capital requirements and high returns.

UNDP, in association with the government, is implementing a five-year project on "Improving Kiln Efficiency in the Brick Making Industry" to introduce the smokeless brick making technology in Bangladesh, says Sarwat, who is working as the programme manager. This project is commonly known as the 'Green Brick Project'.

"We will set up at least 16 Hybrid Hoffman Kilns (HHKs) by 2014 in the country," says Sarwat. These kilns will reduce more than 314 kilo tonnes of carbon dioxide emissions at end of the project and 1,470 kilo tonnes in the next 15 years."



Women pose for a photograph at a Hybrid Hoffman Kiln factory in Bangladesh. The factory emits no smoke. UNDP/FILE

The hybrid technology has a 'triple-benefit' for the country. These brick kilns are energy efficient, cost effective and will generate green jobs for local men and women throughout the year.

At present, the country has about 8,000 brick fields that manufacture bricks of different grades and other building products, such as brick chips, dust, soling and herring bone, says Ali Ashraf Iftekhar, general secretary of Bangladesh Brick Manufacturing Owners Association.

About 60 percent of yearly production is consumed by different government departments, such as the roads and highway department, public works department, and local government engineering department. The rest is consumed by the private sector, says Iftekhar.

The industry employs around 20 lakh individuals during the peak-season and eight lakh in the off-season, he adds.

According to a UNDP report on green bricks, the country produces over 8.66 billion bricks a year at a value of \$450 million, which is almost 1 percent of Bangladesh's GDP. The sector is growing at 5.3 percent over the last decade, adds the study.

Sarwat of UNDP says the hybrid kilns under the Green Brick Project will ensure women empowerment and decent work lives. Currently, many women are working at the hybrid kilns.

"Under the project, we also plan to establish a

'Brick Centre' to train the workforce in the sector," says Sarwat.

Climate change experts also see a huge potential for carbon trading.

At a workshop, Bangladesh Bank Governor Atiur Rahman said Bangladesh has prospects of earning \$70 million a year from carbon trading in the global carbon credit market.

But the country couldn't attain desired levels from the clean development mechanism, due to a lack of awareness.

UNDP and Asian Development Bank co-organised the workshop on "Opportunities to expand energy efficient brick kilns in Bangladesh" recently at Sonargaon Hotel in Dhaka.

The existing brick kilns have emerged as the number one cause for 'fine-particulate' pollution in Dhaka, Rahman said.

Bangladesh Bank extended a refinance scheme of Tk 200 crore in 2009 to establish the Hybrid Hoffman Kiln technology in brick manufacturing to reduce carbon emissions.

Experts say emissions could be cut in half if the kilns burn bricks using the German technology.

suman.saha@thedailystar.net

"Around 33 percent of the fuel used in brick kilns comes from wood fuel. Simultaneously, the brick making industry is exerting unsustainable pressures on farmlands because of the extensive use of topsoil"



Green bricks from zig zag kilns

Brick Manufacturing Owners Association leader explains the conversion technology

SUMAN SAHA

BRICK makers in the country are looking to convert existing technologies into zig zag kilns for cost effectiveness and environment friendliness.

"Zig Zag kilns are relatively easier to install and use than other technologies. It is also environment-friendly," says Ali Ashraf Iftekhar, general secretary of Bangladesh Brick Manufacturing Owners Association (BBMOA).

He says there are generally six types of brick kilns in Bangladesh -- Bull's Trench Kiln, Fixed Chimney Kiln, Zig Zag Kiln, Vertical Shaft Brick Kiln, Hybrid Hoffman Kiln and Tunnel Kiln.

Experts say the zig zag, vertical and hybrid kilns use relatively modern technologies. They are more energy efficient than the bull's trench and fixed kilns, while the tunnel kiln is the most advanced and has the highest degree of mechanical automation and energy efficiency.

In Bangladesh, around 95 percent of the brick fields are making bricks by the highly polluting fixed chimney kilns, as it requires low capital costs and has high investment returns.

"We want to replace the existing fixed kilns to zig zag models to manufacture bricks as it is a viable and cost effective solution for the country," says Iftekhar.

Zig zag kilns do not use wood; hence it saves trees. Again, the black smoke produced in the kiln flows through a zig zag path over water and is finally trans-

formed into eco-friendly 'white smoke' before being emitted into the environment, he adds.

Iftekhar, who is in the brick business for over 22 years, says the individual investment to convert to a zig zag kiln will be around Tk 35 lakh for the manual system and Tk 2 crore for the mechanised system. In addition, the installation cost will be around Tk 60 lakh for the manual system and Tk 2.50 crore for the mechanised system.

The hybrid and vertical kilns basically require to setup on high grounds for successful installation and operation. In our country, about 90 percent of the brick kilns are situated on low lying grounds, which makes it very difficult to setup and operate these models, he adds.

"Even if we are to set up the vertical and hybrid kilns on selected high lands, a scarcity of mud will become crucial, given the topography of our country," says Iftekhar.

"Our estimate is that only 10 percent of the existing fixed kilns may be converted to the hybrid or vertical models," he adds.

Iftekhar, who is the owner of AIM Brick Field, says the quality of bricks produced with the vertical kilns is lower than those produced with fixed kilns.

For example, a second grade brick of fixed kilns is of higher quality than a first grade brick of vertical kilns.

In practical operations, vertical kilns were found to consume much more fuel than predicted earlier, while the tunnel kilns have high installation costs. Most entrepreneurs are unlikely to be able to afford such



Ali Ashraf Iftekhar

conversions, even with bank finances, he adds.

The general secretary of the association says banks provide loans worth up to 60 percent of the total project cost with collateral worth 1.5 times the loan. So, most entrepreneurs are unable to present this much collateral to obtain bank finance.

The current lending rate of the state owned banks is

15 percent, and for private banks, it is 16 percent on an annual compounding basis, which is not favourable for a brick entrepreneur, says Iftekhar.

He says brick entrepreneurs need long term bank loans covering at least 75 percent of total project costs at 5 percent a year on a simple interest basis.

Iftekhar urged the government to modernise the rules and regulations regarding brick fields and speed up the process of issuing clearance and other relevant certificates.

He says a brick field needs 11 to 12 government licences and certificates before going into operation. Some licences and clearance certificates are valid for one year and some for 3 years.

The brick entrepreneur also faces difficulties in renewing these licences and certificates, says Iftekhar. "We do not get renewal on time. When we apply for a particular licence or certificate at a government office, we are asked to submit another paper or certificate from another agency, which cannot be obtained beforehand," says Iftekhar.

For example, the Department of Environment asks for certificates from Bangladesh Standards and Testing Institution before issuing their certificates. "We duly request concerned authorities to issue their papers without hassle or delay."

He sought cooperation from all in making the brick-manufacturing sector of the country sustainable.

suman.saha@thedailystar.net