

खबर है

यदि घर ऐसा हो जिसमें रहने वालों को बिजली, पानी एवं अन्य मूलभूत आवश्यकताओं के लिए बाहरी दुनिया पर निर्भर न रहना पड़े तो कहना ही क्या। तमिलनाडु के कोडाईकनाल जिले के अंतर्गत प्रकाशपुरम गांव में करुना फार्म में ब्रिटेन के आर्किटेक्ट लीओर एलेक्स ऐसा ही घर तैयार करने में लगे हैं। भारत में अपनी तरह का यह दूसरा प्रोजेक्ट है। ऐसा ही एक घर अंडमान निकोबार में बनाया जा चुका है। इसकी खास बात यह है कि इसे तैयार करने के लिए सामान्य कंस्ट्रक्शन सामग्री के बजाय बेकार पड़ी वस्तुओं का इस्तेमाल किया जाता है, जैसे इस्तेमाल हो चुके टायर एवं कोल्ड ड्रिंक की खाली बोतलें इत्यादि। बेकार पड़ी वस्तुओं से अनूठा आशियाना तैयार करने की इस निर्माण कला को नाम दिया गया है अर्थशिप। इसके पीछे पर्यावरण को सुरक्षित रखने की सोच मुख्य है।

लीओर बताते हैं कि अमेरिकी आर्किटेक्ट माइकल रेनाल्ड ने करीब 20

रीसाइकिल वस्तुओं से तैयार किए जा रहे हैं ऐसे घर जिन्हें बिजली की आवश्यकता नहीं होती; क्योंकि उनमें लगाए गए सोलर पैनल घर में रहने वालों की जरूरत के मुताबिक बिजली उत्पन्न करने में सक्षम हैं

अनूठा

# आशियाना

साल पहले अर्थशिप बायोटेक्नर की अवधारणा लोगों के सामने रखी थी। वर्ष 2002 में ब्रिटेन में अर्थशिप ब्राइटन प्रोजेक्ट में मीने उनके साथ कार्य किया। रेनाल्ड की सोच और उनके अर्थशिप कांसेप्ट ने मुझे इतना प्रभावित किया कि मैंने उसी समय इस सोच को आगे



बढ़ाने का फैसला कर लिया।

लीओर बताते हैं कि अर्थशिप का बेसिक मॉडल एक ही है। प्रत्येक जगह की जलवायु और उपलब्ध संसाधनों के अनुरूप हम थोड़ा बहुत फेरबदल करते हुए हम अर्थशिप होम तैयार करते हैं। अर्थशिप होम तैयार करने के लिए

वाहनों के बेकार हो चुके टायरों की मुख्य रूप से जरूरत होती है। इन टायरों में मिट्टी भरकर उनसे दीवार तैयार की जाती है। दिनभर में टायर सूरज की किरणों से गर्माहट एब्जाब्रॉ कर लेते हैं और घर को गर्म रखते हैं। सोलर पैनल से घर की आवश्यकता के अनुरूप बिजली प्राप्त की जाती है। बारिश के पानी को एकत्र करते हुए पानी की जरूरत पूरी की जाती है। घर का निर्माण

ही कुछ इस प्रकार किया जाता है कि पानी बिल्कुल भी बर्बाद नहीं होता। बर्तन धोने में इस्तेमाल किया गया पानी सिंक के जरिए पेड़-पौधों तक पहुंचाया जाता है। वांश बेसिन एवं नहाने में इस्तेमाल पानी को फिल्टर करके टॉयलेट फ्लश के लिए उपयोग किया जाता है। अर्थशिप होम तैयार करने का खर्च सामान्य घर बनाने के खर्च की तुलना में कम ही रहता है। करुना फार्म में अर्थशिप होम बनाने का खर्च करीब 20 लाख रुपए आ रहा है। जिसमें 500 वाट की हाइड्रोइलेक्ट्रिक मोटर का खर्च भी शामिल है।

लीओर अर्थशिप होम तैयार करने के लिए इच्छुक लोगों को आवश्यक प्रशिक्षण भी प्रदान करते हैं। लीओर कहते हैं कि पर्यावरण संरक्षण की दिशा में अपनी भूमिका निभाते हुए भी आरामदेह जीवनशैली सुनिश्चित की जा सकती है। अर्थशिप होम इसके लिए उपयुक्त माध्यम है। इसमें आपको अपने आराम से समझौता करने की जरूरत नहीं है। यदि आवश्यकता है तो उपलब्ध संसाधनों के बेहतर इस्तेमाल की।

जागृति सरन

# 'Green' electricity for Bihar villages

A simple and strictly local power generation system has proved that rural Indian communities are willing and able to pay for reliable electricity.

N. Gopal Raj

Some seven years ago, two young men, Schums from their days at boarding school, chatted over the Internet about what they might do for villages in their home state of Bihar. The company they went on to create has begun establishing small power plants driven by gases from rice husk, a widely available agricultural waste. There are big plans for the future.

From the very beginning, "we wanted decentralised production," said Gyanesh Pandey, an electrical engineer who worked for the semiconductor industry in the U.S. at the time and returned to India two years back.

With a small power generation system, the distribution network could be simple and strictly local. This would keep costs down, which was essential for their venture to be financially sustainable.

They were clear too that they wanted to use an environmentally friendly form of energy, he said, speaking to this correspondent about the early discussions with his friend Ratnesh Yadav. (Later, another friend from his college days, Manoj Sinha, a microprocessor designer in the U.S., joined them.)

Wind would not produce electricity throughout the year. A few years were spent examining the possibilities of using organic solar cells and biofuels. But

neither met their requirements.

Biomass was the only option left, remarked Mr. Pandey. In villages, no form of biomass was left unutilised. Rice husk was the one thing that the farming communities did not use. "So we decided to use rice husk."

The system they engineered does not burn rice husk but heats it up instead. A clean-burning mix of gases is produced that drive an engine. The engine turns a generator that produces electricity.

Gasification is a very well-understood technology, he said. The gasifier could be made in a local workshop. A cheap engine was bought from a company in Agra and suitably modified.

In the early hours on Independence Day in 2007, the first such plant began to produce electricity.

Husk Power Systems, the company they established, now has 16 plants in place. Each plant generates between 35 kilowatts and 100 kilowatts of electricity. The power is being supplied to about 60 villages at present.

## "Awesome" reception

Public reception has been "awesome," he observed. As soon as a plant was put up, requests for connections came from people in the neighbourhood. "We don't have to worry about the market ... or convince anybody about it."

"It is pretty hard to make economical

electricity at a very small level," remarked Charles 'Chip' Ransler, an American whose previous experience was setting up a software firm. He too was roped in and is now the company's Chief Strategy Officer.

But that is just what had been achieved, he pointed out. By using electricity supplied by the company, people could cut their costs on alternate forms of energy, such as kerosene, by as much as 50 per cent. Reliability of supply was another factor that attracted customers.

For the most part, the company was providing electricity in villages that were not connected to the power grid. The plants operated for only six to 12 hours a day, depending on local demand, he added.

The waste left after gasification too can be used. It was good manure and could also be burnt, said Mr. Pandey. Besides, it was rich in silica and could be sold to the cement industry.

Shell Foundation was impressed with the company's performance and recently decided to provide a second round of funding for scaling up operations. The Foundation is an independent charity established by the oil and energy giant, Shell Group, and focuses on enterprise-based solutions to global poverty and environmental challenges.

"Husk Power Systems is using unique technology and processes to tackle the

rural energy deficit in India in an environmentally and commercially sustainable way," said Simon Desjardins, an analyst with the Shell Foundation, in a press release.

More than 40 per cent of the country's population, living in approximately 1,25,000 villages, had no access to reliable electricity. Existing energy options in rural communities, such as diesel generator sets and kerosene lanterns, were polluting, prohibitively expensive, and logistically difficult to disseminate. Even those villages that did have access to electricity were often subject to frequent power cuts and shortages in power supply. This directly impeded their economic development.

This company was proving that rural Indian communities were willing and able to pay for reliable electricity and that Bihar represented a viable market in which to deliver modern energy services, he added. Each of its plants becomes operationally profitable within six months of starting.

Husk Power Systems wants to install 50 to 70 plants next year. It has an ambitious plan to have 2,014 plants up and running by the year 2014. The company would then be able to supply electricity to about one crore customers in over 4,000 villages, according to Mr. Pandey.

"Seems doable at this point," he said cheerily.