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Lanstove: A lamp that's also a stove

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Bangalore: Is it a stove or a lamp? "It is actually both," says engineer-inventor Anil Rajvanshi, developer of a dual purpose device that simultaneously solves the twin problem of cooking and lighting in rural homes that do not have electricity.

A lantern, which burns kerosene to produce bright light and also doubles up as a cooking stove, is the latest invention from Nimbkar Agricultural Research Institute (NARI) at Phaltan in Maharashtra, a non-profit organisation that undertakes research in agriculture, renewable energy, animal husbandry and sustainable development.

"The hybrid device christened 'lanstove' (lantern combined with cook stove) provides excellent light and cooks a complete meal of rice, dal and vegetables for a family of five and boils 10 litres of water for drinking - all in four hours," NARI director Rajvanshi told IANS.



"To our knowledge, it is the first such device where both lighting and cooking are combined together resulting in tremendous energy efficiency and saving of fuel," Rajvanshi, a graduate of Indian Institute of Technology in Kanpur, said.

"Also because of the excellent combustion in lanstove, kerosene becomes a very clean fuel for rural households - almost equivalent to LPG."

Chapattis can be made on a specially designed griddle (tava) put over the lanstove. While mothers cook, children can do their school work in the bright light from the lantern.

The kerosene-fuelled lanstove is a newer version of a device running on ethanol-water mixture that NARI had developed earlier for which it won the prestigious Global Award for 2009 from Sweden.

While the pressurised kerosene vapour lights up the mantle (similar to the one used in a petromax lamp) producing as much light as from a 300 watt bulb, the hot gases leaving the lantern turn the device into a cooking stove by utilizing the principle of a heat pipe, Rajvanshi said.

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The lanstove stores the kerosene fuel in a pressurized cylinder, eliminating the need for frequent pumping as required in the case of existing kerosene stoves.

Rajvanshi's technical paper on the two-in-one device has been accepted for presentation in the 2011 Indoor Air Conference (June 5-10) in Austin, Texas (US).

Besides the nine-litre pressurised kerosene cylinder, the lanstove consists of the high light output lantern (mantle lamp) and a steam cooker (with three or four pots). The items are made of mild steel and stainless steel.

Lanstove is smokeless, noiseless and emits no smell or soot unlike regular kerosene lanterns or stoves, Rajvanshi said. Besides, it is easy to use - a rotating valve controls the light output and hence, heat from the lanstove.

According to NARI, the present cost for three pieces of lanstove is Rs. 6,000-7,000 - which it says will come down drastically in mass production. The running cost is an estimated to be Rs. 312 per month at a kerosene price of Rs. 13 per litre.

Rajvanshi said that about 60 per cent of rural population in India lives without electricity and they annually consume 200 million tonnes of biomass for cooking using primitive stoves. The old and inefficient kerosene lanterns used by them produce inadequate light, he said.

"With the existing level of kerosene consumption in India, lanstove can drastically improve the quality of life of 180 million bottom of the pyramid people in rural and urban areas."

He said the NARI kerosene lanstove has been tested in 16 homes in rural areas around Phaltan, including seven huts, which had no electricity and there are plans to do large scale test marketing of this device in rural India.

"I have applied to the government Department of Science and Technology (DST) for putting 100 units in the field," Rajvanshi told IANS. "Our proposal is still pending (with DST)."

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