Can International efforts help in mitigation of indoor air pollution in rural households

Anil K. Rajvanshi
Nimbkar Agricultural Research Institute (NARI)
Phaltan-415523, Maharashtra
anilrajvanshi@gmail.com

Last week a forum on clean cooking was held in New Delhi. The forum funded by International Organizations like UN, World Bank and USAID among others attracted about 600 delegates from 50 countries. The three day forum (with some very mediocre panel discussions) discussed various cooking energy strategies on how to mitigate the misery of poor households in rural areas.

There are reports (the veracity of data is questionable) that 9 million deaths take place every year world over due to indoor air pollution in rural households. Thus various governments world over are dedicated to removing this pollution by producing clean cooking fuels and technologies. There were panel discussions on improved biomass cook stoves, supply chain of pelleted fuel, solar PV cooking, ethanol stoves and many panels on funding and investments in this sector.

In India this program is being spearheaded by Pradhan Mantri Ujawala Yojana (MPUY) where the aim is to provide 50 million LPG connections to rural poor by 2020. Government of India (GOI) claims that already 30 million connections have been given to rural poor!

India today imports 90% of its LPG (50% is directly imported and 40% is made from imported oil) with total outlay of Rs. 32,000 crores/year. With ambitious Government of India (GOI) program of providing 50 million connections to the rural households by 2020 this import bill will substantially increase.

Besides the high import bill, the ground reality of problems in implementing such a scheme is still questionable. There are many instances in rural areas where the households do not get the cylinders either because of lack of delivery infrastructure or because they are diverted by gas agencies to other customers. Also it is still costly for

rural poor to purchase them. Even with subsidized price of about Rs. 490/cylinder, purchasing a cylinder puts a major dent in poor people's monthly budget.

So in many cases after the gas in their cylinder is finished the rural poor go back to wood or biomass residues which are nearly free though there is drudgery involved in collecting them.

Another hair brained scheme of GOI discussed in the forum is to promote electric cooking in rural areas for pollution abetment! Even today there are more than 50 million rural households which do not have any electricity and even those villages where GOI claims that electricity has reached; it comes on for few hours late at night when the cooking requirement is nearly zero. Electric cooking via induction cook stoves consumes nearly 1000 W of power. In this power a rural household can get excellent lighting; sufficient energy to operate a fan for cooling and for other household uses like mixers, etc.

The primary aim of electricity should be to provide light and power a fan for comfort cooling and not for induction cooking! If in future the electricity to rural areas becomes abundant, then electric cooking could be thought of as a possible solution.

Government of India is also talking of using solar energy PV power for running the electric induction stoves. Since there is no sun in the evening and early morning (when most of the cooking in rural households takes place) there will be a great requirement of electricity storage which at present is very inefficient and costly. Besides all PV modules used presently in India are imported.

Cooking is a heat-based process. To first convert the heat of fossil fuels into electricity (with only 30% conversion efficiency) then transmit it long distances and again convert it into heat is a very inefficient process. The western societies which have surplus electricity have become electric societies and thus for convenience they use electric cooking. For decentralized rural based country like India we should opt for systems that convert locally available energy resources directly into heat for cooking.

Liquid fuels have the highest energy density among all the fuels (kW/kg) and are easy to transport. Thus they should be promoted for use in efficient liquid fuel stoves for cooking.

An excellent technology for liquid fuel cooking is a lanstove developed by a rural-based organization Nimbkar Agricultural Research Institute (NARI) in Phaltan, Maharashtra.

Lanstove runs on diesel which is available all over the country-even in the smallest of villages. The lanstove produces excellent light (equivalent to that from a 100-200 W incandescent bulb) via a thermoluminscent mantle and the heat from the mantle cooks a complete meal for a family of 5 including chapattis and bhakaris. It does not produce any smoke, smell, or particulates and since both heat and light are produced simultaneously it is 5 times more efficient than electric cooking and lighting. Through the use of UID card the diesel can be subsidized for rural poor. Such technologies should be propagated and encouraged by GOI.

Generally whenever we talk of using kerosene or diesel for cooking, the first reaction in a person's mind is that they are dirty fuels. All fuels are dirty – it is their combustion which makes them clean. Thus the focus should be on developing excellent combustion technologies for liquid fuels.

Similarly there is a need for infusion of funds in R&D so that agricultural residues can be converted into liquid fuels like diesel and kerosene. India produces close to 600-800 million tons of agricultural residues/year. Most of them are burned in the fields after harvesting of crops resulting in tremendous outdoor air pollution for both cities and towns. Use of these residues for producing liquid fuels like diesel and kerosene can reduce our petroleum import bill drastically.

However very little international funding is available for pushing such technologies for rural cooking. A ray of hope was given in the Cooking forum by Tata Trusts who are in the process of rolling out a platform where funding will be available for technology development which will be coupled with that for early stage startups. Such funding can accelerate innovations in cooking technologies.

Though there are worldwide efforts underway on improving cook stoves but the biggest problem of removing the drudgery of cooking by rural women is still not solved. After toiling the whole day in the field in blazing sun they come home and are required to cook a complete meal for the family. This is very wearisome and most of the times women are too tired and in no mood to cook. This together with the meager rations from the Public Distribution System (PDS) shops results in tremendous malnourishment in rural households.

So a very novel scheme of creating rural restaurants has been proposed by NARI. These restaurants will provide clean wholesome food to rural poor at a subsidized price via the use of UID cards. For regular clients the restaurants will charge the full price. This will not only give good food to the rural poor, but the indoor air pollution in rural households also will be drastically reduced besides giving them relief from drudgery of cooking. This concept of rural restaurants may have been the catalyst for the famous "Amma canteens" in Tamil Nadu.

International forums like the one held in Delhi may not help the rural poor directly but they have been successful in bringing into focus the problems faced by them. This will facilitate an influx of funding and hopefully bright brains to the neglected areas of development.

HOME

The article was syndicated by IANS and published in many newspapers and websites like Business Standard, Sunday Guardian, Nerve, ProKerala News, Millinium Post, among others.

A report on alcohol panel discussion is here.