

# **DEVELOPMENT OF TECHNOLOGIES FOR RURAL AREAS – NEED FOR NEW THINKING**

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[Anil K. Rajvanshi](#),

Director, [Nimbkar Agricultural Research Institute](#),

P.O. Box 44, Phaltan-415523, Maharashtra, INDIA

E-mail: [nariphaltan@gmail.com](mailto:nariphaltan@gmail.com)

A large number of voluntary organizations are involved in developing technologies for rural areas. However, these technologies have hardly touched the lives of rural population. Data on rural market potential shows that a population of about 250 million in rural areas exhibits a high level of market potential. This is almost 25% total population of India. With such a high market potential, why have the good efforts of organizations developing technologies, devices and products for rural areas not borne any fruit? This article tries to analyze the reasons and to give some possible solutions.

## **Present Situation**

The following points will highlight the existing situation:

- Most of the technologies being propagated in rural areas are urban-based and biased. They trickle down to rural areas.
- Rural population is not composed of subhuman beings. Their needs and aspirations are similar to those living in urban areas. Technology development should take place

keeping these aspirations in view.

- Most of the technology development that takes place for rural areas is carried out with an aim to keep it simple so that the devices can be made in rural areas itself. This is a peculiar mindset of technology developers. For poorer sections of rural population, it is asking too much to have them make their own chulhas, bullock carts etc. At least nobody in urban areas asks consumers to make their own scooters or cooking stoves!
- Again the emphasis of technology developers for rural areas has been on catering for needs (with small improvement) rather than creating a demand. History shows that technological development has been fueled by creation of demand. And the watchword is convenience. Thus convenience is the vehicle of development. For example, a large number of developmental groups are working on making better chulhas. Feedback from the 'better chulha' program has not been very encouraging. Developers do not realize that chulha is still a chulha, even if it is slightly better. Every housewife, irrespective of the economic strata, which she comes from, would like to have the convenience of blue flame of a gas stove. There is a demand for it. Negligible work has been done on developing technology for producing blue flame from fuelwood and biomass residues.
- There is also a peculiar mismatch of groups with perception of, and those with resource for, rural technology development. Thus labs, especially National labs, who have resources, do not have any perception of the needs and demands of rural population. On the other hand, the grass-root NGOs who have the perception of the problem, do not have the technological resources to solve them.
- Again there is a mindset for simple technologies in rural

technology developers. Why it is so, is difficult to comprehend when right in front of them are examples contradicting it. For example, bicycle which is the mainstay of rural transport is a complex piece of machinery and is manufactured in sophisticated plants all over the country. It has spread in every nook and corner of rural India because of the convenience of easy availability of spare parts and a large number of repair facilities. This kind of example should be followed in all rural technological development. Also no government subsidy is given for bicycle purchase. It stands on its own.

- Another interesting example of demand creation is the setting up of supermarkets in rural Maharashtra. These supermarkets in Taluka areas are similar (though on a smaller scale) to those found in western nations. These supermarkets are owned by local sugar cooperatives and because of their size and economic clout, these markets stock goods at cheaper prices than those available in the local *bania* shops. Besides, the variety of goods available is very large. These supermarkets in one shot have changed the perception of rural people and have created demand for better quality goods. The local *bania* shop could have been enough to take care of the needs but these supermarkets have created demand. In doing so they have helped in upgrading the life style of a certain section of rural population.

### **Possible Solutions**

Below are possible solutions or the strategies for developing rural technologies and how best to propagate them:

- Rural technology development and propagation should be a consortium project. The members of such consortia will include industry, grassroot NGOs, researchers and workers. With industry in the picture right from the

beginning, there is a scope for ensuring better sales efforts. An example will illustrate this point. Nimbkar Agricultural Research Institute (NARI) has developed an extremely efficient kerosene lantern capable of giving light output equivalent to a 100 W light bulb. Getting this technology marketed through various high volume consumer products groups is proving to be quite difficult. This was despite the fact that preliminary consumer survey data showed an overwhelmingly satisfactory response to the lantern. Generally the response of these consumer product companies was either NIH (Not Invented Here) syndrome or there was no perception of the market potential of this lantern. This could be because of the urban bias of these companies. If one of these companies was involved with NARI right from the beginning in developing this lantern, then probably these lanterns would have come in the market. The companies need to have a stake in the technology development to be serious about it.

- This consortium approach can be facilitated by organizations like CAPART. Thus in giving funds for any technology development scheme to an NGO, CAPART should insist on industry linkage. The problems of patent rights, royalty etc. can be amicably solved to the mutual satisfaction of all parties. A similar strategy needs to be adopted by other government organizations in their rural development programs.
- Once the industry linkage is established, then automatically the whole machinery of consumer demand creation comes into play. This includes high volume production, good quality products, media advertising, sales outlets and after sales service. No technology has successfully reached the masses without the above attributes and rural technology should follow the same evolutionary process.
- As discussed before, the vehicle of development is

convenience. Rural technology development should take place with this as a major theme. There are a large number of cases where people are ready to pay a higher price for goods which give them convenience. Also associated with the theme of convenience is sophistication. Hallmark of evolution is size reduction and increased sophistication and complexity of systems. Technology developers should not shy away from complex and sophisticated technologies for rural areas. As long as these technologies are backed by good after-sales service, are convenient to use and are reasonably priced, they will spread rapidly.

- Till now most of the technologies have been borrowed from the west. They have been taken up in urban areas and then filtered down to rural areas. Some examples will highlight this point. Bicycle was designed to run on good roads. For rural roads there is a need to have simple shock absorbers and better seats. Similarly two wheelers (like Honda, Ind-Suzuki etc.) have been designed to run at high speeds and on good roads. Thus they are light and very unstable on muddy rural roads. There is therefore a need to develop technologies specifically for rural areas. Since the rural conditions are unique, they also require unique solutions. Besides most of the western technologies are energy intensive and will make the growth pattern of rural India similar to that of the West. With perennial resource constraint, it is in the interest of India to develop alternative routes. For example for Indian rural roads should have internal combustion engine running on alcohol. Besides, it should have the ability to carry high load at low speeds. No such engine exists since almost all the engine development technology has been based on the premise that these systems should run at high speed. The challenge to develop such an engine is tremendous and will tax the best brains, materials and technology.
- The spread of rural technologies will be facilitated if they also are employment generators. Thus high-tech agrobased

industries can provide a possible solution. These industries will be in the areas of food processing, energy production (electricity producing plants running on biomass and ethanol production) and production of raw materials for chemical industries. Sugar cooperatives (which are chemical industries) have shown that in rural Maharashtra all round development takes place right from agriculture development to consumer items growth to increased employment around them.

- Finally, it should be pointed out that in any such discussion about rural technology development and propagation, the question boils down to whom this technology is for. Most of the funding agencies and the participatory groups like NGOs would like to see these technologies benefit the lowest strata of the rural population. However, the economic situation of these people precludes any or little participation in this process. It is however possible that if the technologies help 250 million people (high market potential group) in rural areas, the whole process can snowball to include the poorest sections into the economic revolution. This vast rural market can produce whole economic systems which will span from manufacturing to service industries.