



Renewable Energy and Poverty Alleviation

Opportunity for India to lead the way

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Many of us fail to appreciate the connection between the diffusion of renewable energy and poverty reduction. The common notion is that renewable energy is expensive and large, and centralised generating plants are the only solution. However, this is a fallacy as much of the capacity expansion in the grid goes towards providing energy to industries and urban cities and that too, in a very inefficient manner. Indeed, industrial development does need to take place, but we cannot be complacent about solutions that lead to poverty reduction and ultimately its elimination.

These will come from the next generation of sustainable business models such as need-based technological innovations, social enterprises, technologies that lead to social changes in behaviour, etc. And many of these will have to depend directly or indirectly on decentralised sustainable energies like solar, small wind, micro hydro, biogas and biomass.

Using its existing technology base, highly vibrant rural entrepreneurial spirit, and vast and stable rural financial network, India can be the leader in creating innovative models utilising sustainable energy services to eradicate poverty. These models can then be replicated in other parts of Africa, Southeast Asia and Latin America. No other country has all the parameters required to create sustainable models – this is where India can be a leader in creating a world that is truly sustainable.

Poverty alleviation and sustainable energy – How are they connected?

There are proven, sustainable models and processes that link sustainable energy solutions to poverty alleviation. Yet, these get lost in the larger picture due to a lack of understanding of the grass-roots problems that exist among the underserved communities of India. This needs to change if we want to solve the poverty trap in the next few years.

One of the fundamentals of alleviating poverty is the creation of income-generating activities in the underserved areas, many of which require access to reliable energy. Contrary to popular economics and policies, it is not advisable to wait for the "trickle-down" effect of centralised energy solutions to provide that particular economic impetus. Inefficiencies, hidden subsidies, poor implementation and lack of transparency have never been properly factored in while comparing centralised versus decentralised energy options. Furthermore, these do not even factor in the social and economic impact of letting a population remain poor. Skilled seamstresses cannot upgrade their manual sewing machines to electric machines; trained but poor welders do not have the option to open their own welding shops; silk weavers lament the unavailability of reliable electricity; higher electricity bills (because of inefficient motors) eat into incomes and the list of such problems goes on. Decentralised energy solutions can be delivered to

people at their doorstep provided one thinks of holistic solutions.

Small interventions like solar lighting solutions to replace kerosene lamps for village vendors or efficient sky lighting for households in the slums of Mumbai can lead the poor away from current, expensive options, thus leading to savings, an increased number of healthy working hours, etc. These are just a few examples but there are thousands of such simple, small interventions using sustainable energy that can directly lead to a better quality of life and increased incomes for the poor.

Many of the solutions and business models for the problems mentioned above already exist in India. They need to be scaled up and replicated. The eradication of poverty will lead to a healthier population and a stable social structure, which is an important element in today's world.

What can India do to prove its leadership in creating innovative models utilising sustainable energy?

There are many simple steps that India can take today, which could surely be replicated in other parts of the world. Some of these are:

Creation of a solar energy portfolio in financial institutions

A certain percentage (at least 5 per cent) under priority sector financing should be earmarked for financing energy services to the poor. The channels for financing these could be the nationalised and regional rural banks. The percentage (5 per cent) could be broken into two parts:

- Dedicated financing portfolio for entrepreneurs to create a network (sales and after-sales service).
- Dedicated financing portfolio for end-users.

The methods of implementation can be borrowed from years of learning from agriculture sector financing. Dual financing (for service providers and end-users) will lead to a sustained effort to promote sustainable energy services. Rural networks of various banks have been some of the best agents of propagation of technology.

There are successful examples, especially in Karnataka. Banks like Syndicate Bank and Karnataka Vikas Grameen Bank have proved that solar systems can be financed without the need of capital subsidy, provided good service providers exist. Apex financial institutions like the Reserve Bank of India (RBI) and the National Bank for Rural and Agricultural Development have shown success in fields such as agriculture and could do the same in the field of renewable energy. The RBI is seriously propagating the concept of financial inclusion and renewable energy can be easily brought under that umbrella, as sustainable energies like solar can be powerful agents of poverty reduction.

Substituting capital subsidy with interest subsidy

Many of the programmes undertaken using capital subsidy via nodal agencies (solar lighting and pumping for example) have been colossal failures. They have been primarily "product centric" rather than being focused on need-based systems, supply chains, after-sales service and appropriate financing. It never makes sense to have the government as a part of the business chain. For instance, many of the renewable energy products are sold via government stores with absolutely no after-sales service.

It would be worthwhile to divert all earmarked subsidy for capital reduction to financial institutions for a reduction in interest rates. Good performing entrepre-

neurs, low-income groups and good repaying clients should get the benefits of reduced interest rates. There are two specific success stories that have shown that a similar shift will work:

- **Solar water heaters:** In the mid-1990s, the Ministry of New and Renewable Energy (MNRE), then the Ministry of Non-Conventional Energy Sources, removed capital subsidies from solar water heaters and provided financial assistance to many of the nationalised banks to reduce interest rates. This led to a tenfold increase in the number of manufacturers and service providers within just five years. The interest rates range from 2 per cent to 5 per cent. Thanks to the reduced interest rates and the active participation of financial institutions, solar water heaters have become a typical consumer product, especially in Karnataka.
- **Around 2002,** the United Nations Environment Programme (UNEP) along with the Syndicate Bank and other financial institutions, created a programme with some nationalised banks in Karnataka to promote solar home lighting systems in the rural areas. The UNEP subsidised the interest rates for solar home lighting systems – capping them at 5 per cent. More than 21,000 systems have been financed by the UNEP (within a span of two-three years) under this scheme. The UNEP also made sure that vendors were chosen properly, selecting those that had a track record of providing reliable after-sales service to clients financed by the respective financial institutions.

Though these examples are solar related, the lessons are applicable equally to other renewable energy products as well.

Removal of taxes

There is a skewed Value-added Tax structure for solar systems. In the early part of this century, solar systems did not attract any taxes. In the past three-four years, VAT has imposed an additional burden on the end-users. This can range from 4 per cent

to 12.5 per cent. For instance, a street vendor in Gujarat (actual example) who buys a solar lighting system for her vending cart pays between 12.5 per cent and 15 per cent tax on the system she buys from Karnataka – while she replaces kerosene that is being imported and subsidised.

It just does not make sense to tax (VAT or otherwise) renewable technologies like solar. The removal of taxes will straightaway lead to a reduction of 4-12 per cent in the cost of systems.

Supply chain of energy efficient, income-generating products

Income-generating activities rather than renewable technology products should be made the entry point for renewable energy. For example, value-added products such as sewing machines and silk weaving looms, directly lead to income generation and have, in some areas, been better entry points for solar energy.

As a country, we can build a supply chain of highly efficient income-generating products that run on various sustainable energies. Many of the products, like sewing machines, are designed with the assumption that the grid is an infinite source. Therefore, hardly any effort is put in by manufacturers to make these products more efficient. This needs to change with a clear focus on creating incentives for rural entrepreneurs who, in turn, can design holistic solutions for rural income generation. These high efficiency products would make diffusion of renewable energy faster.

Finally...

Even if a few of these suggestions are implemented, India will throw up several business and social technology models because of the diversity of its poor. These learning experiences and models will be absolutely invaluable for the world's poor as well as for decision-makers of other countries in Africa, Latin America and Asia. It is now entirely up to us as a country to rise to the challenge and lead the way. ■

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