

Overcoming

Barriers to implementing National Renewable Energy Programmes

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I. Delineation of the parameters of the problem:

There is growing interest in developing decentralised systems of integrated energy supply based on a feasible blend of renewable and non-renewable forms of energy. In developing countries, non-commercial forms of energy such as fuel wood and plant, animal and human residues still constitute a significant proportion of the total energy consumed in rural areas. The purposes for which energy are needed can be classified broadly into (a) domestic (b) agricultural, (c) industrial and (d) organisation of services like lighting, pumping water, transport, haulage, etc. National Renewable energy programmes will have to first aim at a clear delineation of the role renewable forms of energy can play in meeting the needs of each one of these sectors.

II. Identification of possibilities:

The forms of renewable energy which can be economically tapped in each agro-ecological area will have to be carefully identified. These can be broadly grouped under the following categories:

- (a) Energy of photosynthetic origin including fuel wood and biomass;
- (b) Energy from refuse and wastes including biogas from animal and plant refuse and sewage and garbage in towns and cities;

- (c) Solar energy used in ways other than photosynthesis, such as photothermal and photovoltaic applications;
- (d) Hydel, wind, tidal, geothermal and other sources available in an area;
- and (e) Direct use of animal and human energy. A detailed study of the potential for harnessing these sources will help in the formulation of a location specific action plan.

III. Constraints analysis:

Once the potential for harnessing different forms of renewable energy sources has been assessed and established in a scientific manner, there is need for identifying the constraints responsible for the gap between potential and actual application. Quite often, social engineering aspects may be even more important than gaps in technology in bridging the gap between potential and actual use of renewable energy in an area. Hence, social scientists should also be included in the multi-disciplinary team which should be constituted for carrying out the constraints analysis. The aim of the constraints analysis should be identification of the precise factors which need attention in each country for promoting a dynamic programme of renewable energy utilisation. The constraints could be broadly classified under:

- (a) Economic viability of the package of technology recommended;
- (b) Social acceptability;
- (c) Adequacy of the package of services including delivery and utilization systems;
- and (d) Public policies.

The system will succeed only when an economically viable and socially acceptable technological package is supported by appropriate packages of services and public policies.

IV. Removal of constraints:

While gaps in technology can be identified and removed relatively easily, action on the findings of the social impact analysis will be more difficult, unless those in charge of public policy take the requisite remedial steps. For example, the spread of individually owned biogas plants may make it more difficult for landless labour families owning no animals for meeting their domestic energy needs. Women in such families may meet part of their energy needs by collecting the animal refuse from streets and community land. If this source is cut off, they will be forced to cut trees for fuel wood. Hence, even before a massive programme of biogas plant popularisation is undertaken, arrangements will have to be made for meeting the fuel needs of the poor. The supply of fuel will have to be made a part of the basic human needs programme of every Government.

In the case of community owned biogas plants, it will be necessary for involving the community in deciding the purposes for which the energy should be used. Some rural communities may want to use the energy for lighting, while others may like to use it for pumping water for drinking water supply. The system should respond to the felt-needs of the community, so that the community has a stake in its maintenance. Similarly, energy plantations will be successful only if the rural community has a full sense of involvement not only in planting trees but more importantly, in tree protection. If the trees chosen can supply fodder and feed, in addition to fuel, the rural community will feel even more interested. By choosing leguminous shrubs and trees, biological nitrogen fixation can also be promoted. A common denominator of enlightened self-interest can alone generate the needed extent of community involvement.

In most developing countries, the harnessing and management of renewable energy sources have been traditionally in the hands of women. However, most extension and training agencies tend to bypass women when scientific programmes for renewable energy use are launched. This will not only undermine the success of such programmes but also cause great hardship to women by displacing them from their traditional occupations. Hence, a high priority should be accorded to training and utilising rural women in renewable energy projects.

V. Energy impact analysis as an integral part of formulation of development programmes:

The energy impact statement relating to each development project should spell out the potential role of renewable energy sources in meeting the energy needs of the programme. For example, by linking a decentralised system of rural food grain storages with urban distribution outlets, much of the energy needed for transport can be met by the use of available forms of animal energy. Such an outlook should be fostered at all levels of policy and programme formulation. It will be necessary for this purpose to hold seminars for policy makers based on appropriate case studies.

VI. Public participation and institutional mechanisms:

A suitable institutional mechanism will have to be developed in each country for promoting public participation in renewable energy programmes. These programmes will need for their success an appropriate blend of the principles underlining "production by masses" and "mass production". Decentralised production with appropriate centralised back-up services and delivery systems may be necessary.

An effective method of ensuring the success of renewable energy programmes is the organisation of Renewable Energy Associations in each area. These should be associations involving all the families living in a compact area. Such associations helped by technical training and extension support could foster the harnessing and effective utilisation of all available forms of renewable energy. They can also run "Waste Exchanges" where all community and individual wastes can be gathered and re-cycled. Such associations can also monitor the social impact of programmes and help in initiating timely "mid-course correction" in the programme, in case of any adverse social repercussions.

We need a fusion of political will, professional skill and peoples' action for promoting the increased harvest of renewable energy sources and their use in integrated energy supply systems in different countries. The movement should grow from the villages and this is why I consider that Renewable Energy Associations organised by the people of each area can trigger a self-propelling movement in this field. Universities and technical institutions can serve as catalysts in getting such local level Associations organised. Not only will this help to promote relevant location - specific action but also a greater degree of awareness of both potential and problems. Given such an approach, small Government sponsored programmes in renewable energy use can assume the dimensions of a mass movement. Above all such Associations can help to promote the harvest of solar energy through the photosynthetic pathway by getting trees planted in every piece of vacant land. This will be the real "Green Revolution".

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