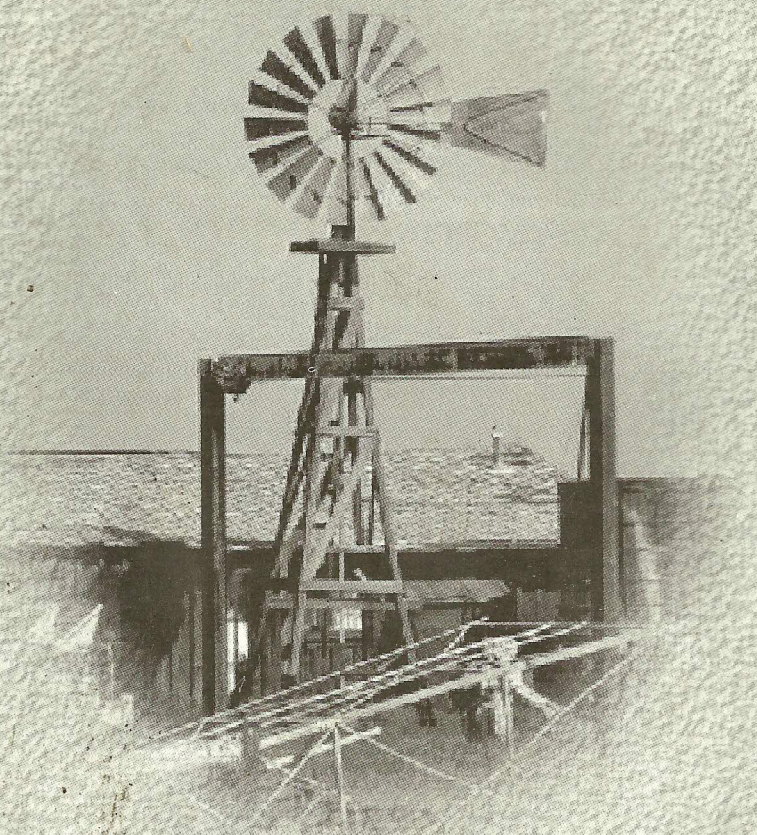


RENEWABLE ENERGY RESOURCES AND ITS MANAGEMENT



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Edited by :
R.P. Athparia
Siddheswar Sarma
S.K. Mukherjee

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There is a vast potentiality of renewable sources of energy in North East India. The problem is how the renewable sources can reach the actual users. The awareness of the various sources of energy is lacking in the region.

There is a lack of awareness about the environment and therefore there is an absence of any desire to protect it. We need a planned social engineering for it. We need area specific decentralised planning for proper development and use of various sources of renewable energy. We must point out that organised renewable sources of energy can help to modernise a given community. For this we must emphasize on the necessity and importance of involvement of the people.

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PREFACE

North East India Council For Social Science Research has been an affiliated body to United Nations Environmental Programme for about two decades. It held in June 1998 a seminar on Renewable Energy Resource Management in North East India with support and help from Indian Renewable Energy Development Agency Limited, New Delhi and State Council of Science, Technology and Environment, Meghalaya, Shillong. Papers included in the volume were presented in the seminar attended by a large number of scholars, scientists and administrators. I take this opportunity to thank Dr. K.S. Janakiram, General Manager, IREDA, New Delhi, Mr. R.D. West, Member Secretary, State Council of Science, Technology and Environment, Meghalaya, Mr. H.K. Mazhari, Commissioner-Secretary Urban Affairs, Meghalaya and Mr. B.K. Panda, Director, Meghalaya Urban Development Agency for their support and co-operation for holding this seminar. We are grateful to Dr. S.K. Bhatia, of Reliance Publishing House, New Delhi for under taking expeditious publication of the volume.

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26 January 1999

B. Datta Ray

Secretary - NEICSSR.

INTRODUCTION

Energy is the basic element of human civilization and an indispensable input for economic development. In spite of great advances in science and technology in the world as a whole the economic and social crisis have become acute. There is growing population and the pressure on the world's resources viz. energy, food, etc. continues to increase, threatening the environment and the ecological balance. Reflection and analysis show that whatever be the emphasis on the individual area of development economics, there is a need for the application of science and technology for an effective management of various energy inputs.

In India, about 70% of the population live in the rural areas. The non-commercial energy consumption including human and animal energy comprises of 80% and consumption of commercial energy such as oil, coal, natural gas comprises of only 20%. Thus, developing countries like India has to depend to a large extent on traditional sources of energy—human and animal labour, firewood, crop residues, animal wastes, biomass, etc.

Most of the non-commercial energy source in the developing world is utilised inefficiently, yielding low levels of output. According to the Report of the Fuelwood Study Committee, the total requirement of fuelwood is calculated to be about 133 million tonnes per annum whereas the annual availability is estimated to be only about 39 million tonnes. The huge gap in fuelwood supply per year itself speaks about the alarming situation regarding deforestation in the country side. Another consequence of this is that agricultural residue and animal dung, which

otherwise would have been used for restoration of soil fertility and increasing food production, are burnt inefficiently, for fuel needs. The rapid depletion of forest wood and the loss of forest area has led to serious problems of erosion, floods, siltation and desertification.

India's vastness with her socio-economic and geographical diversities across the country presents a very different situation to decide any particular mode of action for solving the energy problem. With the bulk of the population living in the villages, the task of developing the rural sector should form the central theme of the planning process. It is also imperative that such efforts be linked with adequate supply of energy to the masses if any appreciable change in the life is to take place.

The existing energy scenario in rural India is, therefore a part of the vicious circle of low energy input and low productivity. To effect desirable changes in the current mode of energy utilisation, proper technological intervention is vital. The scope of meeting the rural energy demand through commercial sources is limited by their low availability and also the low purchasing power of the rural masses. The best way to meet the energy needs is through harnessing of local resources of renewable energy sources viz. bio-energy, solar energy, wind energy, small hydro etc. in a decentralised manner, which also provide greater local control and participation and provide energy in a form which is non-polluting and helps to preserve the environment.

Further, during the last few decades, rural areas have tended to move away from the locally available, non-commercial sources to the better quality so called commercial sources of energy. Various energy needs of rural areas in India have been studied through extensive surveys. Available renewable technologies have been identified and attempts have to be made to work out a generalised scheme matching with local renewable energy resources to energy needs of rural areas through the

available renewable technologies. The likely energy needs of given rural area depend on a large number of parametres including population, land holding, cropping pattern, climate, level of development, etc. Typical energy needs for rural areas can, therefore, be only in a generalised and depending on the situational setting under consideration, the actual, detailed energy needs can be worked out.

Various major areas in need of energy input are cooking which accounts for most of the consumption using firewood, agricultural waste, cattle dung, etc. Other areas are lighting, drinking water, health, education, entertainment, irrigation, industry and transport.

Matching between the needs and the available resources is the prime factor in planning an effective energy resource management. As far as possible, all energy needs of the rural areas must be met i.e. it should be the energisation of rural areas. The dependence on external factors should be minimised and the control should be returned to the local people as far as feasible. Locally available renewable sources of energy must be put to use. Energy must be available in all requisite forms. The quality of energy available must not be compromised while all the above are considered. Benefits of increased energy availability in all forms must be distributed equitably. If the control is to be returned to the local level and if locally available renewable sources are to be used, the community involvement must be a key to the strategy.

Obviously, all the technologies will not necessarily be employed in a given location. The first determinant will be of course the resource availability vis-a-vis the end use. Even when all the constraints and considerations are taken into account, the solutions are not going to be unique and more than one resource and technology choices may be available for the various energy needs.

It is evident that the energy demands and energy inputs

largely depend on the available natural resource base. The energy consumption pattern varies with the area to area, influenced by a variety of location—specific ecological and logistical factors. In the process one find variations not only in the type of resources used but also in the quantities and proportion consumed. The energy consumption pattern is slowly but surely, being affected by the ecological crisis that is spreading in North East India in various degrees. This process, if continued is likely to affect the entire biomass system in the region. Therefore, it is necessary to search for viable energy alternatives, both renewable non-renewable, so that the exploitation of natural resources could be brought to sustainable levels in the context of the overall development of North East India.

There is a vast potentiality of renewable sources of energy in North East India. The problem is how the renewable sources can reach the actual users. The awareness of the various sources of energy is lacking in the region. Initiative should be taken by the State Government and institutions like Indian Renewable Energy Development Agency and by each of the State Council of Science Technology and Environment of the North East India. There is a lack of awareness about the environment and therefore there is an absence of any desire to protect it. We need a planned social engineering for it. We need area specific decentralised planning for proper development and use of various sources of renewable energy. We must point out that organised renewable sources of energy can help to modernise a given community. For this we must emphasize on the necessity and importance of involment of the people. We have a clear social choice for a decentralised development. We are to make a socially rational decision for the well-being of the people.

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