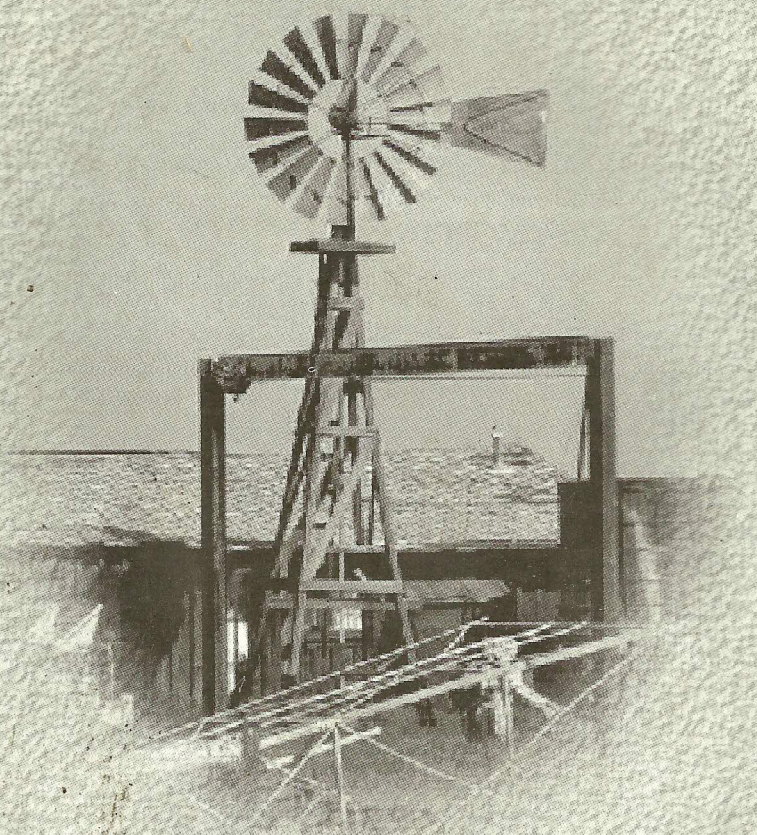


RENEWABLE ENERGY RESOURCES AND ITS MANAGEMENT



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

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 and 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.

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.

Dr. R.P. Anthparia is known Anthropologist in Anthropological Survey of India-with wide experience of North East India's social and economic problems. He has edited two volumes and published a large number of research papers in many well known research Journals.

Dr. Siddheswar Sarma works in Department of Geography, North Eastern Hill University. He worked on the role of Geography in planned development of rural decentralised non conventional energy utilization for social and economic growth.

Mr. S.K. Mukherjee of Anthropological Survey of India has more than two decades of field experience of rural planning and development particularly in tribal areas of North East India. He is a well known researcher and published a number of research papers.

Renewable Energy Resources And Its Management



Edited by:

R.P. Athparia

Siddheswar Sarma

S.K. Mukherjee



RELIANCE PUBLISHING HOUSE
NEW DELHI

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333.7095416
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First Published 1999



ISBN: 81-7510-107-5

Published by :
Manish K. Bhatia for
RELIANCE PUBLISHING HOUSE
3026/7H, RANJIT NAGAR
NEW DELHI-110 008
PH. : 5722605, 5737377, FAX : 5772748

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Printed by : S.S.S. Printers, New Delhi

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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.

Shillong-793 003

26 January 1999

B. Datta Ray

Secretary - NEICSSR.

A SHORT NOTE ON FUELWOOD PLANTATIONS : REORIENTING ITS MANAGEMENT AS A KEY RENEWABLE ENERGY SOURCE IN NORTH-EAST INDIA

S.K. Barik/V.T. Darlong

Some of the important renewable energy sources are, (a) the biomass-based energy sources such as fire-wood from the forests, agricultural residue, animal wastes, and city wastes, (b) solar power generation, (c) small hydro power generation, (d) solar thermal power generation, (e) biomass power generation such as biomass-based cogeneration, biomass gasifiers, biomass combustion, and (f) solar photovoltaics.

However, considering the environmental impacts and economic viability, one of the best options for renewable energy sources in the hill areas of N.E. India is firewood energy from the natural forests as well as plantations. The sustainability of the extraction of firewood from the natural forests has now been much debated and, therefore, it is desirable that firewood requirement should be met from the man-managed plantation forests.

A number of state and centrally sponsored schemes are in operation for quite sometime now to augment the fuelwood need of the rural mass. However, the progress of most of these schemes has not been satisfactory and most of them have failed to achieve their objectives. Therefore, it is

high time now that some rethinking must be done to redesign the fuelwood plantation programme in the region so that substantial part of our fuelwood need is met and the pressure on natural forests is released to a great extent.

Some of the reasons for which we have not been able to achieve success in generating enough fuel wood energy from plant resources are:

- (i) Absence of a wholistic approach to the fuel wood energy problem and its management.
- (ii) No proper planning has been made for fuelwood plantations. Adequate reliable and recent data on fuelwood requirement has not been collected for planning process. Most states depend on the obsolete data collected two or more decades back and, therefore, the plans so prepared does not serve the purpose. Most schemes implemented for the purpose are target-oriented without taking into consideration the actual need of the villagers.
- (iii) Fuel wood need of the villagers living near the forests is not given priority in the management plan of the forests.
- (iv) The species planted under fuelwood schemes often are not liked by the villagers as fuelwood. Such wrong choice of species is made due to the fact that the implementing authorities plant those species, the planting stock of which are easily available and the plantations are easy to manage.
- (v) Most plantations failed because of lack of adequate maintenance during the first three years of plantation. Subsequent to that, the plantations do not get adequate protection due to completion of the scheme and withdrawal of the implementing agency

from plantation management works. By the time the scheme is over, a sense of belongingness is not created among the local people, as a result of which they do not show any interest for the protection and management of the raised plantations.

- (vi) The fuel wood plantations has so far been confined only to government sponsored schemes and little effort has been made to make it really a people's programme.

Based on our experience of the past, we need to take following steps for the better management of our fuel wood resources.

- (i) Each state of the region should come out with a comprehensive fuel wood policy considering management aspects of both the natural and plantation forests.
- (ii) Periodical studies depicting the demand and supply balance of fuel wood in each state should be carried out and such studies should form the basis of future fuel wood planning in the respective states.
- (iii) While undertaking wastelands development programmes, fuel wood should be an important component of the programme and the rural energy requirement should be adequately represented in the rural energy requirement should be adequately represented in the microplan.
- (iv) Species to be planted in such programmes should be determined based on the PRA exercise or the opinion of the villagers must be taken into consideration for the purpose. Only site capability should not be the criteria for selection of species.
- (v) People must be involved right from the beginning of

the project planning and their co-operation should be solicited at each stage of the project implementation so that a sense of belongingness is created by the time the project-life expires.

- (vi) Government should act as a facilitator by way of distributing seedlings, providing technical know-how for raising nurseries and plantations, for taking the fuel wood plantation programme to the people. This will also reduce the pressure on the state exchequer.
- (vii) Fuel wood management should be incorporated as an integral part of the forest management plans.
- (viii) Fuel wood plantations should be viewed as a low-cost 'cash crops', which can be raised even by the marginal/poor farmers in very poor soil conditions. Therefore, agencies involved in the land management should encourage these activities both at government and private sector.
- (ix) Keeping in view the growing gap in the demand and supply of fuel wood energy, adequate awareness among the people/community should be raised highlighting the future opportunities so that fuel wood plantations could be made a peoples' movement.
- (x) In the areas where livestock population is considerably high, planting for fodder requirements should be integrated with the fuel wood plantations by planting multipurpose tree species suitable for the particular area.

A list of fuel wood species for different agro-climatic zones of N.E. Region having local importance is included.

From ecological, environmental, economic and equitable point of view, firewood from forests or fuelwood plantations perhaps remained one of the best options for renewable

energy resource management in north-east India. The question is how much of area should we really have under strictly protected natural forests, man-made plantation forests, regenerated natural forests, agro-horticulture forests to ensure sustainable balance of biodiversity, ecology and economy in a given area. Based on a series of microplan exercises in the field, a possible workable model for optimum use of lands in a micro-watershed of a typical mountainous region of north-east India is presented.

OTHER TITLE ON NORTH-EAST INDIA

MIZORAM POLITICS OF REGIONALISM AND NATIONAL INTEGRATION

by Lal Chungnunga Rs 200/-

This book "Mizoram; Politics of Regionalism and National Integration has to two dimensions .It is a study, on the one hand, of the development of politics of Mizoram, and on the other, of the question of regionalism in Indian politics, as such, the book serves as a dual purpose. It traces the course of the political history of the Mizo people, explains the why and how of what had happened in Mizo politics. The period covered by the book is mainly from 1946, when the first Mizo political party was formed, to 1987 when Mizoram became a full-fledged state of the Indian Union.

POLITICS OF LAND REFORMS IN ASSAM

by Rooplekha Borgohain Rs 250/-

The present work seeks to study the politics that influenced the formulation and implementation of the various land reform measure undertaken by the Government of Assam .It is a comprehensive study of the land system in Assam, the various problems associated with this system and the reform measures undertaken by the State government to improve the agrarian structure and the condition of the peasants.

REGIONAL DEVELOPMENT IN NORTH EAST INDIA ISSUES AND PROSPECTS

by Bimal L. Deb, Editor Rs 275/-

North -East India today has acquired an economic identity of its own largely due to the acknowledgement at the national level of the imperatives of development overcoming the ageold constraints which has traditionally disintegrated its economy for the rest of India. The book examines the crying need of balanced development of the region by highlighting the state of the, economy, infrastructural base, resource mobilization process, human resource management and above all the rising expectations of the people.

URBAN DEVELOPMENT IN NORTH- EAST INDIA POTENTIALITY AND PROBLEMS

by Dr. B. Dutta Ray, Dr. A. K. Neog & H.K. Mazhari Rs 275/-

It is a collection of 22 articles o various aspects of development in North-East India by 24 eminent personalities specialist in their respective fields. It covers role of small and medium-sized towns in development of N.E. India, with potentiality and problems; urbanization of village; urban solid waste management; schooling ecology; community integration and socio- cultural changes.



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