

ALTERNATIVES TO FOREST BIOMASS FUEL FOR FOREST DEPENDENT COMMUNITIES: A CASE STUDY IN SOUTH-WESTERN BANGLADESH

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ABSTRACT

Biomass fuel remains the prime source of energy extensively used for domestic cooking in rural as well as urban Bangladesh. The major portion of this fuel is collected from local environment. Due to natural and anthropogenic drivers, land use change occurred in some part of this country followed by several socio-economic as well as ecological problems including acute shortage of fuel. The south-west region of Bangladesh has been suffering from biomass fuel crisis, most remarkably since 90's. The communities existing adjacent to Sundarbans Reserve Forest (SRF), the largest mangrove forest in the world located at south-west corner of Bangladesh, were reported the mostly affected and found heavily reliant on the forest resources especially for cooking fuel in absence of affordable and legally available local fuel resources. This study investigates the factors responsible for compelling these forest dependent communities (FDCs) to be over dependent on the resources of Sundarbans, especially for biomass fuel. In terms of final outcomes, the study recommends several alternatives to forest biomass fuel for FDCs that might contribute to the diminution of fuel crisis as well as their fuel dependency on the forest.

The study adopted qualitative and quantitative approaches for securing its objective. Secondary data were collected through the review of relevant literature and documents including studies, journal papers, media reports, books, Government's office records etc. The study followed purposive sampling method, according to which, five villages/communities located the

most adjacent to the SRF were purposively selected for primary data collection with semi-structured questionnaire. Besides, group discussion and observation through field visit to FDCs were happened to gather more raw data and have deeper understanding about the problem and sustenance of the FDCs livelihood in connection with fuel crisis.

The study reveals that several factors such as widespread brackish water shrimp farming, frequent natural disasters, unproductive homegarden and saltwater based other land use cum economic activities forced communities to be dependent on forest fuel. These factors drove away traditional fuel options such as homegarden fuel, cowdung and agriculture residues from the study area and the majority of communities' members engaged themselves in illegal collection of biomass from SRF. However, the study demonstrates the conflict in respondents' attitude towards forest conservation and illegal collection of forest fuel biomass under the current context.

The study also recognizes all respondents much aware of traditional biomass alternatives such as homegarden fuel, cowdung and agriculture residues, and some other alternatives like fuel efficient stoves, liquid petroleum gas (LPG) and kerosene. Though alternatives like biogas and solar cooker were reported very new energy options to majority of them, evidences of very limited use of homegarden fuel and cowdung were also recorded. According to the respondents' opinions, lack of government initiatives was the main issue for generating extreme situation that created barrier for respondents to accepting their desired fuel alternatives.

With respect to the availability of the alternatives being accessible for respondents in future socio-economic as well as environmental context, the study suggests biomass fuel from homegarden (bamboo, tree parts etc), agriculture practices (agriculture residues) and livestock rearing (cowdung, buffalo dung, poultry litter etc) in combination with certain type of fuel efficient smokeless stoves as alternatives to existing forest fuel biomass.

Under the prevailing circumstances, it is recommended for the management and use of affordable and legally as well as locally available fuel resources, restoration of agro-ecological environment through appropriate policy or community initiatives and enabling respondents through awareness creation, technology transfer and marketing interventions in order to ensure the sustainable supply of affordable and legally available energy for domestic cooking. Besides, the study discourages all sorts of brackish water based land use as well as economic activities in and around the study area.

More studies on the management of ever increasing household energy demand with application of governance without government approach might be fruitful under the context of least developing countries.

Key words: Biomass fuels, Brackish water shrimp farming, Forest dependent communities, Sundarbans Reserve Forest, Alternatives to forest biomass fuel.