



Pratidhwani the Echo

A Peer-Reviewed International Journal of Humanities & Social Science

ISSN: 2278-5264 (Online) 2321-9319 (Print)

Impact Factor: 6.28 (Index Copernicus International)

Volume-X, Issue-I, October 2021, Page No.77-83

Published by Dept. of Bengali, Karimganj College, Karimganj, Assam, India

Website: <http://www.thecho.in>

"A Study on Livelihood of the Bamboo Based: Challenges and Opportunities among the Rural People of Goreswar, Baksa District of Assam"

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Abstract

From being termed Bamboo as Poor Man's timber to being called 'Green Gold, the perception of Bamboo, a versatile grass found mainly in Asia and Africa, has undergone a drastic change. However this recognition of the usefulness of Bamboo existed even in the ancient times, as is apparent from the Rig Veda which calls upon the Gods to Bestow upon us a hundred Bamboo clumps. Only in recent years is it being increasingly realized what a valuable resource Bamboo is not only for the traditional subsistence economy but even the modern industrial one.

This paper is presenting the key challenges in sustainable livelihood opportunities to rural and tribal artisans in the bamboo sector and the financing options from formal financial and informal financial agencies. How access to various types of resources such as land , water, finance etc., s the key to supporting livelihoods of poor as all these have a direct impact on income and employment, especially for those in the unorganized sector. As one of the financing options, this paper provides the micro-finance overview, rural credit delivery system, formal and informal financial agencies, constraints of formal agencies and advantages of informal finance. This paper is looking into strategies for resource development and how the resources to be made available to poor and vulnerable to make livelihoods more sustainable. Also presents a case study on Goreswar areas, brief report on Bamboo resource and its utilization and livelihood options of rural and tribal people in Baksa district of BTAD a tribal areas in North East India.

Keywords: Green Gold, Bamboo, Bamboo based Products, livelihoods, development, employment opportunity, etc.

Introduction: Bamboo, “ *the poor man's timber*, is one of the most important forestry species with wide distribution throughout India. Bamboo has made a major contribution in the rural economy in most of the states of the country. Bamboo has been an important source of income for millions a rural people for sustaining their livelihood. The various

physical and mechanical properties of bamboos make them suitable for a variety of purpose. The use of modern industrial techniques allow the use of bamboo in wood based industries, to provide bamboo based flooring, panels, bamboo sticks, bamboo for paper and pulp industries, handicrafts and weaving products, bamboo housing, bamboo furniture, stationary, showpieces, bamboo based gasifier for electricity, bamboo based fuel, bamboo based fiber and fabric, bamboo based food products, construction and structural application and also in agricultural applications. Bamboo represents one of the world's best natural and renewable resources with large number of uses and applications which server as an eco-friendly alternative to the rapidly depleting wood resources. They are found in diverse climate, from cold mountains to hot tropical regions. They are of economic and high cultural significance in East Asia and South East Asia where they are used extensively in gardens, as building materials and million of people worldwide depend on bamboo for their livelihoods.

Objectives of the study:

1. The study has conducted with keep in mind the following objectives;
2. To study the importance of Bamboo industry as an entrepreneurship and rural development.
3. To study and examine the aspect and scope of Bamboo industry in the Baksa district of Assam.
4. To provides useful suggestion from the study.

Research Methodology of the Study:

Population: The present study is based on mainly primary as well as secondary data is needed for doing in practice. The data is collected from a field survey of the different taluka of Baksa district of Assam. A self-structured questionnaire assessing the various people from the working on the Bamboo industry. The 50 respondents are selected as a sample for the study, i.e. symbolically Total of $N = 50$ respondents.

Research Design and Tools: The district of Baksa is selected for the study of survey cause of its a very suitable place for economic growth and environmental for the activities of Bamboo industry. On this regards, this paper is based on descriptive or ex post facto research which includes the surveys and fact-finding enquiries of different kinds and the major purpose of this research paper is descriptive of the state of affairs as it exists at present. The research tools is of the study has been adopted well known branch of descriptive analysis of factor by using one sample t-valuated to identify the nature of responses of the respondents.

Sample Design: Here I have to used the judgment or deliberate or non-probability sampling method to select the sample for such type of activities. I tried my level best to make it highly representative sample. A survey was conducted to collect necessary data upon the type of activities of 50 members (sample respondents) of various bamboo industries which located.

Role of Bamboo in Rural Development:

Bamboo has an important role to play in development. It is a natural tool with which to encourage sustainable, integrated farming systems and an excellent resource on which to build a variety of income and employment-generating opportunities. With its multiple uses and high value in a range of products aimed at national and international markets, there is great potential for value-adding operations, and many different entry points for development interventions which are accessible to and appropriate for resource-poor people. In order to do this well, improved understanding is required about the bamboo sectors, about the people involved and about the main problems they face. Research is needed on the economic, policy, institutional and social aspects of the bamboo sectors, as well as on the technical aspects involved. In this way, interventions can be focused to address the real problems and opportunities faced by people, and from this basis a well-targeted research and development agenda can be designed.

Bamboo based Products and Its Application an Appraisal:

Literature regarding the multiple uses of bamboo highlights the utility of bamboo for house construction, bamboo ply, agricultural implements, handicraft, irrigation, brooms, medicine, food, fuel, fodder, paper & pulp etc. especially bamboo as a perfect substitute for some wood based products. The products that can be made from Bamboo can be broadly be categorized into:

1. Wood Substitutes and Composites,
2. Industrial Use and Products,
3. Food Products,
4. Construction and Structural Applications.

Apart from this broad classification various handicraft and cottage industry products are also made from bamboo. However, this category of products is not discussed as bamboo based industrialization and its prospects limit the scope of the study. Also the input of bamboo as a resource raw material in the paper and pulp industry is also not explicitly dealt with as a bamboo based product but discussed in the next chapter under the resource situation in India.

Wood Substitutes and Composites:

This category of products essentially comprises of boards and sticks of varying descriptions and uses, and which can further be used to manufacture finished products like wooden floors or blinds or goes into another industry as an input like incense sticks.

Bamboo Furniture: Traditional bamboo furniture uses natural round or split bamboo. A new type of pack-flat, knockdown furniture uses glue-laminated bamboo panels. Unlike the traditional design, this furniture may be shipped in compact flat packs, to be assembled on the spot. The new design overcomes many of the problems of traditional bamboo furniture, such as high labour and transportation costs, low productivity, instability, varying quality and susceptibility to insects and fungi. At the same time, it retains the distinct physical, mechanical, chemical, environmental and aesthetic features of bamboo. Export of laminated bamboo furniture is growing rapidly. However, trade statistics currently do not capture the

value, owing to the absence of a special code for bamboo furniture. It is usually classified as wooden furniture.

Food Products:

Under this category, it is essentially bamboo shoots that are consumed after being cooked. Bamboo shoots carry the potential of value added economic activity at the entrepreneurial and community level through cultivation, processing and packaging. Its use in food and cooking goes far back in history. China earns US\$130 million annually from exports of edible bamboo shoots. About 200 species of bamboo can provide edible and palatable bamboo shoots.⁴ Fresh bamboo shoots are delicious and healthy, with high fibre content. Bamboo vegetables can be found in Chinese grocery stores and restaurants worldwide. After cooking the shoots are still crisp, because cooking does not destroy their texture. Cooked bamboo shoots can be stored in containers and shipped worldwide.

Industrial Products

Traditionally the industrial use of bamboo has been in the paper and pulp industry. Apart from this, the industrial products from Bamboo, essentially comprises of converting into fuel or electricity through gasification. Through pyrolysis, bamboo can be converted into three valuable products - bamboo charcoal, oil and gas. Changing the pyrolysis parameters can change the product shares depending on the purpose and market conditions. Bamboo based producer gases can be used as a substitute for petroleum. Bamboo charcoal is an excellent fuel for cooking and barbequing. There can also be the use of activated charcoal. This is used as a deodorant, purifier, disinfectant, medicine, agricultural chemical and absorbent of pollution and excessive moisture. The industrial use is using bamboo waste for gasification and thereby producing electricity.\

Construction and Structural Applications:

Advances in structural engineering and the development of bamboo composites have opened new vistas for lightweight, durable and aesthetic construction for a variety of applications, enabling informed choices for housing, community and functional structures. ⁴ Within monopodial bamboos, the main species are *Acidosasa edulis*, *Chimonobambusa quadrangularis*, *Phyllostachys heterocycla* var. *pubescens*, *P. praecox*, *P. dulcis*, *P. iridescens*, *P. makinoi*, *P. nuda*, *P. prominens*, *P. sulphurea* cv. *viridis*, *P. vivax*, *Pleioblastus amarus* and *Qiongzhusa tumidinoda*. Within sympodial bamboos, the main species are *Bambusa rigida*, *B. pervariabilis*, *Dendrocalamus latiflorus*, *D. asper*, *D. brandisii*, *D. hamiltonii*, *Dendrocalamopsis oldhami*, *D. beecheyana*, *D. beecheyana* var. *pubescens*, *D. stenoaurita*, *D. vario-striata* and *Schizostachyum funghomii*.

Bamboo housing: There are three main types of bamboo housing, a) traditional houses, which use bamboo culms as a primary building material; b) traditional bahareque bamboo houses, in which a bamboo frame is plastered with cement or clay; and c) modern prefabricated houses made of bamboo laminated boards, veneers and panels. These buildings are usually cheaper than wooden houses, light, strong and earthquake resistant, unlike brick or cement constructions. New types of prefabricated houses made of

engineered bamboo have distinct advantages. They can be packed flat and transported at a reasonable cost. They are better designed and environmentally friendly.

Bamboo based Industrialization Prospects and Problems:

This natural resource has played a major role in the livelihood of rural people and in rural industry, especially in tropical regions. Over 2.2 billion people the world over are dependent on bamboo and its related industries for income, food, and housing. Although the rural communities have traditionally been using bamboo, the utilisation has been highly localized as bamboo has often been viewed as an inferior substitute of timber. For example, although over 1 billion people in the world live in bamboo houses, yet there has been little effort to build such houses (using pre-fabricated structures or otherwise) commercially. Traditionally, bamboo has been harvested in the natural forest and its use has been limited to temporal constructions and low-quality utensils prone to rapid decay. Consumption or utilisation has therefore been direct and restricted to poorer people with low income and low purchasing power. Market linkage has as a consequence been weak or non-existent in most countries including India.

Bamboo made products and it's Employment Opportunities:

Bamboos generate large-scale rural employment in the management of bamboo forests, and harvesting, collection, transport, storage, processing and utilization of bamboo. On the basis of current production of bamboo and its uses in India, it is estimated that a total of 432 million workdays and Rs. 13 billion in wages is generated annually. Enough scope exists for increasing bamboo yields by two or three times in a short period using higher inputs of labour and investments. The increased productivity can fill the gaps in the availability of this ecofriendly material to users both in rural and industrial sectors to generate large-scale employment, eliminate imports in pulp and panel industries, and improve the living conditions of the rural poor, many of whom depend on bamboos for their livelihood. Policy changes with regard to land laws, investment, credit priorities, imports, taxation, etc. can strengthen and hasten this process. There are founds most of male respondents, the majority of age belongs to 31-39 years. Most of bamboo industry is founds on proprietary. The demand of bamboo made products is more. The bamboo products are highly international basis. The entrepreneurs are help from Bank and Financial institution.

Regulating the Bamboo Sector:

The Central laws pertain to forestland which is the property of the government. In other words, the central laws do not apply to private forests or private plantations. There are three central Acts that govern forest and forest produce. These are the Indian Forest Act 1927, the Forest Conservation Act 1980 and the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006. Before proceeding to understand how these laws affect bamboo plantation, harvesting and transportation, it is imperative to outline the objectives that all these three laws purports to achieve. The Indian Forest Act 1927 is the single most important piece of legislation on forests.

Limitation:

There were several constraints that were identified in the course of the roundtables and field visits as well as from secondary sources. These can be listed as follows:

1. The regulatory constraint on transit of bamboo as well as on harvesting from private plantations,
2. The irregular supply of bamboo to industries,
3. Poor market linkage of the products, Technology application for new product design along with testing, certifying of products,
4. Lack of an institute on bamboo application and technology, Lack of application of known scientific methods in plantation, poor post-harvest treatment, and up-gradation of skill formation, Waste utilization, and Competition from Chinese products.

Recommendations:

The evaluation team strongly recommends continuation of the project into a second phase with the following studies

1. Development of low-cost resin. Using lignin from black liquor from pulp mills has so far shown promise and this work should be brought to a successful completion with mill trials and a manual for preparation and use of the modified resins. Consideration should also be given to a modified UP resin for countries like Bangladesh, Thailand, and China. These countries have either traditionally used UF resins for interior applications for decades or have a source of supply of UF resin.
2. Development of a more cost effective manufacturing process with consideration for health and safety of the workers. Using environmentally friendly wood preservative in the process has shown great promise and this work should be completed.
3. Manuals for manufacturing bamboo mat boards with easy to follow instructions on each step of the process should be completed.

Suggestion:

1. New areas of studies that warrant immediate attention are Initial Awareness Programme.
2. State of art of bamboo mat board production and use in the region.
3. Mechanization of sliver making and weaving. A recommendation is made for IDRC to assist in procurement of a mechanized sliver making and weaving working unit for IPIRTI. This will greatly assist in further research and optimizing manufacturing parameters for consistently good quality bamboo mat board.
4. Thicker bamboo mat boards as a second generation of products requires a steam-injected board manufacturing technology. The evaluation team recommends that the Forintek Canada Corp. proposal for thicker board production should be supported for IDRC funding.
5. Impact of raw material supply has not been a part of this project in the past.

Conclusion:

Bamboo has an important role to play in development. It is a natural vehicle with which to encourage sustainable, integrated farming systems. It is an excellent resource on which to build a variety of income and employment- generating opportunities. With its multiple uses, and high value in a range of products aimed at national and international markets, bamboo

shows a great potential for value-adding operations, and many different entry points for development interventions. Bamboo is not just a crop for poor people: it can generate important political and economic support which, if things are managed well, can translate into true sustainable development. Bamboo also provides an excellent model on which to base the development of other non-timber forest products.

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