Study No -153

Market Analysis of Bamboo Products in Assam

Study Sponsored by
the Ministry of Agriculture and Farmers' Welfare
Government of India, New Delhi

सत्यमेव जयते

Dr. (Mrs) Moromi Gogoi

Agro- Economic Research Centre for North-East India
Assam Agricultural University, Jorhat

2020

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Agro-Economic Research Centre for North-East India
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2020

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PREFACE

The present study entitled, "Market Analysis of Bamboo Products in Assam" was undertaken at the instance of the Ministry of Agriculture and Farmers' Welfare, Government of India.

The study comprised of 160 bamboo artisans and 20 wholesalers of bamboo items of Jorhat and Sivasagar districts in Assam. The findings of the study show that there lies an immense potentiality of growing bamboo plantation in the state of Assam and so is the future of bamboo products. A comprehensive approach with restructured NBM, ably supported by Government policy is must for growth and development of this sector. The critical issues as encountered by the bamboo artisans are needed to be addressed through Government intervention, which may include market intelligence, market support & an efficient price mechanism. A concerted effort, if made and executed in true sense of the term, it can open up a new vista for bamboo craft in the state of Assam, which in turn will uplift a large chunk of people in terms of income & employment.

I sincerely acknowledge with thanks for the help and cooperation rendered by the officials of the Department of Handloom and Handicraft of Jorhat district. I am also thankful to all the sample respondents for their cooperation during the field survey.

The Agro-Economic Research Centre, Visva Bharati, Shantiniketan, West Bengal is the designated peer reviewer for the Agro-Economic Research Centre, Jorhat. The draft report was submitted to the AER centre, Shantiniketan for comments and a few changes have been made in the final report as suggested. I am thankful to Dr. B.C. Roy, Hony. Director, AERC, Visva Bharati, Shantiniketan for critically review the report.

The present study is a joint output of the AER Centre, Jorhat. I am thankful to Dr. Jotin Bordoloi and Dr. Gautam Kakaty for their timely help and cooperation in accomplishing the study on time. The names of the research staff associated with this study have been mentioned elsewhere in the report.

I hope that the findings of the Report will be useful to the policy makers, academia and researchers as well.

Anup K. Das
Director in-charge
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Executive Summary

Bamboo is one of the most important forestry species with wide distribution throughout the country. It makes significant contribution to the rural economy in many of the states of the country. It has been an important source of income for millions of rural people for sustaining their livelihood. This miracle grass has been a major source of livelihood for the poor people for centuries for which bamboo was always referred to as a poor man’s timber. But, gradually it is becoming the rich man’s timber as well, and the global bamboo market value has touched $68.80 billion in 2018 and is expected to grow at a CAGR of 5.0% from 2019 to 2025 (Bamboos Market Size & Share, Global Industry Report, 2019-25). There exist ample opportunities to exploit the market potential by increasing its production and ensuring establishment of proper value chain system. Assam with 2.23 million hectares of bamboo plantations in North East India, can certainly open up new vistas for the country.

Importance of the Study

The importance of bamboo products in Assam economy is very vital and its contribution is increasing steadily day by day. Today, bamboo sector is considered as the second biggest employment-creating sector after agriculture with abundant artisans engaged in craft work on a part-time basis. Bamboo occupies a predominant position in the state’s handicraft industry and a sizable section of the population is associated with it. The potential of bamboo handicrafts has not been properly tapped; for instance, ongoing export of some of bamboo products to other countries and its marketing within the country has not received adequate attention. Role of intermediaries in this section has a debilitating effect on the industry. Technological progress is also inadequate because of structural and financial constraints. Thus, the future of this industry largely depends on the resolution of all those vexed issues. This study is a modest attempt to examine the various socio-economic problems of bamboo handicraft industry in Assam and to suggest strategies for its sustainable development. It is expected that such an intensive study might help in formulation of programmes and policies for development of bamboo craftsman of the state.

Objectives of the Study

Keeping in view the importance of the subject, the objectives of the present study has been framed as under-

1. To study the potentialities of bamboo products in Assam
2. To study the National Bamboo Mission (NBM) Programmes in Assam
3. To find out the marketing channels of bamboo products in the sample districts
4. To identify the critical issues encountered by the producers in marketing of bamboo products and suggest ameliorative policy measures

Data and Methodology

The present study is based on both primary and secondary level data. The primary data have been collected from the respondents by using specially designed interview schedules and questionnaires for the study. The study was conducted in two districts of Assam *viz*. Jorhat and Sivasagar considering the highest number of artisans commercially involved in bamboo products marketing in consultation with the office of the Commissioner of Handloom and Handicraft, Guwahati. Accordingly, the artisans' lists were collected from the Development Commissioner (Handicraft) office, Jorhat.

In the second stage, from each selected district, two blocks were selected randomly. Then from each selected block, 40 numbers of bamboo artisans involved in bamboo products marketing were interviewed to collect the primary level information. Moreover, 10 numbers of bamboo products wholesalers from each district were also taken to better know the marketing aspects of the bamboo products. Thus, total 160 numbers of sample artisans and 20 bamboo products wholesaler were covered under the study. For collecting secondary level information, the relevant data were collected from the Department of Commerce and Industry, Government of India and Government of Assam, Department of Natural Resource Management, Government of India, National Bamboo Mission Cell, Economic Survey(s) of Assam, Statistical Handbook, Govt. of Assam and from various published and unpublished sources, research journals, news articles, research articles *etc.* and related web sites.

The sample artisans have been classified in to four groups based on their annual turnover from the bamboo products marketing. The groups were categorized as below Rs. 1 lakh, Rs.1 lakh – 2 lakh, Rs.2 lakh to 3 lakh and Rs. 3 lakh and above income group.

Summary of Major Finding of the Study

- Bamboo is one of the most abundant, environmental-friendly and sustainable resources in North Eastern Region (NER). More than 50% of the bamboo species in India are found in this region. The NER states harbour nearly 90 species of bamboos, of which 41 are endemic to this region.
- Total bamboo area in Assam is about 2.23 million hectares as against India's total area of 15.70 million hectares. Out of 130 bamboo species available in India, 51 species are grown in Assam and they are being used for different purposes, mainly for buildings, furniture and diverse items.
- The importance of bamboo in the NER has been widely recognized by the Government of India through numerous policies and programs. The Central Government through the National Bamboo Mission (NBM) scheme, is focusing on the development of the complete value chain of bamboo sector. For this purpose the Government of India releasing fund under NBM and Restructured NBM scheme annually since the inception of the scheme (2006-07).
- It was observed that the highest percentage of respondents (32.50%) was found in Rs.1-2 lakh income groups followed by below Rs.1 lakh (28.12%), Rs.3 lakh & above (24.38%) and Rs. 2-3 lakh income group (15.00%).
- Of the total sample respondents, 43.13 per cent were found to live in *Kutcha* houses, 38.74 per cent in *Semi-pucca* houses and 18.13 per cent in *Pucca* houses. The *Kutcha houses* were found to be more common among the lower income groups.
- Of the total 160 sample respondents, 15.37 per cent population was below 15 years and 15.88 per cent belonged to age group of over 60 years of age. Rest 68.75 percent population was between the age group of 15-60 years.
- The total owned land holding was recorded at 65.94 hectares with an average size of holding of 0.41 hectare per respondent. The maximum area of land was possessed by Rs.1-2 income group (21.60 hectares) closely followed by below Rs.1 lakh (21.58 hectares), Rs.2-3 lakh (13.26 hectares) and Rs. 3 lakh and above income group (9.50 hectares).
- Of the total gross cropped area of 122.61 hectares, the highest area was occupied by the income group of Rs. 1-2 lakh, closely followed by below Rs.1 lakh, Rs.2-3 lakh and Rs.3 lakh and above income group. The overall cropping intensity was recorded at 161.90 per cent.

- The sample respondents used to grow different crops in both *Kkharif* and *Rabi* seasons. *Krarif* crops grown were paddy, pulses and vegetables whil*e Rabi* crops included paddy, pulses and vegetables and oilseeds.
- In the *Kharif* season, the highest performance of HYV paddy with 34.25 quintal per hectare was recorded against the income group of Rs. 1-2 lakh and in case of local paddy the highest yield was found at 24.85 quintal against the income group of below Rs. 1 lakh. The average yield of HYV paddy stood at 33.75 quintal per hectare and that of local paddy was 24.13 quintal per hectare.
- In the *Rabi* paddy, the highest yield of 35.86 quintal per hectare was found against the income group of Rs. 1-2 lakh with an overall average of 35.23 quintal per hectare across the income groups.
- In *Kharif* vegetables, the highest yield rate of 16.80 quintal per hectare was found against the highest income group of Rs.3 lakh & above and the lowest yield of 15.62 quintal was found against the income group Rs. 2-3 lakh. In *Rabi* vegetables, the highest yield of 18.90 quintal per hectare was recorded against Rs.1-2 lakh income group and the lowest yield of 16.87 quintal was found in highest income group (Rs.3 lakh & above) with an overall average of 17.98 quintal.
- The overall average per household income from agricultural source was found at Rs. 38,526.88 and from subsidiary occupation, it was found at Rs. 74,320.25. Out of the total income, the share of agricultural income was 31.14 per cent for income group below Rs. 1 lakh, 33.26 per cent for income group of Rs. 1-2 lakh, 49.00 per cent against the income group of Rs. 2-3 lakh and 26.56 per cent for the income group of Rs. 3 lakh and above, with an overall average of 34.14 per cent. In case of subsidiary source of income, the highest percentage of income was earned by the large income group (73.44 %) and lowest amount of income was obtained by the income group of Rs.2-3 lakh (51.00%), with an average of 65.56 per cent.
- The total material costs was found at Rs.55,79,885.00 and average per household material costs was estimated at Rs. 34,874.00. The per household expenditure was found to be highest in the income group of Rs.3 lakh & above (Rs. 47,034) , followed by Rs. 2-3 lakh income group (Rs.42,490), Rs. 1-2 lakh income group (Rs.29,820) and below Rs. 1 lakh income group (Rs.26,115)
- Per household cost incurred on different bamboo products by the sample artisans of below Rs. 1 lakh income group was Rs.73,597, for income group Rs. 1-2 lakh was Rs.83,496, for Rs. 2-3 lakh income group, it was estimated at Rs.1,51,796 and for

Rs. 3 lakh & above income group, it was recorded at Rs.1,56,834. The overall average cost was found at Rs.1,08,833.

- Per household gross return from the bamboo products was found highest against the income group of Rs. 3 lakh & above (Rs.3,05,419) followed by Rs. 2-3 lakh (Rs. 2,29,509) Rs.1-2 lakh (Rs. 1,20,913) and below Rs. 1 lakh (Rs. 97,053).
- The BCR were found to be positive in all the income size groups. The BCR were worked out at 1.32:1 for below Rs.1 lakh income group, 1.45:1 for 1-2 lakh income group, 1.51:1 for 2-3 lakh income group and 1.95:1 for 3 lakh and above income group. The overall BCR was estimated at 1.61:1.
- In the study area, the sample artisans disposed off their produce through a number of marketing channels. The common and popular marketing channels prevailed in the study area are- (i) Producer – Retailer – Consumer, (ii) Producer – Wholesaler - Retailer – Consumer and (iii) Producer -Commission Agent/Middleman – Wholesaler –Retailer – Consumer.
- It was found that maximum volume of bamboo products was traded through channel-III (63.59 %) followed by channel-II (28.24%) and Channel-I (8.17%).
- Although the maximum amount of transaction took place through channel-III, yet, channel-I could be the most efficient one because of the fact that the number of market intermediaries were less in channel-I as compared to the other channels and thus producers could earn higher margin in channel-I in the study area.

Problem Areas

Based on the field level observations, the pressing problems as perceived by the sample artisans can be enumerated as follows:

- Low level of education was perceived to the one of the most important issues, as pointed out by the artisans. Lack of proper education makes it difficult for the artisans to manage inventory, access the opportunities of Government schemes and gain market information and to bargain with traders and middlemen.
- Exploitation by the intermediaries was yet another crucial problem faced by the bamboo artisans in Assam. The middleman/commission agents collected the bamboo products from the producers at a very low price and they usually sold those items at a high price to the consumers. Thus, the producers were at the receiving end & were deprived of their due share.
- In the absence of a price mechanism the bamboo artisans were affected adversely. Due to unorganized nature of markets of same products were sold at different prices

and it varied from place to place and some of the artisans were compelled to sell their produce at very low price.

- Large scale inflows of machine-made items at relatively lower prices competing with the handmade product with higher price tag put the bamboo artisans at a great disadvantageous position. Due to durability and appealing designs, the consumers usually preferred those items to high cost and short durable bamboo products which dampened the spirit of the bamboo artisans.
- The study revealed that the local artisans are still using simple traditional tools and techniques of production which were very laborious and time-consuming. Availability of modern machines is either not known to them, or they might not have sufficient means to acquire those.
- Due to high cost of labour and materials, it became very difficult on the part of the artisans to run their family with this venture alone. Eighty percent of the sample artisans did not get any opportunity for skill development training in order to develop the quality of their products. Only 20 percent of the sample artisans had some short-term exposure training, which they considered to be beneficial.

Artisans' Perceptions

Artisans' perceptions on various issues relating to bamboo products marketing, as emerged from the field investigation are documented below-

- Most of the sample respondents (90%) used to run their bamboo product business because it was the family activity of their forefathers. Forty percent respondents started the business due to the reason of low investment and 56 percent sample respondents motivated to get involved in the business because of rising demand for bamboo products.
- Although the Central and the State Government had taken various measures to develop the bamboo sector with timely initiatives to uplift the bamboo artisans under different components of NBM, hardly 40 per cent of the sample respondents were found to aware of the NBM programme and its benefits.
- Only 10 percent sample artisans possessed Pehchan Card (Artisan Identity Card) with which they can get some incentives from the Ministry of Textile, Government of India. But, 90 per cent of the total respondents were not aware about the benefits of the card. Seventy five percent of the respondents wanted to improve the quality and design of their products while 25 percent were satisfied with the design and quality of their products.

- Among the sample artisans, 82 percent took part in national and international exhibition organized by various Government organizations and NGOs and 50 percent of them considered it to be very useful.
- Nearly 92 percent of the bamboo artisans wanted to continue producing bamboo products to make a good living through commercialization while only 8 percent of the respondents were averse to expansion of their business.

Suggestions and Policy implications

Based on the findings of the study and field observations, the following suggestions can be put forwarded for growth and development of bamboo sector and bamboo- product marketing in Assam

- ✓ Proper promotional campaign should be undertaken to make the artisans educated and aware of various schemes & programmes launched by the Government, extending loan at concessional rates, free tools & implements, dyes and chemical, work shed-cum-housing facilities, training programme *etc.*
- ✓ Continuous research and development efforts are to undertaken for modernization of product-process and upgradation of techniques to meet the changing requirements of the customers.
- ✓ State and Central Government should exempt the bamboo products from excise duty and other taxes to promote its export.
- ✓ The dedicated machinery, like Development Commissioner (Handicrafts), may help the local units to produce various value added items in order to penetrate the local market, and can help in exporting such items to other states of the country and abroad.
- ✓ Facilities may be created to train the artisans so that they can really make a living through bamboo craft.
- ✓ State Government may arrange for display of the bamboo craft items in various airports, railway stations, bus stands, commercial centers and prominent places to promote the artisans and their products.
- ✓ Government may promote opening of raw material shop in the vicinity of rural areas whereby the artisans can retrieve the raw materials at reasonable price on time.
- ✓ Rural artisans should be provided with adequate, timely and cheaper loan facilities for establishment of bamboo-based industries. Benefits of the subsidy policy, if any, also be made known to them.

- ✓ Adequate infrastructure facilities are prerequisite for any development process. As such, facilities like transport, communication & power supply can give a boost to the livelihood of bamboo artisans as well.
- ✓ Dedicated effort should be made to create a positive environment to attract the younger generation to adopt the traditional handicraft practice as an additional alternative venture for livelihood. For that matter, effective measures may be taken to educate this lot on potentialities and profitability of bamboo & bamboo products.

Conclusions

The field study clearly indicates that there lies an immense potentiality of growing bamboo plantation in the state of Assam and so is the future of bamboo products. Activities of the NBM are found to be very limited in the entire NE region despite having vast opportunities. A comprehensive approach with restructured NBM, ably supported by Government policy is must for growth and development of this sector. The critical issues as encountered by the bamboo artisans are needed to be addressed through Government intervention. A concerted effort, if made and executed in true sense of the term, it can open up a new vista for bamboo craft in the state of Assam, which in turn will uplift a large chunk of people in terms of income & employment.

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Chapter-1
Introduction

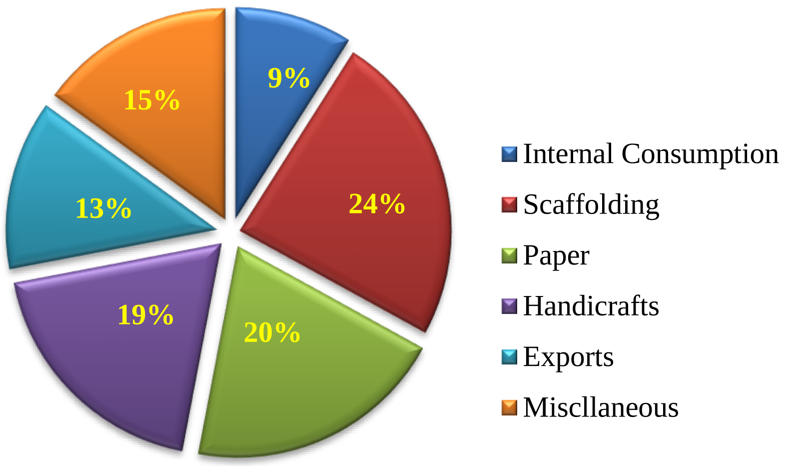
1.1 Introduction

Bamboo is one of the most important forestry species with wide distribution throughout the country. It makes significant contribution to the rural economy in many of the states of the country. It has been an important source of income for millions of rural people for sustaining their livelihood. This miracle grass has been a major source of livelihood for the poor people for centuries for which bamboo was always referred to as a poor man's timber. But, gradually it is becoming the rich man's timber as well, and the global bamboo market value has touched $68.80 billion in 2018 and is expected to grow at a CAGR of 5.0% from 2019 to 2025 (Bamboos Market Size & Share, Global Industry Report, 2019-25). There exist ample opportunities to harness the market potential by increasing its production and ensuring establishment of proper value chain system. In North East India, if harnessed the full potentials, bamboo can certainly open up new vistas for the country.

The major quantity of bamboo is utilized as raw material for paper and pulp industries, handicrafts, housing, agricultural applications and also in packaging industries *etc*. Bamboo is recognized as a superior alternative of wood and plastic for different uses. Bamboo as an ideal construction material has been gaining rural production in recent time. Bamboo flooring has been widely accepted in the global market. Bamboo fabric apparel and clothing are fast gaining popularity due to its intrinsic characteristics such as naturally organic, anti fungal, anti bacterial and soft and super absorbent. Over 1,000 products are made from bamboo besides traditional products like handicrafts and other utility products. India has the largest area and the second largest reserve of bamboo in the world today. It is found mostly in moist and deciduous forests of all the states in the country except Jammu and Kashmir. Over 1,600 bamboo species are found in the World and over 136 bamboo species had been identified in India. According to Forest Survey of India (2017), the total bamboo bearing area of the country is estimated at 15.70 million hectares. The annual production of bamboo in India is about 14.60 million tonnes and the bamboo and rattan industry of India is worth Rs. 28,005 crore in 2017. During 2015-16 and 2016-

17, the export of bamboo and bamboo products were Rs.0.11 crore and Rs.0.32 crore, respectively while the corresponding import bill were Rs. 148.63 crores and Rs. 213.65 crores. Despite having a large area under bamboo resources, India is a net importer of

Fig. 1.1 Consumption Pattern of Bamboo In India



bamboo. India constitutes only 4 per-cent share of global market. This is because of low productivity of bamboo (4 tonne /ha.) which is much lower as compared to other countries such as China, Japan and Malayasia which together contribute about 80 percent of the world bamboo market. In India, approximately 8.60 million people are dependent on bamboo for their livelihood.

1.2 Bamboo Resources in North-East India

North East India is endowed with abundant bamboo resources, sufficient enough to build a robust economy, besides maintaining conducive climatic conditions. Bamboo and Cane constitute an important part in the lives of the people of North-Eastern Region of the country. It has been an integral part of the cultural, social and economic traditions of the region and is an important wealth of the region. It grows in natural forests, and is cultivated in homesteads, groves and on private plantations. It is utilized in many ways, for housing, fencing, functional articles, agricultural implements, basketry and even fuel and food. People in the region possess traditional skills of working with the material and knowledge of the cultivation and management practices of bamboo. Following traditional patterns of usage, many artisans and crafts persons continue to work for decades on cane craft products for the market.

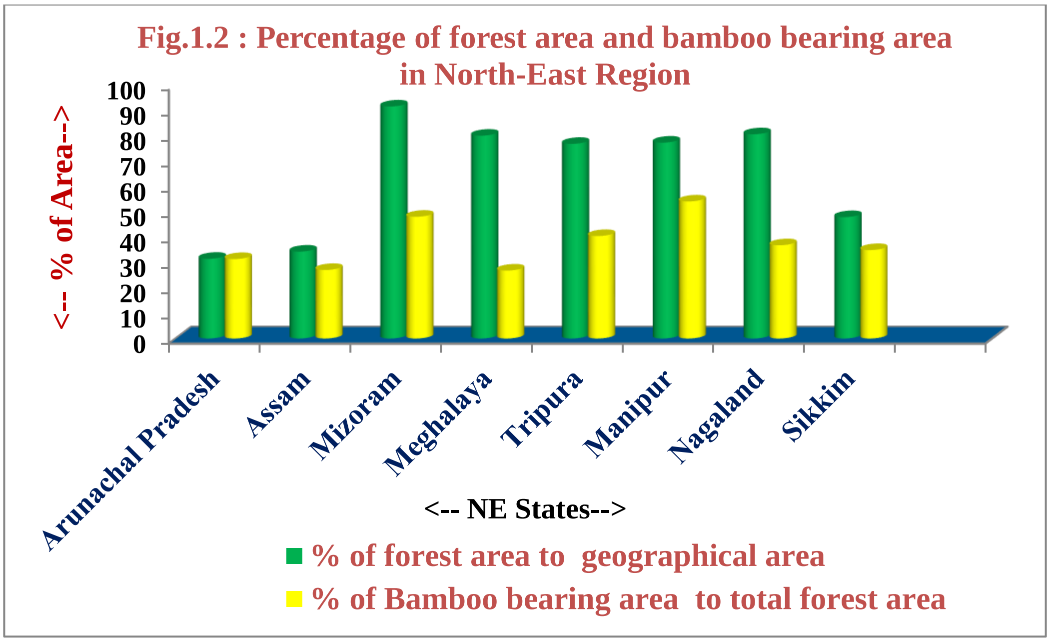
Bamboo is one of the most abundant, environmental-friendly and sustainable resources in North Eastern Region. Tribal communities of the region use this resource for food, shelter, furniture, handicrafts, medicines and various ethno-religious purpose. Working with bamboo is widespread in the region with a large percentage of the ethnic population involved in refined craftsmanship. The most creative expression of different tribes are reflected in their handwork and are integral part of their tradition. The items they make include things like furniture, bamboo and cane mats, decorative lamp shades, stools, hand fans, baskets, hand bags, jewelries *etc*. The North-Eastern region can very well go for global export of steamed and canned bamboo shoot to European countries. As bamboo products are highly labour intensive in nature, these industries have the potential of becoming major employer in the North Eastern States. Further, bamboo being an important minor forest product, contributes to generate supplementary income to the tribal folk. High diversity of bamboo resource plays a significant role in the food and nutritional security of the tribal population of North-Eastern region. More than 50% of the bamboo species in India are found in North Eastern region of India. The maximum concentration of species is found in the deciduous and semi-evergreen regions of the North-East India. The NER states harbour nearly 90 species of bamboos, of which 41 are endemic to this region.

Table -1.1 and fig.1 show the percentage of forest area and bamboo bearing area in the North Eastern region of India. It is evident from the Table that, North –Eastern region comprises 65.34 per cent of the forest area and of the total forest area,

Table -1.1
Forest Area and Bamboo bearing Area in North- East Region

North-Eastern States	% of forest area to geographical area	% of bamboo bearing area to total forest area
Arunachal Pradesh	61.39	31.29
Assam	34.21	26.98
Mizoram	91.47	47.94
Meghalaya	79.93	26.74
Tripura	76.71	40.35
Manipur	77.20	53.97
Nagaland	80.50	36.72
Sikkim	47.80	34.82
Total	65.34	32.68

Sources: 1. Indian Journal of Hill Farming, 2017
2. Forest Survey of India, 2017



32.68 per cent is bamboo bearing area. Table further shows that Manipur has the highest bamboo bearing area (53.97 per cent) followed by Mizoram (47.94 per cent) and Tripura (40.35 per cent).

1.3 Bamboo Resources in Assam

Assam is rich in sylvan resources and most of its forests are richly stocked with bamboos of various species. The state is one of the largest bamboo producing states in India. Bamboos play an important role in the day to day life of the common people of Assam and become an integral part of the cultural, social and economic traditions of the State. Besides, it is an essential component of forest ecosystem and commonly found in the traditional home gardens of Assam.

The main bamboo growing areas of Assam are the districts of Cachar, Karbi-Anglong, North Cachar Hills, Nagaon and Lakhimpur. Apart from forests, plenty of bamboos are grown in the villages throughout the state. At present, there are vast untapped resources of bamboo that can open up new avenues for its utilization for many productive works.

Total bamboo area in Assam is about 2.23 million hectares as against India's total area of 15.70 million hectares under bamboo. Out of the 130 bamboo species available in India, 51 species are grown in Assam and they are being used for diverse purposes, mainly for buildings, furniture and diverse contraptions. The important species of bamboos of high economic value are the Muli (*Melocanna bambusoides*), Dalu (*Teinostachyum dalloa*), Khang (*Dendrocalmus longispatnus*), Kaligoda (*Oxytenanthera nigrociliata*) and Pecha (*Dendrocalamus Hamilton-ii*). The Muli and the Dalu have great commercial importance, the former for pulping, constructional and fencing purposes, and the latter for the mat and basket industry.

People of Assam have the skills of working with the material, and knowledge of cultivation and management of bamboo. The making of bamboo products is perhaps the most common craft practiced by a large number of artisans scattered throughout the state. It is practiced as a household industry and no mechanical device is used. Bamboo products are used for a wide range of purposes and extensively used in every household. Various products such as bamboo houses, bamboo baskets, bamboo mats, bamboo hats, umbrella handles, walking sticks, tool handles, fishing rods, tent poles, cordage, ladders, yokes, hand-fans, bamboo and leaf headgear (the most indispensable item of the field workers), handicrafts like toys and dolls, musical instruments and various domestic and agricultural implements are crafted here out of bamboo. The bamboo houses are a combination of bamboo matting and wooden framework. Bamboo baskets of Assam come in various shapes and sizes and serve various distinct purposes. It is observed that in Assam bamboo handicraft is carried on by all the rural people, irrespective of caste, community or creed.

Assam is rich in bamboo and cane resources and most of its forests are richly endowed with bamboos and canes of various species. Bamboo is a raw material of great versatility and forms an integral part of the lifestyle and economy a large chunk of population in Assam. Special mention may be made of the forests of Mizo Hills, Cachar, Mikir and North Cachar Hills, Nowgong and Lakhimpur districts. The cane & bamboo products happen to be the most commonly-used items in daily life, ranging from household implements to construction of dwelling houses to weaving accessories to musical instruments. The making of bamboo and cane products is perhaps the most common of all the crafts practiced by a large number of artisans scattered across the State. It is practiced as a household industry and no mechanical device is used. It provides part time employment to the cultivators in their spare time and full time employment to the few highly skilled artisans who produce only fine decorative baskets, furniture and mats on commercial basis.

1.4 Production and Utilization of Bamboo

Besides being a material for varied consumer products, bamboo has great potential as an industrial raw material as well. Industrial applications of bamboo are summarized below:

1.4.1 As Vegetable Production

Young and tender bamboo shoots are used as seasonal vegetables in both rural and urban areas of North-East India. Production of bamboo pickle on a tourist spot in Meghalaya alone reported at 1,170 kg to 2,210 kg per annum. The North Eastern region of India, which produces more than 50% of total bamboo of the country, has great market and export potential particularly in different Asian countries.

1.4.2 Building and Construction Material

In India, usage of bamboo for the purpose of scaffolding is very high. But virtually there has been no value addition on the raw bamboo used for scaffolding purposes. Of the 13.47 million tonnes of bamboo produced in the country, 3.23 million tonnes are currently being consumed for scaffolding alone. Bamboo can be used artistically to make doors and windows. Bamboo mat composites can be effectively used for manufacturing panel and flush doors in combination with plantation grown timbers. Use of bamboo grids in road making is yet another potential area to reckon with. The bamboo grid market size is estimated to grow at 25 per cent per year with increased penetration in the total market and greater acceptability of the product. Having highest concentration of bamboo resources, the North Eastern region has the immense scope of earning additional returns from manufacturing better design and quality building &construction materials.

1.4.3 Wood Substitute

Bamboo is regarded as a substitute of wood because of its physical and mechanical properties. It contains a relatively low proportion of lignin. Therefore, bamboos are perhaps the best alternative to softwoods. Bamboo is increasingly being used as wood substitute in some industrial products like bamboo ply board, bamboo mat roofing, door shutters, bamboo mat board, bamboo flooring, bamboo laminates, particle composites *etc.* after value addition. Recently Indian Plywood Industries Research & Training Institute (IPIRTI) has developed a appropriate technology for making match sticks from bamboo and technology transfer has been taken up exclusively.

1.4.4 Cottage Industries

Millions of tones of bamboos are utilized in different types of cottage industries such as agarbatti, kite and cracker industry, ice-cream and match industries. Some of the commonly used bamboo species in cottage industry are *Bambusa tulda*, *B. nutans*, *B. pallida*, *M. baccifera*. Bamboos from Tripura and other North-Eastern states are transported all the way to Mysore and Bangaluru for production of agarbatti and other utility products.

1.4.5 Handicrafts

Another important area in which bamboo is being used is the bamboo craft sector where it generates about 250 million days of work by employing mainly women from the rural and tribal area, generating income of Rs. 15 billion a year (Reddy & Reddy, 2007).Various craft products made of bamboo are- mats, flooring material, purses, bags, satchels, tea packaging, different kind of furniture, floor tiles, board, general household products, utensils etc. About 19 per cent of the bamboo is used in handicrafts all over India.

1.4.6 Pulp and Paper

The general consumption pattern of bamboo in India indicates that 20 per cent of bamboo is being consumed by pulp and paper industries while the rest 80per cent is used locally for cottage industries, construction and furniture and implements industries etc. It is found that from four tonnes of bamboos, nearly one tonne of pulp is produced which is utilized for production of paper and board. Recently 2.69 million tones of bamboos are used by the paper mills all over the country and highest percentage of bamboos are supplied from North-Eastern India including Assam.

1.4.7 Medicinal Products

It has been reported that bamboo plant has usually high levels of acetylcholine which acts as a neurotransmitter in animals and humans. It is used as a cooling tonic and aphrodisiac and for remedy of asthma, cough and other debilitating diseases. Stems and leaves of *Bambusa* bamboos are used in Ayurvedic system of medicine as blood purifier, in treatment of leucoderma and inflammatory conditions. *Bambusa* bamboos, are found in abundance in Assam and there lies ample scope of increasing the productivity of medicinal products made of bamboos.

Considering the diversified application of bamboo resources, utmost importance should be given by the Government and concerned agencies for growth and development of bamboo sector. Value added bamboo products are very popular especially among the tourists and are real mean of employment and income generation. There is a need to shift focus from the traditional handicraft to value added industrial applications like bamboo mat, boards, flooring, shoot processing *etc*. which are technology driven and income yielding ventures. Cost effective composite products can very well be taken up for commercial production particularly in rural areas.

1.5 Status of Bamboo and Bamboo Products in Assam

There has been an unabated increase in demand for bamboo and its product belt in domestic as well as global market. With the advances in technology and need for wood alternative, the demand for bamboo had increased manifold over the years bamboo till date has been considered as a replaceable commodity at regular interval. Its durability need to be increase on priority basis. Bamboo products in the form of value added round sticks, splints and slivers can give boost to the enterprises engaged in manufacturing of diverse products. Bamboo products are normally cheaper than the similar wooden products and hence there is a possibility of more demand in the market.

North- East India in general and Assam in particular has immense untapped potential in the bamboo sector. Bamboo is a versatile plant that is indirectly linked to the social and cultural practices, followed by the people. Bamboo product industries can spur gainful employment and generate handsome income in Assam and rest of the region.

Bamboo products are uniquely attractive, strong, resilient, moisture and strain resistant and environment friendly. Bamboo forms the base for a broad range of rural and semi-urban cottage industries that provide livelihoods for the rural poor, particularly home-based workers in the unorganized sector. Such industries generate various marketable products ranging from chopsticks in several South-East Asian countries, to incense sticks in South Asia, especially in India. Bamboo-based post-harvest production and processing operations are the important source of remunerative employment to the rural people to a greater extent. They also lend support to the domestic economy as well as the export sector. By providing off-farm income generating options, these bamboo-based livelihood systems frequently absorb surplus agricultural workers, mainly the rural poor who do not have regular on-farm employment.

Bamboos and Rattans are the dominant components of the forest eco-system in Assam. Traditional living and lifestyle of Assamese society, to a large extent, is depends on bamboos and rattans for a variety of uses and these species have much to offer by way of contributing towards socio-economic advancement of modern Assamese society. The eco-friendly bamboo and rattan crop has immense potential in improving rural economy and industrial development on sustained basis.

Assam is the hub of 36 different species of bamboo which are suitable for producing different varieties of products including edible item like bamboo shoot, agricultural implements, fishing equipments, furniture, musical instruments, household items, ornaments and, decorative items. Although bamboo products were initially used by the rural artisans for their own requirement, its popularity and demand is now on the rise throughout the country due to its unique style and elegance. The products are bio-degradable and environment friendly and free from ecological hazards created by plastic materials.

In recent years the Government of India and Government of Assam have introduced some programmes for the upliftment of the bamboo sector and to encourage the rural artisans for commercial production of bamboo items. The Assam Government has approved Assam Bamboo and Cane Policy. The policy aims at sustainable development and utilization of bamboo and cane resources in the state through scientific management and stakeholders' participation. Incentives have been provided for the establishment of various bamboo-based industries, processing units and development of traditional sectors like handicraft and furniture making. The Government will facilitate in providing direct market linkages to the entrepreneurs and artisans. Assam has come up with a Bamboo Technology Park with an investment of Rs 62.28 crore in Chaygaon in Industrial Growth Centre. The park has a modern Common Facility Centre for producing many innovative bamboo products like – Strand Woven Bamboo Block Making Facility, Vacuum Pressure Treatment Plant, Resin Making Facility, Bamboo Stick Making Facility, Bamboo – Waste Plastic Composite Making Facility, Charcoal Making Facility, *etc*. For harnessing the potential and holistic development of bamboo sector
the Government is also taking initiatives under different components of National Bamboo Mission (NBM) and Restructured NBM programme.

The forgoing discussion clearly indicates that the bamboo handicrafts sector has immense possibility of enhancing the income and employment potential in Assam. The richness of handicraft products of the state further represents the ethnic diversity of the region. The Government and other stakeholders together can strategize palpable plan to attain the commercial viability of this segment of the economy. Of course, the future of bamboo and bamboo products will depend on availability raw materials, supply of capital, marketing infrastructure, skill up gradation and entrepreneurship of under an enabling environment.

1.6 Review of literature

Some of the literatures related to the study are reviewed and presented below.

Gopalkrishna's (2000) work was a notable contribution in understanding the bamboo industries in Assam. In his fair analysis, the author mentioned that cane and bamboo has played an important role particularly in providing alternative occupation to rural people of Assam. Finance, marketing and raw materials were identified as the major problems faced by the bamboo units of Assam. While reviewing the problems, he also opined that there was lack of training and scientific management in bamboo industry in Assam.

Sundriyal, Manju and Rakesh Chandra Sundriyal (2011) opined that there were tremendous potential for improving the quality of bamboo products for meeting the demands of domestic and international markets. Proper use of bamboo resources by applying modern technology can enhance the economy of the bamboo-artisans as well as the state. For this to happen the traditional bamboo-artisans need to be targeted in all the states and elaborate capacity building programme need to be planned and executed. The study revealed that in Uttarakhand state, value addition of existing bamboo-products and skill development on such activities were highly warranted to earn higher income. For this purpose, product diversification is a key area to work in to enhance quality of trade. Artisans' access to new tools for processing, technology for improving strength and durability of the products and use of improved finishing techniques are highly desirable, for which artisans 'skill and capacity need to be built. Increasing artisans' access to loans/credit, markets and involvement of younger generations in the trade should receive high priority. Formation of artisans' cooperatives is desired to promote advocacy for the artisans' cause and concerns. Furthermore, registration of artisans is necessary so that they get maximum benefit from the Government run schemes and other programs. The authors viewed that if some of these suggestions could be adopted and implemented, the bamboo-trade and artisans statuscould be improved substantially enhancing the economy of the state as well.

S. K. Jha, D. Sharma and B. K. Tiwari (2014) studied the status and distribution of forest -based artisans in 11 districts of Assam. They viewed that almost every village of the state had some artisans who produce artifacts as per local needs. However, the number of artisans who were involved in commercial production was limited. They found that out of the total artisans involved in commercial production, 46.53% were involved in bamboo based activities, 28.47% in cane based and 25.0% in wood based activities. About 26.0% got the raw materials from within the villages, 37.0% collected it from outside the villages while about 26.0% got it from outside the state. They concluded that, in order to make artisans a suitable livelihood model for the state, sustainable harvesting of raw materials from the forests should be ensured. Giving financial assistance and training to artisans would improve the quality, quantity and design of their products as a result of which they would be able to compete in local, national and international markets. State and Central level agencies like North East Development Finance Corporation Limited(NEDFI), Department of Rural Development, Department of Forests, Forest and Small Scale Industries, private agencies, NGOs *etc.* need to come forward with suitable schemes/programmes for the welfare of the artisans who are generally poor and remain neglected. It would enhance livelihood opportunities of rural poor and rejuvenate dying artisan's activities in the state.

Jamir, I and P. Natarajan (2014) studied the existing marketing system of bamboo handicraft products of Dimapur district in Nagaland. The study was carried out among the bamboo handicraft entrepreneurs working under Nagaland Bamboo Development Agency (NBDA). They found that training and other capacity building programmes undertaken by NBDA have paid off and there has been a remarkable increase in the income of the artisans. The artisans' customer base had noticeably increased both locally and nationally. The agency had trained many unemployed youths and they also established their own handicraft units which provided them good income. The authors concluded that there were still many more challenges that the agency and artisans were facing. Therefore, Government should put more efforts to increase the economic opportunities from the uses of bamboo as an industrial raw material to raise more employment and income opportunities of the bamboo artisans.

Dutta, K (2016) examined various socio-economic problems of bamboo handicraft industry in Jalpaiguri district of West Bengal. He identified various problems faced by the artisans of the district and the state. Some of the identified problems were lack of training, unfair competition with various low cost substitute plastic product, increasing cost of production and low return, presence of middleman, shortage of capital, traditional method of production and non use of modern equipments *etc*. The author concluded that bamboo industry has very good prospects for development in the state through diversification of products and modernization process by providing adequate training facilities, modern tools, financial support, market information and market linkages, input supply and other infrastructural facilities and most importantly encouraging the young generations as they are the future artisans of our handicrafts industry.

Phukan, M (2018) opined that in the North Eastern Region, bamboo plants are abundant and generate employment and economic well-being of the people to a greater extent. But lack of technological innovations along with inadequate policy support has resulted in steady stagnation of this industry. The bamboo handicraft sector is under immense pressure mainly due to its unorganized structure along with the additional inhibitors, *viz.* poor development indices, low capital, poor exposure to new technologies, absence of market intelligence, lack of proper institutional and organizational arrangements *etc*. As the potentiality of bamboo based industry in terms of income and employment generation can never be overlooked, the author concluded that every effort must be made for all round development of this industry and bamboo artisans in the region.

1.7 Importance of the Study

The function and importance of bamboo handicraft in Assam economy is very vital and its contribution is increasing steadily day by day. Today, this industry comes under the unorganized sector of the village economy and even considered as the second biggest employment-creating sector after agriculture with abundant artisans engaged in craft work on a part-time basis. Bamboo occupies a predominant position in the state's handicraft industry and a sizable number of populations depend on bamboo for part or all of their income. The entire plant part of bamboos can be utilized in many ways thus becoming one of the versatile plants from economic point of view. Bamboo and its products are eco friendly in nature and it shields from hard pollution in different ways. The potential of bamboo handicrafts has not been properly tapped; for instance, export of some of these items to other countries and proper marketing within the country have not received adequate attention. Intermediaries still play an important role in the industry which often hinders its progress. Profitability in the manufacturing of bamboo products is very low. Technological progress is inadequate because of structural and financial constraints. The technical and financial capabilities of the new generation artisans to meet challenges in the industry in the context of globalization are less. Thus, the future of this industry depends on the resolution of several problems confronting it. This study is a modest attempt to examine the various socio-economic problems of bamboo handicraft industry in Assam and to suggest strategies for its sustainable development. It is expected that such an intensive study might help in formulation of programmes and policies for the development of bamboo craftsman of the state.

1.8 Scope of the Study

Although, India is the second largest bamboo producing country in the world next to china, India's import of bamboo and related products have grown tremendously since 2013-14, having been Rs. 380 crores in 2012-13 and more than Rs.750 crores in 2017-18. Therefore, to reduce import and raised export, there is a need for assessment of domestic market potential for bamboo products for better planning and improvement of bamboo sector in the country.

As such, the present study is considered very important and relevant. No worth mentioning intensive study has been made in Assam so far in this line. So this study once accomplished can be considered to be very useful for planners, policy makers and the State Government for taking appropriate policy decisions.

1.9 Objectives of the Study

Keeping in view the importance of the subject, the objectives of the present study has been framed as under-

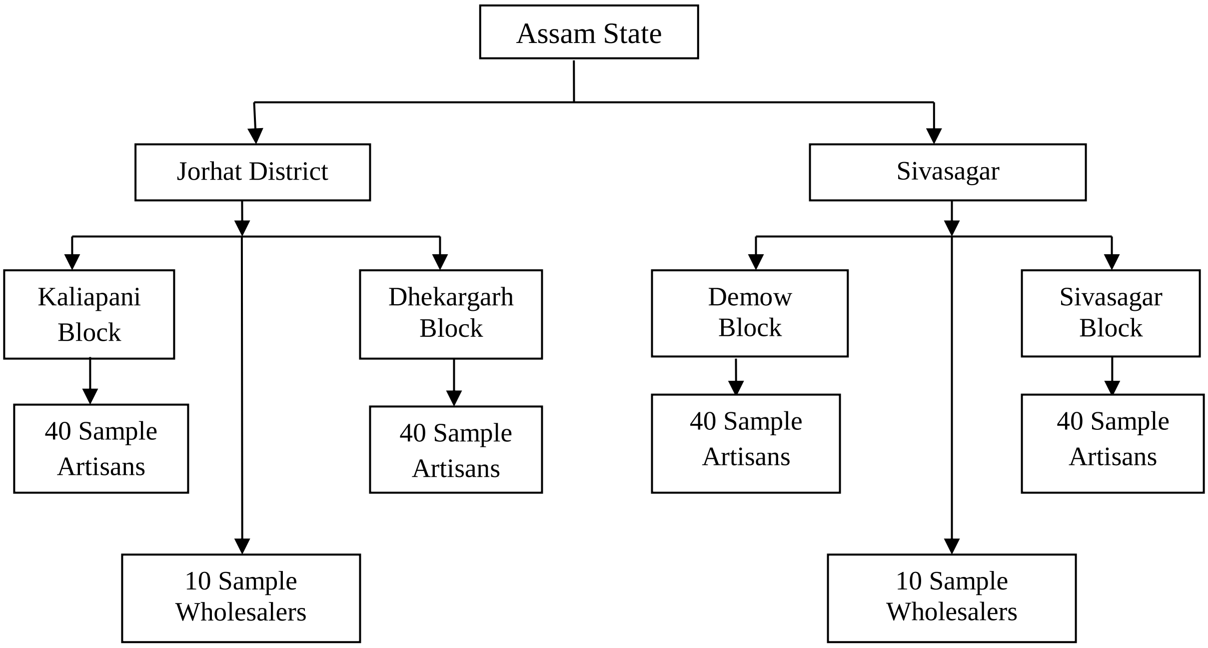
1. To study the potentialities of bamboo products in Assam
2. To study the National Bamboo Mission (NBM) Programmes in Assam
3. To find out the marketing channels of bamboo products in the sample districts
4. To identify the critical issues encountered by the producers in marketing of bamboo products and suggest ameliorative policy measures

1.10 Data and Methodology

The present study is based on both primary and secondary level data. The primary data have been collected from the respondents by using specially designed interview schedules and questionnaires for the study. The study was conducted in two districts of Assam *viz*. Jorhat and Sivasagar considering the highest number of artisans commercially involved in bamboo products marketing in consultation with the office of the Commissioner of Handloom and Handicraft, Guwahati. Accordingly, the artisans' list were collected from the Development Commissioner (Handicraft) office, Jorhat.

In the second stage, from each selected district, two blocks were selected randomly. Then from each selected block, 40 numbers of bamboo artisans involved in bamboo products marketing were interviewed to collect the primary level information. Moreover, 10 numbers of bamboo products wholesalers from each district were also taken to better know the marketing aspects of the bamboo products. Thus, total 160 numbers of sample artisans and 20 bamboo products wholesaler were covered under the study. For collecting secondary level information, the relevant data were collected from the Department of Commerce and Industry, Government of India and Government of Assam, Department of Natural Resource Management, Government of India, National Bamboo Mission Cell, Economic Survey(s) of Assam, Statistical Handbook, Government of Assam and from various

Sample Design



published and unpublished sources, research journals, news articles, research articles *etc.* and related web sites.

The sample artisans have been classified in to four groups based on their annual turnover from the bamboo products marketing. The groups were categorize as below Rs. 1 lakh, Rs. 1 lakh – 2 lakh, Rs. 2 lakh to 3 lakh and Rs. 3 lakh and above income group.

1.11 Limitations of the Study

Like any other empirical study, this project also suffers from certain limitations. One of the most important limitations of the study was that the production and marketing of bamboo articles is unorganized in nature. Most of the rural artisans produce bamboo articles in their leisure time and very few of them devote full time for commercial production. So, scattered sample was one of the major problems. Secondly, lack of sufficient related literature on the subject makes the study difficult to draw a comprehensive idea. Besides, the data were collected through survey method by interviewing the sample artisans. Therefore, the accuracy objectivity of the data was limited to the extent that the artisans were able to recapitulate from their memory as they did not maintain proper records about the cost and return from their products. Finally, the data were collected from a with limited number of sample respondents of the selected districts. Hence, the generalizations of the findings of the study have to be restricted to the area with similar geographical and socio-economic conditions only.

However, utmost care has been taken while eliciting the required information from the respondents. All the relevant data and information derived from both secondary and primary sources have been duly scrutinized processed and finally, results have been deduced. Therefore, it is hoped that the conclusions derived from the study will be useful to the bamboo artisans, Governments and policy makers.

1.12. Organization of the Report

The present study comprises of five chapters. The first chapter is the introductory chapter covering importance and uses of bamboo resources in the country and potentiality of bamboo products in Assam. It also includes the objectives, scope, methodology, review of relevant literature, importance and limitations of the study *etc*. The second chapter presents the implementation of NBM scheme in India and Assam, its objectives, physical and financial target of NBM in different work plan, infrastructure created under NBM in Assam *etc*. This chapter is based on secondary level data collected from various published data of Indian Forest Survey report, INBAR data, Indian Forester and data from Ministry of Agriculture and Farmers' Welfare, Government of India. The third chapter is mainly confined with the socio-economic characteristics of the sample bamboo artisans like educational status, cropping pattern, gross value of production and gross annual income earned by the sample artisans. In the fourth chapter, it has been attempted to analyse the cost and return from various bamboo products produced by the sample artisan households together with different marketing channels of bamboo products prevailing in the study area. The fifth chapter deals with the major problems faced by the sample artisans in marketing of bamboo products and suggest ameliorative policy measures.

1.13 Reference Period

The reference period of the study relates to the year 2018-19

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Chapter –II

Implementation of National Bamboo Mission (NBM) Programme in Assam

2.1 Introduction

In this chapter an attempt has been made to analyze the status of implementation of National Bamboo Mission (NBM) in the state of Assam. Bamboo is a versatile plant which can provide ecological, economic and livelihood security to the people. India has the highest area under bamboo next to China, in terms of bamboo diversity with 125 indigenous and 11 exotic species. In spite of the growing stock, India is a net importer of bamboo. It means that there are lies unrealized opportunities, which can very well be exploited by increasing its production and ensuring establishment of a proper value chain ecosystem. In most of the hilly States of the country, bamboo is used as building material/construction material, besides, having an ever-increasing range of contemporary uses/applications in industries like construction, furniture, textile, food, energy production, herbal medicine etc. This is especially important for rejuvenating the rural economy and doubling of farmers' income. Keeping in view the vast untapped potential of the bamboo sector, the NBM Programme was approved for implementation across the country for boosting cultivation of bamboos in terms of quality and appropriate species, proper treatment and primary processing so as to make it competitive both in the domestic and global markets.

2.2 NBM in India with references to North –Eastern States

The NBM is a Centrally Sponsored Scheme which is being implemented by the Division of Horticulture under the Department of Agriculture, Cooperation & Farmers' Welfare, Ministry of Agriculture, New Delhi with 100% assistance from the centre. It was submerged under the Mission for Integrated Development of Horticulture (MIDH) during 2014-15 and it continued till 2015-16. And thereafter, the funds have released only for maintenance of bamboo plantations raised earlier under NBM, and no new work or annual action plan were initiated. The NBM aimed at the holistic development of bamboo sector in India. The thrust of the Mission is on an area based regionally differentiated strategy for both forest and non-forest areas. A number of activities are being supported for increasing productivity and quality of bamboo by increasing area under bamboo cultivation, mass production of superior quality planting stock of high yielding species, improvement of the existing stock, pest and disease management, improved post harvest management and development and upgradation of marketing facilities. The expected benefits of implementation of the Mission include coverage of 1.76 lakh ha area under bamboo plantation over a period of 5 years, employment generation of 50.40 million mandays of work by bamboo plantation related activities alone and about 9.70 lakh mandays in bamboo nursery sector.

2.3 Achievements of NBM

Significant achievements in bamboo sector under NBM from 2006-07 can be summarized as under for the country as a whole.

i) 1,466 Nurseries and 3 Tissue Culture units were set up/rehabilitated.

ii) Bamboo plantations were taken up in about 2.37 lakh ha. in forest areas and about 1.25 lakh ha. in non-forest areas.

iii) Existing bamboo stocks of 0.91 lakh hectare were treated for productivity improvement.

iv) Pest & disease management was taken up in about 0.86 lakh ha in non-forest areas.

v) 39 bamboo wholesale markets, 40 bamboo bazaars and 29 retail outlets were established.

vi) Employment generation was a concomitant outcome/ benefit of the various activities promoted under the Mission.

vii) Bamboo raw material was also made available for development of Bamboo Industries.

Table-2.1 depicts the infrastructure created under NBM in North-Eastern states and all India. Table shows that, in Assam 52 numbers of nurseries were established under the scheme, 5,705 farmers and field functionaries were given training, bamboo plantations of 20,391 hectares of land area were taken up comprising forest area, non-forest area and Govt. land. Productivity improvement of the existing stock of 8,989 hectares of land area was also taken up under the NBM programme.

Comprising all the North-Eastern states, 809 numbers of Nurseries were established, 37,615 numbers of farmers and field functionaries were given training on bamboo plantation and management, 2,26,425 hectares of land area were taken up for bamboo plantation,52,149 hectares of land area were taken up for productivity improvement along with establishment of2 tissue culture units,46 retail outlays and 26 numbers of bamboo bazaar.

Table -2.1 Infrastructure Created in North Eastern States and All India Under NBM

NE States :	Nurseries	Training (in Nos.)		Plantation (in Ha.)				Improvement of Existing Stock	Tissue Culture Units (Nos.)	Retail Outlet (Nos.)	Bamboo Bazaar (Nos.)
		Farmers	Field Functionaries	Forest Area	Non-Forest Area	Govt. Land	Non-Forest Area with Drip Irrigation				
Arunachal Pradesh	104	3,977	788	14,595	23,982	0	0	3,950	0	7	4
Assam	**52**	**4,665**	**1,040**	**17,591**	**1,300**	**1,500**	**0**	**8,989**	**2**	**7**	**6**
Manipur	98	4,580	505	18,226	31,498	0	0	6,258	0	1	0
Meghalaya	34	766	309	4,997	917	0	0	753	0	0	0
Mizoram	147	2,821	480	38,601	16,572	300	1200	8,876	0	13	6
Nagaland	92	4,603	462	44,430	0	0	0	16,429	0	11	10
Sikkim	106	2,941	545	4,712	7,844	745	100	3,004	0	7	0
Tripura	176	8,219	914	4,148	3,167	0	0	3,890	0	0	0
North-Eastern States	**809**	**32,572**	**5,043**	**1,47,300**	**85,280**	**2,545**	**1,300**	**52,149**	**2**	**46**	**26**
All India	**1,466**	**61,126**	**12,710**	**2,36,700**	**1,15,591**	**3,430**	**6,070**	**91,715**	**3**	**68**	**40**

Source: Operational Guidelines of NBM, Govt. of India, Ministry of Agriculture & Farmers' Welfare, 2019

2.4 Restructured National Bamboo Mission (RNBM)

Although the NBM scheme contributed significantly towards enhancing bamboo areas both in forest and non-forest areas, the main weakness of the scheme had been the absence of a linkage between the producers (farmers) and the industry and absence of value addition component. Hence emphasis was later given on propagation of quality plantations of bamboo and value addition including primary processing and treatment; making of high value products; market infrastructure and skill development. Thrust has been given to ensure a complete value chain for growth of bamboo sector to boost bamboo based industry which would also have a ripple effect on rural economy. This in turn, besides earning additional income would facilitate generating more employment opportunities for skilled and unskilled workers, especially for the rural youth.

To correct the weaknesses of initial bamboo mission programme and to make the bamboo sector more productive, the RNBM was approved in April, 2018 with the budget estimate of Rs.300 crores and Rs. 160 crores for the year 2018-19 and 2019-20 respectively. The RNBM focuses on the development of complete value chain of bamboo sector to link growers with the consumers starting from planting material, plantation and creation of facilities for collection, aggregation, processing, marketing, micro & medium enterprises, skill development and brand building initiatives in a cluster approach mode.

The scheme is being implemented in non-forest Government land and in the farmer's field in the implementing states where it has social, commercial and economical advantage, including the bamboo rich states of North-Eastern Region and Madhya Pradesh, Maharashtra, Chhattisgarh, Odisha, Karnataka, Uttarakhand, Bihar, Jharkhand, Andhra Pradesh, Telangana, Gujarat, Tamil Nadu and Kerala. The principal objective of implementing this scheme is to a boost to the rural economy and to double the farmers' income. The Mission is expected to establish about 4,000 treatment/ product development units and bring more than 1,00,000 hectare area under plantation during the period 2018-19 & 2019-20. So far 20 states have been covered under the RNBM and an amount of Rs.111.05 crore has been released (till 31.12.2018) based on the annual action plans. Under the scheme, 88 numbers of Bamboo Treatment Units, 464 Product Development/Processing Units, 135 Infrastructure Projects for Promotion and Development of Bamboo Markets and an area of 15,740 hectares for plantation have been approved. Financial assistance to the

North Eastern states is provided in the ratio of 90:10 between Central & State Government.

2.3.1 Objectives of RNBM

The main objectives of RNBM are -

1. To increase the area under bamboo plantation in non forest Government and private lands to supplement farm income and contribute towards resilience to climate change as well as availability of quality raw material requirement of industries. The bamboo plantations will be promoted predominantly in farmers' fields, homesteads, community lands, arable wastelands, and along irrigation canals, water bodies etc.
2. To improve post-harvest management through establishment of innovative primary processing units near the source of production, primary treatment and seasoning plants, preservation technologies and market infrastructure.
3. To promote product development keeping in view the market demand, by assisting R&D, entrepreneurship & business models at micro, small and medium levels and feed bigger industry.
4. To promote skill development, capacity building, awareness generation for development of bamboo sector from production to market demand.
5. To realign efforts so as to reduce dependency on import of bamboo and bamboo products by way of improved productivity and suitability of domestic raw material for industry, so as to enhance income of the primary producers.

The key elements of RNBM are –

Research and Development

- Plantation and infrastructure development
- Production of Planting Material which includes -
    - Area expansion under Bamboo
    - Improvement of Existing Stock
    - Technology Transfer & HRD
    - Pest and disease management of Bamboo
    - Creation of Water resources
- Innovative Interventions
- Post-harvest storage and treatment facilities for Bamboo
- Establishment of marketing infrastructure

The activities under NBM are approved as per the Annual Action Plans received from the State Governments. The operational guidelines of NBM provide *inter alia* assistance for treatment, establishment of markets, incubation centres, value added product development and processing, development of tools & equipments, research & development, both in the Government and private sector which would include start ups also.

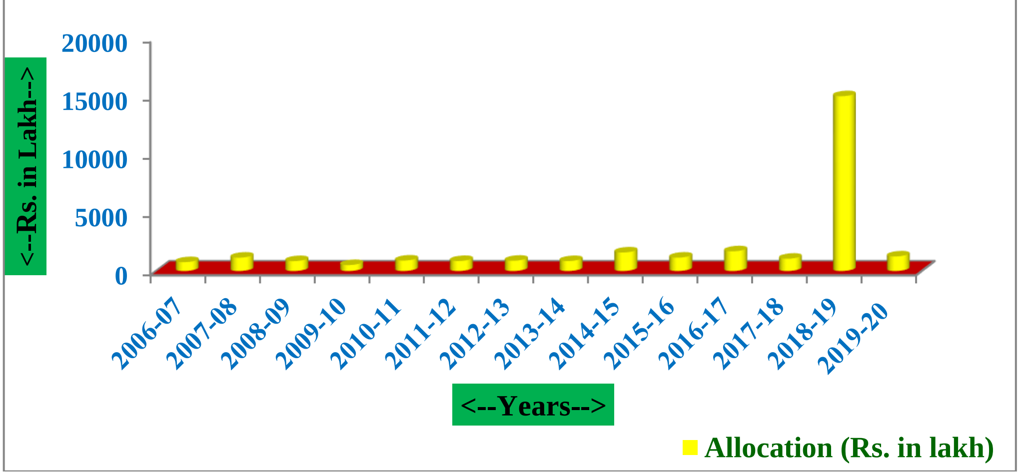
Table -2.2and Fig-2.1 depict the year wise details of financial assistance provided

Table -2.2 Fund Allocations under NBM Programme

Year	Allocation (Rs. in lakh)
2006-07	757.10
2007-08	1144.00
2008-09	846.60
2009-10	508.80
2010-11	896.60
2011-12	856.80
2012-13	878.80
2013-14	850.20
2014-15	1587.60
2015-16	1145.52
2016-17	1689.38
2017-18	1052.54
2018-19	15003.13
2019-20 (as on 30.06.19)	1248.76

Sources: 1.PIB, Government of India, Ministry of Agriculture & Farmers' Welfare
2. National Bamboo Mission, Government of India

Fig.2.1 Fund Allocation under NBM in India (Rs. in lakh)



since the inception of NBM (up to year 2017-18) &RNBM (from year 2018-19) Programme for development of bamboo and bamboo products in India.

Considering the need and demand from bamboo based stakeholders and to provide the bamboo products at a reasonable rate to the consumers, the Government has reduced GST on bamboo furniture & bamboo flooring to 12%. The Mission also envisages establishment of primary processing units close to the production area to reduce transportation costs and complete utilization of bamboo to move towards zero wastage so as to improve economies of entrepreneurs and lower costs to the consumers. For popularizing use of bamboo & bamboo based products, seminars, conferences, awareness campaign *etc* at national, state & district levels are regularly conducted under the restructured NBM programme.

The importance of bamboo to the NER has been widely recognized by the Government of India through numerous policies and programs, notably by the revived National Bamboo Mission (NBM) as well as by the presence of bamboo development agencies in some states. Special thrust has been given for the development of bamboo sector in North-East India, as it covers 34.53 per cent of the total bamboo bearing areas of the country (54,172 sq. km.). The Central Government through the NBM scheme is focusing on the development of the complete value chain of bamboo sector to link bamboo growers with consumers. For this purpose the Government of India releases fund under NBM and Restructured NBM scheme annually since the inception of the scheme. Table 2.3 shows the fund released to the North-Eastern Region in the financial year 2018-19 and 2019-20 under the RNBM scheme.

Table -2.3 Fund Released to the North-Eastern States under RNBM in 2018-19 and 2019-20

NE State	Released Amount (lakh Rs.)		% of increase/decrease
	2018-19	2019-20	
Assam	500	1,494.00	66.53
Arunachal Pradesh	1,127.43	1,355.00	16.79
Manipur	450.00	781.00	42.38
Mizoram	950.00	792.00	-19.95
Nagaland	623.83	796.00	21.63
Sikkim	344.45	780.00	55.84
Tripura	1,230.00	1,220.00	- 0.82
Total	**5,225.71**	**7,218.00**	**27.60**

Source: PIB, Govt. of India, Agriculture Cooperation and Farmers' Welfare

Table shows that the Government allocated 66.53 per cent more fund for the state of Assam in 2019-20 as happened to the previous year. The percentage increase was 55.84 in case of Sikkim, 42.38 in case of Manipur, 21.63 for Nagaland and 16.79 in case of Arunachal Pradesh during the same period. On the other hand it was slightly decreased in case of Mizoram (19.95 per cent) and Tripura (0.82 per cent).

2.4 Physical/Financial Target of NBM in Assam

The impact of NBM in Assam is now gradually emerging in various fronts including products, productivity, infrastructure development, per capita income commercialization *etc*. Recent advances in technology and its application in product and development have brought about a growing realization that bamboo can be a vehicle for value addition, incremental income and employment. It is a material that lends itself easily to simple processing technologies. At the same time it is capable of being used for high end and high value products and applications. Thus bamboo can revolutionize the economy of the state by generating employment opportunities and by improving the economic condition of a large chunk of population.

Considering the importance of bamboo sector in the economy of Assam, physical and financial targets were set on different components under NBM. The following Tables (2.4a, 2.4b, 2.4c, 2.4d and 2.4e) show the physical and financial targets on different components since the inception of the NBM scheme (2006-07 to 2018-19). It is seen from the Tables that financial target of Rs. 1,080.31 lakh was set in 2006-07, Rs.601.36 lakh in 2007-08, Rs.906.17 lakh in 2008-09, Rs.783 lakh in 2009-10; Rs.1,083.69 lakh in 2010-11, Rs.1,496.26 lakh in 2011-12, Rs.1,020.18 lakh in 2012-13, Rs.1,695.85 lakh in 2013-14 and Rs.1,139.775 lakh was fixed in 2014-15.

In 2006-07, highest physical target (720 lakh) was set for plantation of 2,880 hectares of forest area followed by improvement of existing stock (160 lakh) and plantation of non-forest area (80 lakh). In 2007-08, thrust was given on improvement of existing stock along with plantation of forest area of 2,200 hectares. In 2009-10, highest financial target was set to plant 2,950 hectares of forest area followed by maintenance of 1,757 hectares of forest area of previous year. In 2010-11 maximum fund was targeted to plantation of bamboo in forest area and improvement of existing stock. In 2011-12, Rs.500 lakh was allocated on plantation followed by maintenance of forest area of previous year and improvement of existing stock. In

Table-2.4 (a) Physical/Financial Targets of National Bamboo Mission in Assam from 2006-07 to 2009-10(Financial target Rs. in Lakh)

Sl No.	Components	2006-07		2007-08		2008-09		2009-10	
		Physical Target	Financial Target	Physical Target	Financial Target	Physical Target	Financial Target	Physical Target	Financial Target
1	Centralised Nurseries in Public Sector (Nos.)	16	43.68	4	10.92	2	5.46	-	-
2	Kisan Nurseries in Public Sector (Nos.)	10	0.65	-	-	-	-	-	-
3	Mahila Nurseries in Public Sector (Nos.)	10	0.65	-	-	-	-	-	-
4	Certification of Planting Material (Nos.)	-	5	-	-	-	-	-	-
5	Maintenance of Forest area for previous year (Ha.)					2200	275	1757	219.62
6	Plantation of Forest Area (Ha.)	2880	720	2200	275	1757	219.62	2950	368.75
7	Plantation of Non Forest Area (Ha.)	1000	80	1000	40	500	20	-	-
8	Plantation in Govt. Land (Ha.)	-	-	-	-	-	-	-	-
9	Improvement of existing Stock (Ha.)	2000	160	1580	126.4	1446	115.68	985	78.8
10	Training of Farmers within the State (Nos.)	200	3.04	1200	18.75	1080	16.41	98	1.48
11	Training of Farmers outside the State (Nos.)	100	2.5	400	10	600	15	50	1.25
12	Training of Field Functionaries (Nos.)	100	8	350	28	204	16.32	50	4
13	Demonstration of Technology (Nos.)	20	2	80	8	50	5	50	2.5
14	Workshop/Seminars at National Level (Nos.)	-	-	-	-	1	5	-	-
15	Workshop/Seminars at State Level (Nos.)	1	3	1	3	2	6	1	3
16	Workshop/Seminars at District Level (Nos.)	3	3	27	27	30	30	7	7
17	Pest and Disease Management (Ha.)	185	0.37	500	0.92	-	-	-	-
18	Micro Irrigation (Ha.)	-	-	-	-	-	-	-	-
19	Post Harvest Storage & Treatment Facilities (Nos.)	-	-	1	20	-	20	1	20
20	Participation in Domestic Trade Fairs (Nos.)	-	-	2	7.5	2	7.5	1	3.75
21	Innovative Intervention (Nos.)	-	-	-	-	-	43		
22	Coloured Brochure and Leaflets (Nos.)	-	-	-	-	-	7.49		
23	Publicity Campaign through newspapers/	-	-	-	-	-	9	-	-
24	Market survey	-	-	-	-	-	-	-	-
25	Bamboo Bazaars (Nos.)	-	-	-	-	2	18	1	9
26	Consultancy Services (Nos.)	-	15.9	-	8.88	-	13.39	-	11.57
27	Evaluation and Monitoring	-	-	-	9	-	18	-	3
28	Bamboo Wholesale & Retail Markets (Nos.)	-	-	1	5.33	1	5.33	1	5.33
29	Retail Outlets (Showroom)	-	-	-	-	1	13.33	-	-
30	Pending Liabilities	-	-	-	-	-	-	-	-
31	Baseline Data generation	-	-	-	-	-	-	-	-
	Total	-	**1047.79**	-	**601.36**	-	**906.17**	-	**739.05**

Source: Annual Action Plan, NBM, Ministry of Agriculture and Farmers' Welfare, Govt. of India.

Table-2.4 (b) Physical/Financial Targets of National Bamboo Mission in Assam from 2010-11 to 2013-14 (Financial target Rs. in Lakh)

Sl No.	Components	2010-11		2011-12		2012-13		2013-14	
		Physical Target	Financial Target	Physical Target	Financial Target	Physical Target	Financial Target	Physical Target	Financial Target
1	Centralised Nurseries in Public Sector (Nos.)	-	-	-	-	4	10.92	6	16.38
2	Kisan Nurseries in Public Sector (Nos.)	-	-	-	-	5	0.32	10	0.65
3	Mahila Nurseries in Public Sector (Nos.)	-	-	-	-	8	0.52	10	0.65
4	Certification of Planting Material (Nos.)	-	-	-	-	-	5	-	-
5	Maintenance of Forest area for previous year (Ha.)	300	37.5	2614	326.75	694	86.75	4840	605
6	Plantation of Forest Area (Ha.)	4119	514.87	4000	500	4840	605	3500	415
7	Plantation of Non Forest Area (Ha.)	1000	40	500	40	1500	80	1300	52
8	Plantation in Govt. Land (Ha.)	-	-	-	-	-	-	1000	80
9	Improvement of existing Stock (Ha.)	2350	188	4000	320	-	-	2500	200
10	Training of Farmers within the State (Nos.)	721	10.95	1500	22.8	500	7.6	400	6.08
11	Training of Farmers outside the State (Nos.)	512	12.8	600	15	200	5	200	5
12	Training of Field Functionaries (Nos.)	203	16.24	200	16	100	8	100	8
13	Demonstration of Technology (Nos.)	10	0.5	-	-	-	-	-	-
14	Workshop/Seminars at National Level (Nos.)	1	5	-	-	-	-	-	-
15	Workshop/Seminars at State Level (Nos.)	1	3	1	3	1	3	1	3
16	Workshop/Seminars at District Level (Nos.)	15	15	27	27	10	10	27	27
17	Pest and Disease Management (Ha.)	-	-	-	-	1000	2	-	-
18	Micro Irrigation (Ha.)	-	-	-	-	100	20	100	20
19	Post Harvest Storage & Treatment Facilities (Nos.)	1	20	1	20	1	20	1	20
20	Participation in Domestic Trade Fairs (Nos.)	1	3.75	2	7.5	2	7.5	2	7.5
21	Innovative Intervention (Nos.)	204	113	3	48.12	201	80.5	-	121
22	Coloured Brochure and Leaflets (Nos.)	-	4.5	-	10	-	3	-	
23	Publicity Campaign through newspapers/	-	4	-	9	-	5	-	13
24	Market survey	-	5	-	10	-	-	-	3
25	Bamboo Bazaars (Nos.)	4	36	4	36	2	18	2	18
26	Consultancy Services (Nos.)	-	16.02	-	22.11	-	15.08	-	25.33
27	Evaluation and Monitoring	-	2	-	15		3	-	5
28	Bamboo Wholesale & Retail Markets (Nos.)	4	21.23	4	21.32	2	10.66	2	10.66
29	Retail Outlets (Showroom)	1	13.33	2	26.66	1	13.33	1	13.33
30	Pending Liabilities	-	-	-	-	-	-		20.27
31	Baseline Data generation	-	1	-	-	-	-	-	-
	Total	-	**1083.69**	-	**1496.26**	-	**1020.18**	-	**1695.85**

Source: Annual Action Plan, NBM, Ministry of Agriculture and Farmers' Welfare, Govt. of India.

Table-2.4 (c)

Physical/Financial Targets of National Bamboo Mission in Assam in 2014-15

(Financial target Rs. in Lakh)

Sl. No.	Components	Physical Target	Financial Target
1	Hi-tech Nursery in Public Sector (Nos.)	1	40
2	Small Nursery in Public Sector (Nos.)	2	20
3	Re habilitation of existing TC units in Private Sector (Nos.)	1	21
4	Plantation of Forest Area (Ha.)	1500	315
5	Maintenance of Plantation up to 2013-14 in Forest Area (Ha.)	3000	375
6	Maintenance of Plantation up to 2013-14 in Non-Forest Govt. land (Ha.)	1000	80
7	Maintenance of Plantation up to 2013-14 in Non-Forest Area (Ha.)	300	12
8	Improvement of existing stock (Ha.)	1000	200
9	Training of Farmers within the State (Nos.)	500	5
10	Training of Field Functionaries (Nos.)	300	6.5
11	Workshop/Seminars at State Level (Nos.)	1	3
12	Participation in Domestic Trade Fairs (Nos.)	1	8
13	Mission Management and Administration Costs	-	54.275
	Total	-	**1139.775**

Source: Annual Action Plan, NBM, Ministry of Agriculture and Farmers' Welfare, Govt. of India.

2012-13 and 2013-14 also, the highest financial target was laid down on bamboo plantation, maintenance of forest area and improvement of existing stock. Sufficient amount was also targeted to spend on innovative intervention. In 2014-15, maximum amount was allocated for maintenance of plantation in non forest land, plantation in forest area and improvement of existing stock. An amount of Rs.54.27 lakh was also targeted to spend on mission management and administration costs. Rs.40 lakh was also proposed to spend on establishing hi-tech nurseries in public sector.

In 2015-16, major thrust was given on establishment of marketing infrastructure and Rs. 16 lakh was targeted to spend on participation in domestic trade fairs by the artisans and stakeholders. A sum of Rs.50 lakh was fixed to spend during the year on plantation and infrastructure development, technology transfer, HRD and innovative interventions.

During 2016-17 and 2017-18, no physical of financial target were set due to non submission of utilization certificate and annual action plan to the concerned Department.

In 2018-19,a target of Rs.4,925.08 lakh was fixed, of which, major portion was proposed to spend on tools, equipment and machinery, followed by product development and processing, propagation and cultivation, promotion of bamboo treatment and preservation, skill development and promotion and development infrastructure for bamboo market.

Table – 2.4 (d) Component wise Physical / financial targets of National Bamboo Mission in 2015-16

(Financial target Rs. in Lakh)

Sl.	Components	Unit	Estimated unit cost	Pattern of assistance (%)	Assistance sought from state (Rs. In lakh)	Quantity approved	Amount admissible(Rs. In lakh)			Remarks
							Total	Central share (100%)	State share (NIL)	
1	**PLANTATION INFRASTRUCTURE DEVELOPMENT**									
i	Bamboo Nursery demonstration cum production (0.5ha)	Nos.	10.00	100.00	5.00	1.00	5.00	5.00		
2	**Technology Transfer & HRD**									
i	Training of Farmers (3 days) for persons from each state	Nos.	0.01	100.00	1.80	60	0.60	0.60		one day for persons from each state
ii	National Level Seminar on Bamboo Products & Marketing (NER + Eastern India)	Nos.	5.00	100.00	5.00	1	5.00	5.00		
3	**INNOVATIVE INTERVENTIONS IN BAMBOO**									CBTC request to submit DPR on innovative intervention. Innovative project proposal to be approved by Empowered Monitoring Committee under chairmanship of Addl. Secretary
i	Development of low cost bamboo school furniture in collaboration with IIT, NID and other designers	PB			4.00					
ii	Development of low cost bamboo roofing material using polymer coatings with ICFRI, Dehradun, IIT(G) and CIPET etc	PB			6.00					
4	**ESTABLISHMENT OF MARKETING INFRASTRUCTURE**									
i	Participation in Domestic Trade Fairs	Nos.	8.00	100.00	16.00					
5	**IMPLEMENTATION MONITORING MECHANISM Bamboo Technical Support Group**									
Appointment of Experts										
i	Bamboo Consultant (Technical)				6.00	8 months	4.00	4.00		
ii	Travel to all the states for meeting and BLS @Rs. 31800/- per state				3.82	8	2.5440	2.5440		
	SUB TOTAL				47.62		17.14	17.14		
7	**Mission Management and Administration Cost**		5%		2.38		0.86	0.86		
	GRAND TOTAL				**50.00**		**18.00**	**18.00**		

Source: Annual Action Plan, NBM, Ministry of Agriculture and Farmers' Welfare, Govt. of India.

Table- 2.4 (e)

Physical/Financial Targets of National Bamboo Mission in Assam in 2018-19

(Financial target Rs. in Lakh)

Sl. No.	Components	Physical Target (No/Ha.)	Financial Target
1	Propagation and Cultivation (Ha.)	1223	735
2	Promotion of bamboo treatment and preservation (Nos.)	12	360
3	Product Development and Processing (Nos.)	65	1,183
4	Promotion and Development of Infrastructure for Bamboo Market (Nos.)	10	75
5	Development of tools, equipment & machinery (Nos.)	1310	2,353
6	Skill Development and Awareness Campaign (Nos.)	465	96.6
7	Project Management (Nos.)	-	122.48
	Total		**4,925.08**

Source: Annual Action Plan, NBM, Ministry of Agriculture and Farmers' Welfare, Govt. of India.

From the above analysis, it can be concluded that the Government of India has released sufficient amount of fund on various components for complete value chain development of bamboo sector under NBM since its inception. The new plantations raised under the NBM scheme is expected to increase the production and availability of bamboo resources accruing much benefit to the bamboo dependent community. The economic potential of bamboo sector in Assam still remains untapped despite having huge demand in domestic and international market. It is perceived that the emphasis of NBM has, by and large, been on propagation and cultivation of bamboo - with limited focus on processing, product development and value addition. This has caused weak linkages between the farmers and the industry. There is a need for an integrated effort for development of the bamboo industry in the country. It is hoped that the restructured NBM would focus on the development of a complete value chain thereby linking the growers with the final consumers. It is expected that with the adoption of appropriate technologies the bamboo industry in Assam can get a big boost in terms of production techniques and market linkages. With aggressive campaign and input - output support, the Mission can contribute handsomely for the betterment of the economic status of bamboo artisans in particular and the state economy in general.

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Chapter –III

Socio-Economic Characteristics of the Sample Artisan Households

This chapter deals with some important characteristics of the sample respondents in order to assess the socio- economic conditions of the artisans. The analysis covers a size of 160 samples artisans involved in making bamboo products in two sample districts of Assam. It is to be mentioned here that the sample respondents were classified into four income groups depending on their annual income obtained from producing and marketing of bamboo products as explained in the methodology.

Table-3.1 highlights the characteristics of sample respondents across the size groups in terms of percentages. Table shows that the highest percentage of respondents (32.50%) was found in Rs.1 -2 lakh groups followed by below Rs.1 lakh (28.12%), Rs. 3 lakh & above (24.38%) and Rs. 2-3 lakh group (15.00%).

Of the three primary needs of people, the dwelling house is one of them. It indicates the living standard of the people. Of the total sample respondents, in overall, 43.13 per cent were found to live in *Kutcha* house,38.74 per cent in *Semi-pucca* house and 18.13 per cent in *Pucca* houses. The *Kutcha houses* were found to be more common among the lower income groups.

Going by the overall marital status of the sample respondents, 69.53%, 27.28%, 2.77% and 0.42 % were found to be married, unmarried, widower and widow, respectively. There was no report of divorcees among the sample respondents.

Age is considered to be an important measuring stick of efficiency of a person for performing any kind of works. Maturity and responsibility of a person also have a close link with the age. Of the total sample respondents, in the age group less than 15 years, 12.56 per cent belonged to income group of Rs. below 1 lakh,17.43 percent belonged to income group of Rs. 1 -2 lakh, 16.36 percent belonged to income group of Rs. 2 -3 lakh and 15.51 per cent was found under income group of Rs. 3 lakh and above. A large majority of respondents belonged to the age groups of 15-40 years. Thus majority of the sample population can be considered as working group. In the sample area, it has been noticed that, majority of the respondent households of above 15 years of age were engaged themselves in bamboo products making activities. Children below 15 years of age also sometimes partially helped their elders in those activities.

Land is the main resource of farmers upon which a rural family survives. All the respondent artisans possessed own land in each group. In the sample survey, no record of tenant cultivators was found in both the groups.

Table- 3.1

Socio-Economic Profile of the Sample Artisan HHs

Income Group -->		below Rs.1 lakh	Rs.1 - 2 Lakh	Rs. 2-3 Lakh	Rs. 3 Lakh & above	Overall
No. of Respondents -->		45	52	24	39	160
Percentage -->		28.12	32.50	15.00	24.38	100.00
Type of the dwelling house in percentage	Kutcha	57.78	55.77	33.33	15.38	43.13
	Semi-pucca	31.11	30.77	37.50	58.97	38.75
	Pucca	11.11	13.46	29.17	25.64	18.13
Marital Status in	Married	70.53	71.56	75.45	62.57	69.53
	Un-married	26.57	24.31	20.91	35.29	27.29
	Widower	2.90	4.13	3.64	0.53	2.77
	Widow	0.00	0.00	0.00	1.60	0.42
	Divorcee	0.00	0.00	0.00	0.00	0
Age in percentage	Less than 15 years	12.56	17.43	16.36	15.51	15.37
	15 - 40 years	46.38	42.20	61.82	46.52	47.51
	40 - 60 years	22.36	25.42	13.25	24.58	21.24
	60 Years & above	18.70	14.95	8.57	13.39	15.88
Land Status of cultivator in percentage	Owned land	100.00	100.00	100.00	100.00	100
	Tenant	0.00	0.00	0.00	0.00	0.00
Subsidiary occupation in percentage	Yes	100.00	93.10	88.37	100.00	94.58
	No	0.00	6.90	11.63	0.00	5.42

Source: Primary Survey

Most of the respondent farmers had subsidiary occupations in each of the income groups. All respondents (100 per cent) in below 1 lakh and above 3 lakh income groups had subsidiary occupations. In overall, 94.58 per cent of the sample respondents had the subsidiary occupations apart from bamboo products marketing. The agricultural & allied activities such as poultry, fishery, piggery, broiler farm, etc and the other economic activities such as vegetable vendors, carpenters, wage labourers, petty shops, *etc.* were included as the subsidiary occupations of the respondents.

Table-3.2 shows the demographic and educational status of the respondent's families across different income groups. The highest percentage (56.88 per cent) of male population were found in income group of Rs.1-2 lakh followed by below 1 lakh group (52.66%), Rs. 3 lakh and above group (48.66%) and Rs. 2-3 lakh income group (46.36%) with an average of51.93 per cent. The highest female population of 53.64 per cent was found against Rs. 2-3 lakh income group and the lowest 43.12 per cent were found above against the income group of Rs.1-2 lakh with an overall average female population of 48.07 per cent.

Table - 3.2
Demographic and Educational Status of the Sample Artisan HHs

Income Group -->		Below Rs. 1 lakh	Rs.1-2 lakh	Rs. 2 -3 lakh	Rs. 3 lakh & above	Overall
No. of Respondents -- ->		45	52	24	39	160
Percentage -->		28.12	32.50	15.00	24.38	100.00
Family size	Male	109	124	51	91	375
	(%)	*52.66*	*56.88*	*46.36*	*48.66*	*51.93*
	Female	98	94	59	96	347
	(%)	47.34	43.12	53.64	51.34	48.07
	Total	207	218	110	187	722
	Avg. size	4.60	4.19	4.58	4.79	4.51
Proportion of population (%)	Below 15 years	12.56	17.43	16.36	15.51	15.37
	Male	52.05	50.38	48.96	42.86	50.49
	Female	47.95	49.62	51.04	57.14	49.51
	15 - 40 years	46.38	42.2	61.82	46.52	49.23
	Male	55.45	57.2	45.50	47.32	51.37
	Female	44.55	42.8	54.50	52.68	48.63
	40 - 60 years	22.36	25.42	13.25	24.58	21.40
	Male	49.56	52.32	51.28	53.8	51.74
	Female	50.44	47.68	48.72	46.2	48.26
	60 Years & above	18.7	14.95	8.57	13.39	13.90
	Male	54.2	52.62	49.85	51.20	51.97
	Female	45.8	47.38	50.15	48.8	48.03
Educational Status of the farm families in percentage	Illiterate	0.97	1.38	0.91	0.00	0.81
	Class I-V	11.11	11.93	19.09	17.11	14.81
	Class VI-VIII	26.09	33.03	39.09	35.83	33.51
	Class IX-X	28.50	19.72	16.36	17.11	20.43
	HSLC Passed	15.46	12.39	12.73	12.30	13.22
	HSSLC Passed	10.63	11.47	6.36	7.49	8.99
	Graduate	3.86	8.26	4.55	8.02	6.17
	Post Graduate	2.90	1.83	0.91	1.60	1.81
	Technical Education	0.48	0.00	0.00	0.53	0.26

Source : Field Survey

The highest average family size of 4.79 persons was found against Rs. 3 lakh and above income size group and the lowest (4.19 per cent) was found against Rs.1-2 lakh income group. The overall family size stood at 4.51comprising all the income groups. On an average, the family size was neither very big nor too small.

On an average, the population of children below 15 years stood at 15.37 per cent comprising 50.49 per cent male and 49.51 per cent female. In the age group 15-40 years, it was found 51.37 per cent male and 48.63 percent female. In the age group of

40 -60 years, the average male and female population was estimated at 51.74 per cent and48.26 per cent respectively. In case of age group 60 years & above, the proportion of male and female population was found at 51.97 per cent and 48.03 per cent.

The educational status of the farm families have been recorded and presented in the Table. The highest 1.38 per cent illiterate persons were found in Rs.1-2 lakh income group followed by below Rs. 1 lakh (0.97%) and Rs. 2-3 lakh (0.91%), income group with an overall average of 0.81 per cent. No illiterate respondent was found in Rs. 3 lakh and above income group. In the level of Class I-Vstandard, the highest no. of respondents (19.09 per cent) was recorded against the income group of Rs. 2-3 lakh followed by Rs.3 lakh and above (17.11%), Rs. 1-2 lakh (11.93%) and Rs. below 1 lakh (11.11%) income size group with an overall average of 14.81 per cent.

In Class VI-VIII the standard, the highest no. of sample respondents (39.09 per cent)were found against the income group of Rs.2-3 lakh and the lowest (26.09 %) against Rs. below 1 lakh income group, with an overall average of 33.51 per cent for the entire income size groups.

In the standard Class IX-X, the highest no. of respondents (28.50 per cent)were found against the income size group of below Rs. 1 lakh and lowest (16.36 per cent) against Rs.2-3 lakh income group, with an overall average of20.43 per cent consisting of all size of income groups.

In the HSLC passed standard, the maximum no. of sample respondents were observed against the income group of below Rs. 1 lakh followed by Rs.2-3 lakh income group, Rs. 1-2 lakh and Rs.3 lakh and above income group, with an overall average of 13.22 per cent for all the income size groups.

In the HSSLC passed standard, the highest no. of respondents were found (11.47 per cent) against the income size group of Rs.1-2 lakh followed by below Rs.1 lakh, Rs.3 lakh and above and Rs. 2-3 lakh income group of respondents. At overall level, nearly 8.99 per cent of the population had passed HSSLC examination.

At overall level, 6.17 per cent of the sample respondents were found to be graduate and the highest numbers of graduates were found in the income group of Rs. 1-2 lakh (8.26 per cent), closely followed by Rs. 3 lakh &above (8.02 per cent).

The highest percentage of post graduate (2.90 per cent) was found against the income group of below Rs.1 lakh followed by Rs. 2-3 lakh income group (1.83 per cent) with overall average of 1.81 per cent across all the income size groups. Only 0.26

per cent of the total population had technical education particularly in Rs. 3 lakh and above income group (0.53 per cent) and below Rs. 1 lakh income group (0.48 per cent) From the analysis, it is found that literacy rate of the sample population is by and large satisfactory as compared to literacy rate of the state (72.19 per cent).

Ownership of land assigns the status of the farmers in villages. But the quantum of land owned by the farmers has been decreasing with the passage of time due to division of farm families and selling of land to meet the economic crisis on account of social event or medical exigencies. As a result, numbers of marginal and small farm families are increasing in the villages. It needs urgent policy initiatives by the Government to check further divisions of land owned by the poor farmers.

Table-3.3 visualizes the land holding status of the sample artisan households across different income groups together with the area under irrigation. The total owned land holding was recorded at 65.94 hectares with an average size of holding of 0.41 hectare. Table shows that the maximum area of land was possessed by Rs.1-2 income group closely followed by below Rs.1 lakh, Rs.2-3 lakh and Rs. 3 lakh and above

Table - 3.3

Land holding Status of the Sample Artisan HHs

(Area in Ha.)

Income Group -->	Below Rs.1 lakh	Rs.1-2 Lakh	Rs.2 -3 Lakh	Rs. 3 Lakh & above	Overall
No. of Respondents-->	45	52	24	39	160
Percentage -->	28.12	32.50	15.00	24.38	100.00
Total Owned Land	21.58	21.60	13.26	9.50	65.94
Owned land per HH	0.48	0.42	0.55	0.24	0.41
Irrigated area (%)	0.00	0.00	0.00	0.00	0.00
Un-Irrigated area (%)	100.00	100.00	100.00	100.00	100.00
Area under leased in/ Mortgaged in	1.61	2.70	2.67	2.81	9.79
Irrigated area (%)	0.00	0.00	0.00	0.00	0.00
Un-Irrigated area (%)	100.00	100.00	100.00	100.00	100.00
Net Operated Area	**23.19**	**24.30**	**15.93**	**12.31**	**75.73**
Average Net Operated Area	0.52	0.47	0.66	0.32	0.47
Bamboo Area	5.25	10.26	4.40	5.68	25.59
Per HH Bamboo Area	0.12	0.2	0.18	1.5	0.16

Source: Field Survey

income group. The total leased in or mortgaged in land was found to be9.79 hectares. The highest leased in or mortgaged in area (2.81 hectares) was found amongst the highest income group (Rs. 3 lakh &above) and lowest (1.61 hectares) amongst the least income group (below Rs.1 lakh). It was found that most of the sample respondents grew bamboo in some of their high land area for their own use and few of them also sell bamboo to the co-villagers and local traders to meet their financial need. The Table shows that 25.59 hectares of bamboo area was possessed by the sample respondents and the highest area was occupied by the large income group (1.50 hectares/household) followed by Rs. 1-2 lakh income group (0.20 hectare), Rs.2-3 lakh group (0.18 hectare) and Rs. below 1 lakh group (0.12 hectare) with an overall average area of 0.16 hectare.

The total net operated area of the sample respondent households was recorded 75.73 hectares with an average net operated area of 0.47 hectare. However, no irrigation facility was observed in the study areas such, no farmers were using the irrigation water for crop cultivation.

The crop season of Assam is divided in to two main seasons- *kharif* from April to September and *rabi* from October to March. Different types of cropping patterns are followed in two different seasons.

Table- 3.4 depicts the cropping patterns of the sample households across the income groups for *kharif* and *rabi* season separately. The cropping patterns followed by of the sample farmers were mostly traditional in nature. But some varietal changes had taken place in recent years. The local varieties were replaced by HYV to a considerable extent. Cultivation of winter paddy after harvesting

Table – 3.4

Season wise Cropping Pattern of the Sample Artisan HHs

(Area in Ha.)

Income Group -->	Below Rs. 1 lakh	Rs.1-2 lakh	Rs. 2 -3 lakh	Rs. 3 lakh & above	Overall
No. of Respondents -->	45	52	24	39	160
Percentage-->	28.12	32.50	15.00	24.38	100.00
Kharif season*(April to September)*					
Paddy	20.50	22.36	14.50	10.25	67.61
Pulses	1.56	0.00	0.00	0.00	1.56
Vegetables	2.50	3.50	2.65	2.50	11.15
Rabi season *(October to March)*					
Paddy	5.00	3.00	3.00	3.25	14.25
Pulse	1.68	3.00	0.50	0.50	5.68
Vegetables	4.50	4.50	2.64	2.85	14.49
Oilseeds (Mustard)	1.96	3.00	1.65	1.25	7.86
Gross Cropped area	37.71	39.36	24.94	20.60	122.61
Net Cropped Area	23.19	24.30	15.93	12.31	75.73
Cropping Intensity	162.62	161.98	156.56	167.33	161.90

Source: Field Survey

of summer paddy and cultivation of *rabi* vegetables as a second crop after harvesting of summer/winter paddy had become popular among the sample farmers. The Table shows that the sample households grew paddy, pulses and vegetables in *kharif* season and in winter season, they grown winter paddy, *rabi* pulses and mustard. In *kharif* season, maximum area was occupied by *kharif* paddy followed by vegetables and pulses. In *rabi* season, highest area was covered by *rabi* vegetables followed by paddy, mustard and pulses. Of the total gross cropped area of 122.61 hectares, the highest area was occupied by the income group of Rs. 1-2 lakh closely followed by below Rs.1 lakh, Rs.2-3 lakh and Rs.3 lakh and above income group. The overall cropping intensity was recorded at 161.90 per cent It was highest enough the Rs. 3 lakh and above income group and lowest among Rs. 2-3 lakh income group.

The analysis reveals that although the sample respondents possessed small amount of cultivable land area, cropping intensity is quite satisfactory as compared to the state average of 145 per cent.

Table- 3.5 gives the percentage distribution of the area under different crops to the gross cropped area for the reference year under study. Table shows that of the total gross cropped area, 65.53 per cent was allocated to *kharif* season and the remaining 34.37 per cent was allocated to *rabi* season. Analysis indicates that the *kharif*

Table -3.5

Season wise Cropping Pattern of the Sample Artisan HHs (% to GCA)

Income Group -->	Below Rs. 1 lakh	Rs.1-2 lakh	Rs. 2 -3 lakh	Rs. 3 lakh & above	Overall
No. of Respondents >	45	52	24	39	160
Percentage -->	28.12	32.50	15.00	24.38	100.00
Kharif season*(April to September)*					
Paddy	54.37	56.81	58.14	49.76	55.16
Pulses	4.14	0.00	0.00	0.00	1.28
Vegetables	6.63	8.89	10.63	12.14	9.09
Rabi season *(October to March)*					
Paddy	13.26	7.62	12.03	15.78	11.64
Pulse	4.46	7.62	2.00	2.43	4.65
Vegetables	11.93	11.43	10.59	13.83	11.65
Oilseeds (Mustard)	5.21	7.62	6.62	6.07	6.43
Gross Cropped area	100.00	100.00	100.00	100.00	100.00

Source: Field Survey

paddy was the dominant crop in the *kharif* season followed by *rabi* vegetables in the *rabi* season. Among the sample households, the percentage area under *kharif* paddy varied between 49.76 and 58.14 per cent in different income groups with an overall average of 55.16 per cent. The percentage of area under *kharif* vegetables varied between 6.63 and 12.14 per cent in different income groups with an average of 9.09 per cent.

In *rabi* season, the area under paddy varied between 7.62 and 15.78 per cent with an overall average of 11.64 per cent. The area under pulses varied between 2.00 and 7.62 per cent with an average of 4.65 per cent of the gross cropped area. Area wise, vegetables of *rabi* season had more area than that of the *kharif* vegetables. As the state is situated in heavy rainfall zone, the damage of crops on account of heavy shower is a common phenomenon for which the area under the *kharif* vegetables had declined over the years. The percentage of area under oilseeds (mustard) varied between 5.21 and 7.62 per cent across different income size groups with an overall average of 6.43 per cent.

Table -3.6

Season wise Area, Production and Yield of Crops of the Sample Artisan HHs

(Area in Ha., Production in Qtls. & Yield in Qtls/Ha.)

Income Group -->		Below Rs. 1 lakh	Rs.1-2 lakh	Rs. 2 -3 lakh	Rs. 3 lakh & above	Total
No. of Respondents -->		45	52	24	39	160
Percentage -->		28.12	32.50	15.00	24.38	100.00
Kharif season(April to September)						
Paddy (HYV)	A	19.00	21.58	12.89	9.58	63.05
	P	627.38	739.12	438.90	322.37	2127.77
	Y	33.02	34.25	34.05	33.65	33.75
Paddy (Local)	A	1.50	0.78	1.61	0.67	4.56
	P	37.28	18.36	38.48	15.91	110.02
	Y	24.85	23.54	23.90	23.74	24.13
Total Paddy	A	20.50	22.36	14.50	10.25	67.61
	P	664.66	757.48	477.38	338.27	2237.79
	Y	32.42	33.88	32.92	33.00	33.10
Pulses	A	0.56	0.00	0.00	0.00	0.56
	P	3.64	0.00	0.00	0.00	3.64
	Y	6.50	0.00	0.00	0.00	6.50
Vegetables	A	4.50	3.25	2.74	1.25	11.74
	P	74.25	51.68	42.87	21.00	189.79
	Y	16.50	15.90	15.62	16.80	16.16
Rabi season (October to March)						
Paddy (HYV)	A	5.00	3.00	3.00	3.25	14.25
	P	176.00	107.57	103.80	114.60	501.96
	Y	35.20	35.86	34.60	35.26	35.23
Pulse	A	1.68	1.00	1.20	0.50	4.38
	P	9.93	6.01	7.50	3.45	26.88
	Y	5.90	6.01	6.25	6.89	6.13
Vegetables	A	0.65	6.25	4.45	1.50	12.85
	P	12.03	118.13	75.65	25.31	231.11
	Y	18.50	18.90	17.00	16.87	17.98
Oilseeds (Mustard)	A	1.96	1.00	2.50	0.56	6.02
	P	11.58	5.87	15.20	3.58	36.24
	Y	5.90	5.87	6.08	6.40	6.02

Source: Field Survey

Table- 3.6 gives area, production and productivity of different crops cultivated by the sample households across the income groups. In the study area, the farmers cultivated HYV and local paddy as well in *kharif* season. The area under local paddy was found to be decreasing on account of yield difference between HYV and local paddy.

Overall observations indicate that, of the total paddy area during *kharif* season, HYV and local paddy covered 92.68 and 7.32 per cent, respectively. As against this, during *rabi* season, only HYV paddy (summer paddy) was cultivated by the sample farmers. In the *kharif* season, the highest performance of HYV paddy with 34.25 quintal per hectare was recorded against the income group of Rs. 1-2 lakh and in case of local paddy the highest yield was found at 24.85 quintal against the income group of below Rs. 1 lakh. The average yield of HYV paddy stood at 33.75 quintal per hectare and that of local paddy was 24.13 quintal per hectare. Thus there was a yield gap of approximately 10 kg. per hectare between the HYV and local paddy.

In the *rabi* season paddy, the highest yield of 35.86 quintal per hectare was found against the income group of Rs. 1-2 lakh with an overall average of 35.23 quintal per hectare across the income groups.

In *kharif* vegetables, the highest yield rate of 16.80 quintal per hectare was found against the highest income group of Rs.3 lakh & above and lowest 15.62 quintal was found against the income group Rs. 2-3 lakh.

In *rabi* vegetables, the highest yield rate of 18.90 quintal per hectare was found against Rs.1-2 lakh income group and lowest 16.87 quintal was found in highest income group (Rs.3 lakh & above) with overall average of 17.98 quintal.

In the state, pulses are grown in both the seasons but *rabi* pulses are more popular among the farmers. During the field survey, only few lower income group (below Rs. 1 lakh) respondent households grew *kharif* pulses and they harvested 6.64 quintals by operating 0.56 hectare of area. In *rabi* season, pulses are grown by all the income groups of respondents in an area of 4.38 hectares and harvested 6.13 quintals per hectare. The sample respondents also grew mustard crop in 6.02 hectares of area with a total production of 36.24 quintals. Thus, the available data indicate only marginal differences in production and productivity between the two seasons.

Table- 3.7 visualizes the gross return in terms of value of the crops raised by the sample respondent households. Here prices of the crops referred to the price received by the farmers at their farm gate. Price of each crop was worked out on an average basis by considering the different prices of each crop in the different districts. No significant difference in prices of the crops was noticed during the collection of primary level data. In *kharif* paddy, the highest gross return of Rs.38,280.33 per hectare was recorded against the income group of Rs. 1-2 lakh with an average gross return of Rs.37,516.99 per hectare for all the income groups. In *rabi* paddy cultivation, highest per hectare gross return was found against the income group of Rs.1-2 lakh followed by Rs.3 lakh and above, below Rs.1 lakh and Rs.2-3 lakh income group with an overall average of Rs.42,200.37 per hectare.

Table -3.7

Season wise Gross Value of the Produces of the Sample Artisan HHs

Income Group -->		below Rs. 1 lakh	Rs.1-2 lakh	Rs. 2 -3 lakh	Rs. 3 lakh & above	Overall
No. of Respondents -- >		45	52	24	39	160
Percentage -- >		28.12	32.50	15.00	24.38	100.00
Kharif Season (April to September)						
Paddy	Area	20.50	22.36	14.50	10.25	67.61
	Production (Qtl.)	664.66	757.48	477.38	338.27	2,237.79
	Gross Return (Value in Rs.)	764,353.25	855,948.11	532,282.60	383,939.63	2,536,523.59
	Gross Return Per Ha. (Rs.)	37,285.52	38,280.33	36,709.15	37,457.52	37,516.99
Vegetables	Area	4.50	3.25	2.74	1.25	11.74
	Production (Value in Rs.)	564.30	409.66	357.58	160.38	1,491.92
	Gross Return (Rs.)	536,085.00	348,211.00	325,397.80	136,323.00	1,346,016.80
	Gross Return Per Ha. (Rs.)	119,130.00	107,141.85	118,571.78	109,058.40	114,610.12
Pulses	Area	0.56	0.00	0.00	0.00	0.56
	Production (Qtl.)	3.64	0.00	0.00	0.00	3.64
	Gross Return (Rs.)	12,740.00	0.00	0.00	0.00	12,740.00
	Gross Return Per Ha. (Rs.)	22,750.00	0.00	0.00	0.00	22,750.00
Rabi Season (October to March)						
Paddy	Area	5.00	3.00	3.00	3.25	14.25
	Production (Qtl.)	176.00	107.57	103.80	114.60	501.96
	Gross Return (Value in Rs.)	211,200.00	130,157.28	122,484.00	137,514.00	601,355.28
	Gross Return Per Ha. (Rs.)	42,240.00	43,385.76	40,828.00	42,312.00	42,200.37
Pulses	Area	1.68	1.00	1.20	0.50	4.38
	Production (Qtl.)	9.93	6.01	7.50	3.45	26.88
	Gross Return (Value in Rs.)	34,251.99	20,914.80	26,250.00	11,954.15	93,370.94
	Gross Return Per Ha. (Rs.)	20,355.00	20,914.80	21,875.00	23,908.30	21,304.28
Vegetables	Area	0.65	6.25	4.45	1.50	12.85
	Production (Qtl.)	84.84	803.13	558.34	189.12	1635.44
	Gross Return (Value in Rs.)	80,598.00	738,879.60	474,589.00	177,772.80	1,471,839.40
	Gross Return Per Ha. (Rs.)	123,996.92	118,220.74	106,649.21	118,515.20	114,540.03
Oilseeds (Mustard)	Area	1.96	1.00	2.50	0.56	6.02
	Production (Qtl.)	11.58	5.87	15.20	3.58	36.24
	Gross Return (Value in Rs.)	33,126.80	16,553.40	42,560.00	10,214.40	102,454.60
	Gross Return Per Ha. (Rs.)	16,874.00	16,553.40	17,024.00	18,240.00	17,010.03

Source: Field Survey

In *kharif* vegetables, the highest gross return of Rs.1,19,130.00 per hectare was found against the small income size group with an overall average of Rs.1,14,610.12

per hectare for the entire sample. In *rabi* vegetables, the highest gross return of Rs.1,23,996.92 per hectare was again found against the lowest income group with an overall average of Rs.1,14,540.03 per hectare for all the samples.

In pulses cultivation, during *rabi* season, maximum return was received by the highest income group followed by Rs. 2-3 lakh, Rs. 1-2 lakh and below Rs. 1 lakh income group. The average per hectare gross return from pulses was estimated at Rs. 21,304.28

In case of mustard cultivation, in *rabi* season, the highest per hectare gross return was received by the highest income group and lowest return was obtained by Rs.1-2 lakh income group. The overall average return from mustard was estimated at Rs.17,010.03 comprising all the income size of income groups.

From the above analysis, it is observed that all the sample respondents used to earn additional income by growing different crops, apart from making and marketing of bamboo products which provide economic support to their families.

Table- 3.8 gives the picture of annual gross income earned by the sample respondent households from agriculture and subsidiary occupations across the income size groups. It is to be mentioned here that agriculture income includes gross return earned by the sample respondents in *kharif* and *rabi* seasons. Subsidiary income includes wage labour, shops, vegetables vendor, petty trade & commerce *etc*. It is

Table-3.8
Annual Gross Income from Agriculture and Subsidiary Occupations of the Sample Artisans

Income Group -->	Below Rs. 1 lakh	Rs.1-2 lakh	Rs. 2 -3 lakh	Rs. 3 lakh & above	Overall
No. of Respondents	45	52	24	39	160
Percentage	28.12	32.50	15.00	24.38	100.00
Agriculture (in Rs.)	1,672,355.04	2,110,664.19	1,523,563.40	857,717.98	6,164,300.61
Gross Income Per HH (in Rs.)	37,163.45	40,589.70	63,481.81	21,992.77	38,526.88
% to total Income	31.14	33.26	49.00	26.56	34.14
Subsidiary (in Rs.)	3,698,500.00	4,235,009.00	1,585,691.00	2,372,040.00	11,891,240.00
Gross Income Per HH (in Rs.)	82,188.89	81,442.48	66,070.46	60,821.54	74,320.25
% to total Income	68.86	66.74	51.00	73.44	65.86
Total	5,370,855.04	6,345,673.19	3,109,254.40	3,229,757.98	18,055,540.61
Gross Income Per HH	119,352.33	122,032.18	129,552.27	82,814.31	112,847.13
% to total Income	100.00	100.00	100.00	100.00	100.00

Source : Field Survey

evident from the Table that out of the total income, the share of agriculture income was 31.14 per cent for income group of below Rs. 1 lakh, 33.26 per cent for income group of Rs. 1-2 lakh, 49.00per cent against the income group of Rs. 2-3 lakh and 26.56per cent against the income group of Rs. 3 lakh and above with overall average of 34.14 per cent. In case of subsidiary source of income, the highest percentage was earned by the large income group (73.44 %) and lowest income was obtained by the income group of Rs.2-3 lakh(51.00%).

From the analysis, it is observed that the sample respondents belonging to all the income groups were engaged in various income earning activities along with agriculture and production and marketing of bamboo items and earned considerable amount of income.

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Chapter - IV

Production and Marketing of Bamboo Products

In this chapter, an attempt has been made to study the production of different bamboo products, their cost and return and different marketing channels prevailing in the study area. This chapter is divided into two parts. Part-I deals with production and cost and return of different bamboo products produced by the sample artisans and Part-II deals with the prevailing marketing channels of bamboo products in the study area.

Part-I

4.1 Production of Different Bamboo Products by the Sample Artisans

In Assam, bamboo craft, carried out traditionally in almost every household in the rural areas, is playing an important role in the rural economy. Products ranging from household implements to construction of dwelling houses to weaving accessories to musical instruments are made from bamboo.

In the study area, the sample artisans produced different types of bamboo items, *viz*. household items, decorative items, musical items, fishing equipments, weaving equipments *etc*. However, it is to be mentioned here that some of the products are used for domestic purposes and the rest are marketed to meet the household expenditure. The sample artisans primarily depend upon traditional techniques of production and not much promotional measures are taken to attract the consumers on a continuous basis. As a matter of fact, complete commercialization of bamboo products is yet to take place in the study area.

Table- 4.1 shows the volume of production of different bamboo goods produced per annum by the sample artisans across the income groups. It is seen from the Table that the sample artisans of below Rs.1 lakh income group produced maximum number of *Dola* (4,520 nos.) followed by *fishing equipments* (3,956 nos.) and *kharahi* (3,550 nos.). The sample artisans of Rs.1-2 lakh income group produced 6,207 nos. of *Dhari*, 6,200 nos. of *Japi*, 5,639 nos. of *Dola*, 4,015 nos. of *chalani* and 3,960 nos. of *kharahi* along with considerable amount of fishing equipments, decorative items and other miscellaneous items. It is evident from the Table that the sample artisans of Rs. 2-

Table -4.1
Details of Different Bamboo Products Produced by the Sample Artisans across the Income Groups

(Units produced per annum)

Sl. No	Name of Bamboo Products	Below Rs. 1 lakh	Rs. 1-2 Lakh	Rs. 2-3 Lakh	Rs. 3 lakh & above	Total
1	*Pasi*	2,820	3,595	1,985	4,620	13,020
2	*Kharahi*	3,550	3,960	3,757	5,215	16,482
3	*Fishing Equipments*	3,956	2,603	2,580	4,558	13,697
5	*Japi*	3,952	6,200	2,250	3,456	15,858
6	*Sofa*	48	74	59	130	311
7	*Murha*	2,850	3,068	3,430	6,325	15,673
8	*Dola*	4,520	5,639	1,881	4,526	16,566
9	*Chalani*	3,025	4,015	2,682	5,324	15,046
10	*Dhari*	3,350	6,207	3,638	7,689	20,884
11	*Decorative Items*	3,215	3,540	3,134	3,565	13,454
12	*Other Misc. e.g Bahi, Gogona ,Hanger etc.*	2,055	2,348	265	2,389	7,057

3 lakh income group produced highest number of *Kharahi* (3,757nos.), followed by *Dhari* (3,638 nos.), *Murha* (3,430 nos.) and other *decorative items*.(3,134 nos.). The income group of Rs.3 lakh & above group produced 7,689 nos. of *Dhari*, 6,325 nos. of *Murha*, 5,324 nos. of *Chalani*, 5,215 nos. of *Kharahi*, 4,620 nos. of *Pasi*, 4,558 nos. of *fishing equipments*, 3,565 nos. of *decorative items*, 3,456 nos. of *Japi* along with 130 numbers of *Sofa* set, 4,526 numbers of *Dola* and 2,389 numbers of other miscellaneous items. Combining the entire income group, it was found that the sample artisans produced maximum units of *Dhari* (20,884 nos.), followed by *Dola* (16,566 nos.), *Kharahi*(16,482 nos.), *Japi*(15,858nos.), *Murha* (15,673 nos.), *Chalani*(15,046nos.), *Fishing Equipments*(13,697nos.), *Decorative items* (13,454 nos.), *Pasi*(13,020 nos.),other *miscellaneous* items(7,057nos.) and *Sofa Set* (311 nos.) during the reference period.

4.2 Tools and Equipment Used in Producing Different Bamboo Products

In this section, an attempt has been made to estimate the volume of tools and equipment and raw materials used in production of different bamboo items and total material cost incurred by the sample artisans based on primary level data collected from the sample households and are presented in Table - 4.2. Table shows that total cost incurred by the sample artisans of below Rs. 1 lakh income group was Rs.11,75,185, for 1-2 lakh income group was Rs.15,50,633, in 2-3 lakh income group,

Table- 4.2
Tools and Equipments used in Producing Different Bamboo Products by the Sample Artisans Across the Income Groups

(Cost in Rs.)

No. of Respondents ---->		45			52			24			39			160		
Income Group ---->		below Rs. 1 lakh			Rs. 1-2 lakh			Rs. 2-3 lakh			Rs. 3 lakh and above			Total		
Items	Unit	Qty.	Total Cost	Cost Per HH	Qty.	Total Cost	Cost Per HH	Qty.	Total Cost	Cost Per HH	Qty.	Total Cost	Cost Per HH	Qty.	Total Cost	Cost Per HH
Raw Bamboo	Nos.	5,400	5,40,000	12,000	6,968	6,97,828	13,420	5,360	5,36,000	22,333	9,300	9,29,925	23,844	27028	2703753	16898
Dhau (Big Knife)	Nos.	125	45000	1000	155	55800	1073	89	32530	1355	175	63000	1615	544	196330	1227
knives	Nos.	178	21360	475	212	25440	489	148	17760	740	272	32640	837	810	97200	608
Hacksaw	Nos.	89	31595	702	112	39760	765	72	25560	1065	158	56090	1438	431	153005	956
Drilling Machine	Nos.	85	55250	1228	105	68250	1313	56	36400	1517	130	84500	2167	376	244400	1528
Hammer	Nos.	150	16500	367	235	25850	497	138	15180	633	274	30140	773	797	87670	548
Bending Tool	Nos.	85	42500	944	118	59000	1135	65	32500	1354	125	62500	1603	393	196500	1228
Hand saw	Nos.	115	44100	980	145	65250	1255	78	35100	1463	162	72900	1869	500	217350	1358
Splitting Machine	Nos.	21	69300	1540	32	105600	2031	21	69300	2888	36	118387	3036	110	362587	2266
Nail	Kg.	200	16000	356	254	20320	391	126	10080	420	200	16000	410	780	62400	390
Measuring Tap	Nos.	68	19040	423	98	27440	528	53	14840	618	95	26600	682	314	87920	550
Folding Scale	Nos.	98	29400	653	135	40500	779	65	19500	813	115	34500	885	413	123900	774
Cane	Bundle	120	31800	707	150	39750	764	82	21730	905	140	37100	951	492	130380	815
Screw Driver	Nos.	145	13050	290	184	16560	318	142	12780	533	220	19800	508	691	62190	389
Puncture	Nos.	100	39000	867	114	44460	855	68	26520	1105	115	44850	1150	397	154830	968
Hand Drill	Nos.	74	23680	526	105	33600	646	58	18560	773	95	30400	779	332	106240	664
Varnish and Oil	Ltr.	15	8250	183	20	11000	212	15	8250	344	32	17600	451	82	45100	282
Sand paper	Nos.	185	2775	62	300	4500	87	150	2250	94	250	3750	96	885	13275	83
Plainer	Nos.	90	107710	2394	98	147000	2827	48	72000	3000	85	127500	3269	321	454210	2839
Paint Brush	Nos.	105	9975	222	115	10925	210	56	5320	222	105	9975	256	381	36195	226
Wax Polish	Ltr.	10	6500	144	12	7800	150	8	5200	217	15	9750	250	45	29250	183
Insecticides (Boric and Borax Powder)	Kg.	6	2400	53	10	4000	77	6	2400	100	16	6400	164	38	15200	95
Total Material Cost			**1175185**	**26115**		**1550633**	**29820**		**1019760**	**42490**		**1834307**	**47034**		**5579885**	**34874**

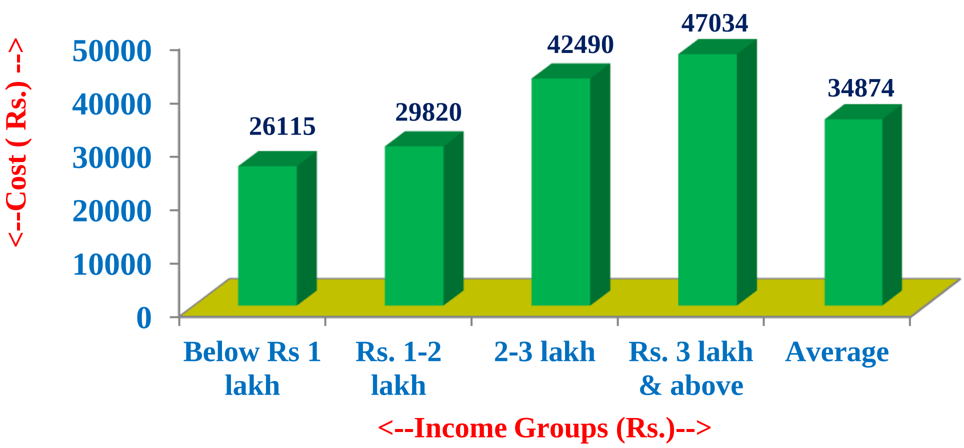
Source: Primary Data

it was Rs.10,49,760 and income group of Rs.3 lakh and above the expenditure incurred was estimated at Rs.18,34,307. Combining all the income groups, the total material cost was found to be Rs. 55,79,885. The per household expenditure was found to be highest in the income group of Rs.3 lakh & above (Rs. 47,034) , followed by Rs. 2-3 lakh income group (Rs.42,490), Rs. 1-2 lakh income group (Rs.29,820) and below Rs. 1 lakh income group (Rs.26,115) withoverallaverageofRs.34,874.

It is evident from the Table that the expenditure was higher in upper income as compared to lower income group which may be due to the economics of scale.

Fig.4 (i) shows the average material cost of the sample artisan households in producing different bamboo products according to income groups.

Fig.4(i) Average Material Cost incurred by the Sample Artisans Across the Income Groups



4.3 Cost and Return from Different Bamboo Products

The basic inputs used for making bamboo products include raw bamboo, cane, tools and implements, insecticides, oil, varnish and labour *etc*. The cost of production of different bamboo items borne by the sample artisan households is considered to be the most important factor towards determining the economic feasibility of the bamboo product industry. In other words, various inputs used by the artisans in production of different bamboo items are of great importance in product business. Capital investment is yet another major factor in determining the production costs which plays a crucial role in production and productivity of different items. It is to be mentioned here that, although all the adult family members were by and large involved in bamboo products making activities, yet, some of the artisan’s household hired wage labour on daily basis. The wage rate varied from place to place and person to person depending on their efficiency and length of working hours. In the study area, wage rate was varied between Rs. 250- Rs.400 per day.

The items of cost covered both paid out cost and imputed costs. Paid out costs are hired human labour, expenses on material inputs and other miscellaneous expenses. The imputed costs include inputs like raw bamboo grown in own land and family labour. The imputed value of family labour was worked out on the basis of statutory wage rate in the study area, tools and implements were valued at the rates prevailing in the study area.

Table - 4.3 presents the cost and return from different bamboo products produced by the sample artisans across the income groups. Table shows that per household cost incurred by the sample artisans of below Rs. 1 lakh income group was Rs.73,597, for income group Rs. 1-2 lakh was found Rs.83,496, for Rs. 2-3 lakh income group, it was estimated at Rs.1,51,796 and for Rs. 3 lakh & above income group, it was recorded at Rs.1,56,834. The overall average cost was found at Rs.1,08,833. The per household average cost was found higher in upper income group and lowest in least income group. It is evident from the Table that, in all the income group, labour cost was higher followed by material cost and depreciation cost. Table also reflects the gross return by the sample artisans from producing different bamboo items. Per household gross return was found highest against the income group of Rs. 3 lakh & above (Rs.3,05,419) followed by Rs. 2-3 lakh (Rs. 2,29,509) Rs.1-2 lakh (Rs. 1,20,913) and income group of below Rs. 1 lakh (Rs. 97,053).

It is apparent from the Table that the cost and return are high in case of higher income group as the sample artisans of higher income group produced more items than the lower income groups and the artisans in the higher income groups could invest more on modern farm inputs and thus they earned more return than the lower income groups.

It was also tried to estimate the BCR to find out the profitability of different bamboo products by the sample households. The BCR were found to be positive in all the income size groups. The BCR were worked out at 1.32:1 for below Rs.1 lakh income group, 1.45:1 for 1-2 lakh income group, 1.51:1 for 2-3 lakh income group and 1.95:1 for 3 lakh and above income group. The overall BCR was estimated at 1.61:1. The analysis of BCR clearly indicates that relative profitability of bamboo products is higher in case higher income group.

Table – 4.3

Cost and Return from Production of Different Bamboo Products Produced by the Sample Artisans Across the Income Groups

(Value in Rs.)

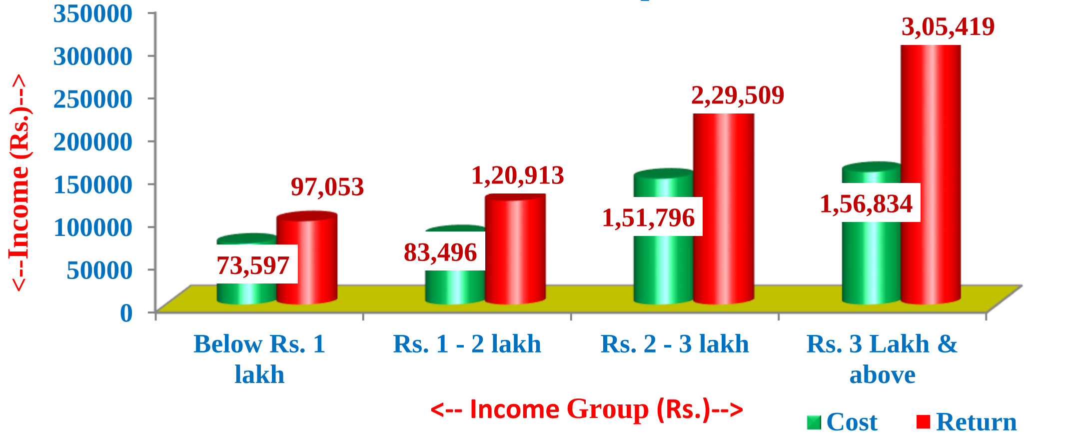
Income Group -->	Below Rs. 1 lakh	Per HH	Rs. 1-2 lakh	Per HH	Rs. 2-3 lakh	Per HH	Rs. 3 lakh and above	Per HH	Total	Per HH
No. of Respondents -->	45		52		24		39		160	
Items:										
Total Material Cost	11,75,185	26,115	15,50,633	29,820	10,19,760	42,490	18,34,307	47,034	55,79,885	34,874
Family Labour :										
Days	6,528	145	7,163	138	6,042	252	5,968	153	25,701	161
Value	15,66,720	34,816	19,48,336	37,468	17,52,180	73,008	22,67,840	58,150	75,35,076	47,094
Hired Labour:										
Days	1,152	26	1,791	34	1,908	80	3,986	102	8,837	55
Value	3,53,280	7,851	5,58,784	10,746	6,32,820	26,368	16,14,220	41,390	31,59,104	19,744
Interest on Working Capital	61,904	1,376	81,155	1,561	68,095	2,837	1,14,327	2,931	3,25,481	2,034
Depreciation Cost	1,23,807	2,751	1,62,310	3,121	1,36,190	5,675	2,28,655	5,863	6,50,963	4,069
Management Cost	30,952	688	40,578	780	34,048	1,419	57,164	1,466	1,62,741	1,017
Grand Total Cost	**33,11,848**	**73,597**	**43,41,796**	**83,496**	**36,43,093**	**1,51,796**	**61,16,513**	**1,56,834**	**174,13,250**	**1,08,833**
Gross Return	**43,67,400**	**97,053**	**62,87,500**	**1,20,913**	**55,08,227**	**2,29,509**	**119,11,340**	**3,05,419**	**280,74,467**	**1,75,465**
BCR	**1.32**		**1.45**		**1.51**		**1.95**		**1.61**	

Source: Primary Data

Fig. 4 (ii) shows the graphical representation of the average total cost and average gross return andFig.4 (iii) shows the BCR of bamboo products according to income group.

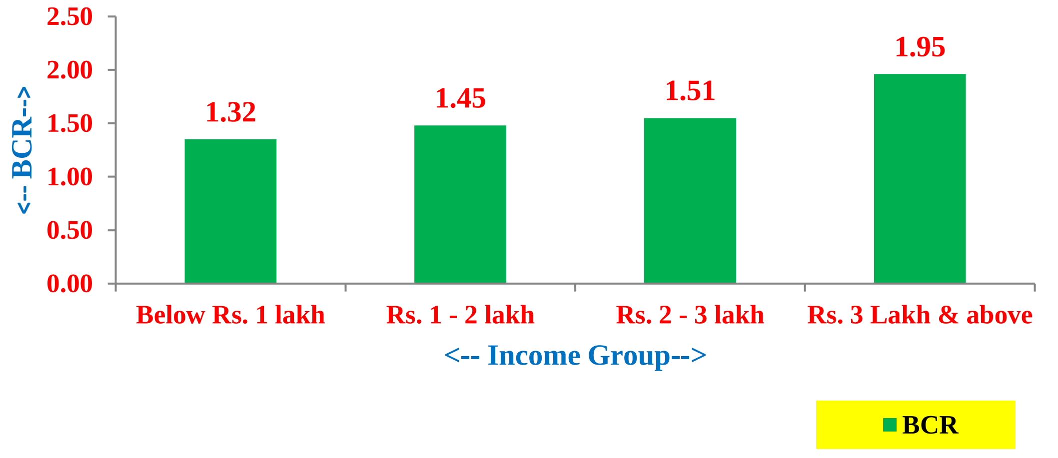
The analysis of BCR clearly indicates that making bamboo products and marketing thereof can be a profitable venture for the people with a knack for it. Considering the growing demand for handicraft, application of new techniques coupled

Fig. 4.(ii) Average Total Cost and Gross Return from Different Bamboo Products by the Sample Artisans according to Income Group



with adequate marketing network can give rise to a new breed of entrepreneurs in production of bamboos and bamboo products. Till now, this sector is functioning in an unorganized manner for which the people involved are facing the problems like

Fig.4.(iii) Estimated BCR of Bamboo Products by the Sample Artisans Across the Income Groups



high price of raw materials, high wage rate, rise of intermediari*es*. Which have deprived the artisans of actual economic benefits. However, its contribution towards livelihood generation cannot be overlooked. It is a household industry where the household member of any sex and age group can get involved in the process of production. The bamboo sector can be one of the highest income earning segments next to agriculture, if the potential attached to it can be harnessed to the fullest extent.

Part –II

4.4 Market Structure

Market structure outlines the operation of the market. The elements of market structure include the number and size of distribution of firms, entry conditions and the extent of differentiation. The bamboo products are produced by a number of small and big artisans scattered in a wide area comprising cluster of villages. Due to lack of daily/ weekly market, it may not be possible for the individual artisan to sell his produce directly to the consumer owing to low volume of sale to undertake direct marketing at distant markets. Moreover, the rural artisans usually do not have their own means of transport. They had to depend primarily on the village traders and other commission agents in the market. The bamboo artisans usually sell their produce to the market middleman like commission agents or village traders, these are then taken to wholesalers, retailers and consumers.

4.5 Market analysis

A market analysis is a qualitative and quantitative evaluation of external market and internal resources. The success or failure of a particular enterprise, to a great extent depends on marketing of its finished products. Without a sound and secured market, no industry can thrive for longer. A good market always plays a pivotal role in the economy. There is traditional demand for bamboo and its product in domestic as well as global market. With the surge for wood alternative, demand for bamboo products have increased manifold in recent time.

4.6 Marketing Channels of Bamboo Products

The marketing channel is defined as the path of transferring the final produce from the point of production to the point of consumption. Marketing agencies carry out the marketing functions or services through various channels.

Efficient marketing network is essential for the produces to dispose of their produces at reasonable prices. Efficient marketing is equally important for the end users too as they want to get the required product of good quality at a reasonable price at proper time.

The market study reveals that the marketing channels of bamboo products displayed wide variations from area to area, the reason being that the producers could not sell their products to the consumers directly as sell centres are usually located at far off places. The marketing functions depend upon the product characteristics, availability of secondary support services and the location of markets. In marketing function we need the activities of buying, selling, transportation, storage, standardization and grading, finally, risk bearing and dissemination of market information. It was observed that most of the rural markets are poorly equipped in respect of roads, transport and communication. The marketing of bamboo products are mostly in the hands of private traders who act as commission agents, middleman, wholesalers, retailers *etc*. for channelizing the marketing to take the produce to the final users. The general pattern of marketing of bamboo items indicated the dominance of middleman or commission agents.

In few cases, the producers undertook direct marketing in local weekly or bi-weekly markets. Direct marketing has been done mostly by the small growers. Some artisans also disposed off their produce directly to the retailers. But the major part of the bamboo products were handled by the village traders and commission agents who transshipped their assembled produces to the wholesalers. Thus in the study, area the producers disposed off their produce through a number of marketing channels.

The common and popular marketing channels prevailed in the study area are -

1. Producer – Retailer – Consumer
2. Producer – Wholesaler - Retailer – Consumer
3. Producer -Commission Agent/Middleman – Wholesaler –Retailer – Consumer

4.7 Price Spread

The price spread refers to the difference between the price received by the producers and the price paid by the final user. It was observed that there were wide variations of price received by the producers and the price paid by the final user. This is due to the wide margin enjoyed by the market intermediaries and the costs involved in assembling the produce from the producers scattered over a wide area. The secondary services like grading, handling, transportation, labour charges and market charge *etc*. are also substantial. The various cost involved in different levels of marketing process and commission of traders inflated the end user's price. Thus, a major part of consumer's rupee is enjoyed by different level of market functionaries, over and above the part involved in the form of various services and marketing costs. For estimation of the price spread, the average price and all the expenditure of the markets were collected from the sample districts.

The study of marketing costs and marketing margins is useful to the producer, consumer and the Government as well. It can facilitate formulation of appropriate price policy that aims at to provide incentive prices to the producers, assuring them a legitimate share in the consumer's rupee and to protect the consumer at the same time against usual high prices. Price spread analysis not only shows the cost and margins at different levels of marketing by different agencies but also represents a clear picture of the entire system of marketing. It gives some idea about the efficiency of the marketing system and thereby helps to judge whether the services of intermediary agencies are forthcoming at a reasonable cost. Marketing margin data is also helpful in the development and evaluation of market policies like regulation of market charges of different functionaries. Study of marketing margin also helps to compare the relative efficiency of different marketing channels and to judge the efficiency with which the individual functionaries perform marketing functions.

In the present study, an attempt has been made to find out the actual share of the producers and those of the intermediaries in the distribution system of different bamboo products.

To work out the price spread of bamboo products, the average price of total bamboo products produced in the sample households were taken in to account. However, the analysis is confined to five different items only whose turn over are higher as compared to the other products.

In the present study, two markets located in two sample districts *viz.* Jorhat and Sivasagar were surveyed to access the working of marketing channels of bamboo products.

Few of the sample artisans used to sell out their produces to the customers directly from their home or in the market. In such cases, the issue of price spread was not concerned here. The price spread of different finished bamboo products under three other channels as evident in the study area are discussed separately in the following paragraph.

Price spread of bamboo *Sofa* Set

Channel - I : Producer – Retailer – Consumer

In this channel, producers sale their product to the retailers and retailers sale those products to the customers through their retail shops. Table-4.4 (a) and Table-4.4 (b) reflect the price spread of bamboo sofa set in Jorhat and Sivasagar

Table-4.4 (a)
Price-spread of bamboo *Sofa* Set in Jorhat Market
(Channel-1: Producer-Retailer-Consumer)

Sl.No	Items of costs and Market Functionaries	Price per Unit	Margin at different levels	% Share
1	**Net Price to the producers**	**22500**	**22500**	**67.16**
2	**Producer's Marketing Cost**	**2,530**	**2,530**	**7.55**
	Labour Charges (loading & unloading)	700	700	2.09
	Transportation Cost	1,300	1,300	3.88
	Market Cess	180	180	0.54
	Other marketing expenses	350	350	1.04
3	**Producer's Selling Price *i.e* Retailer's Purchase Price**	**25030**	**0**	**0**
4	**Retailer's Marketing Cost**	**1,730**	**1,730**	**5.16**
	Storage Charge	580	580	1.73
	Labour Charge(Handling & Stacking)	600	600	1.79
	Market Cess	200	200	0.60
	Other marketing expenses	350	350	1.04
5	**Retailer's Price *i.e.* Consumer's Purchase Price**	**33,500**	**6740**	**20.12**
Total			**33,500**	**100.00**

market in channel-I. Tables indicate that the share of consumer rupee for the producer was higher in Sivasagar market (68.44 per cent) as compared to Jorhat market with 67.16 per cent. Retailer's share of consumer rupee was 20.12 per cent in Jorhat market and 19.41 in Sivasagar market. The producer's marketing cost and retailer's marketing cost were higher in Jorhat market than those of Sivasagar market. Fig. 4(iv) and Fig. 4(v) present price spread in respective markets for channel –I.

Table- 4.4 (b)
Price-spread of bamboo *Sofa* Set in Sivasagar Market
(Channel-1: Producer-Retailer-Consumer)

Sl.No	Items of costs and Market Functionaries	Price per Unit	Margin at different levels	% Share
1	**Net Price to the Producers**	**23,636**	**23,636**	**68.44**
2	**Producer's Marketing Cost**	**2,507**	**2,507**	**7.26**
	Labour Charges (loading & unloading)	690	690	2.00
	Transportation Cost	1,300	1,300	3.76
	Market Cess	172	172	0.50
	Other marketing expenses	345	345	1.00
3	**Producer's Selling Price *i.e* Retailer's Purchase Price**	**26,143**	**0**	**0**
4	**Retailer's Marketing Cost**	**1,690**	**1,690**	**4.89**
	Storage Charge	560	560	1.62
	Labour Charge(Handling and Stacking)	570	570	1.65
	Market Cess	210	210	0.61
	Other marketing expenses	350	350	1.01
5	**Retailer's Price *i.e.* Consumer's Purchase Price**	**34,536**	**6,703**	**19.41**
Total			**34,536**	**100.00**

Fig. 4 (iv) : Price-spread of bamboo *Sofa* Set in Jorhat Market
(Channel-I : Producer- Retailer-Consumer)

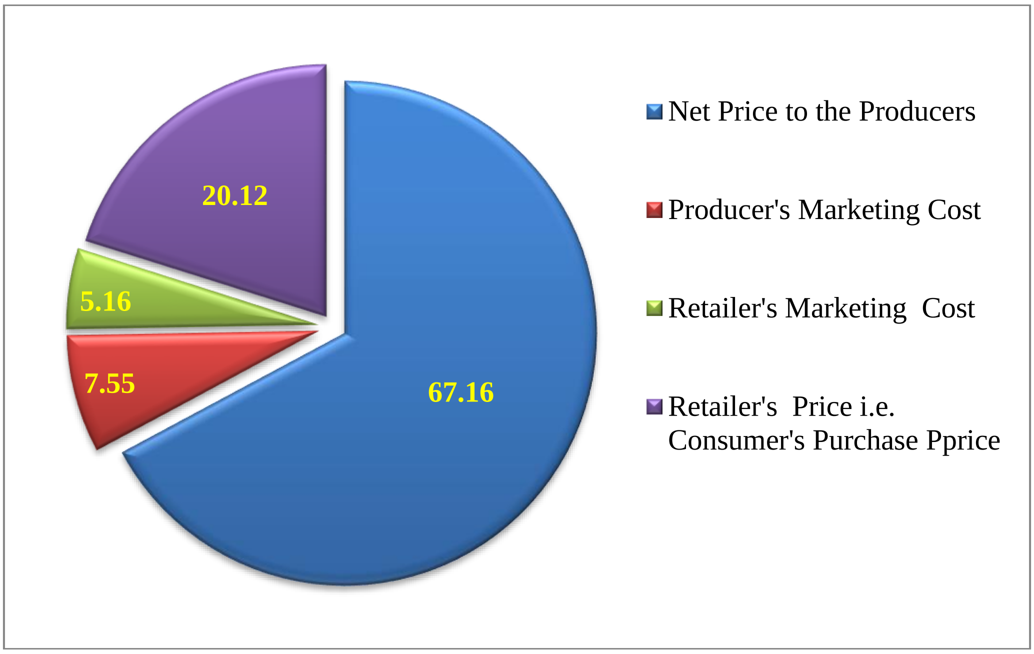
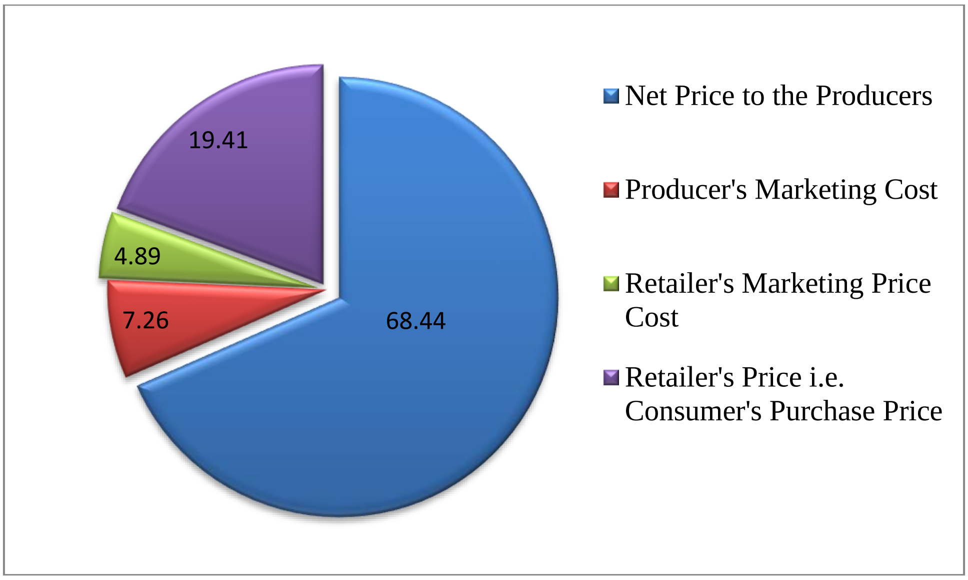


Fig. 4 (v) : Price - spread of bamboo *Sofa* Set in Sivasagar Market
(Channel-I : Producer- Retailer-Consumer)



Channel – II: Producer-Wholesaler-Retailer-Consumer

In this channel, wholesalers are playing the major role. Among all the marketing channels, this one was the most prominent channel operating in bamboo products trading. The wholesalers are the persons who are responsible for dwindling producer's share and inflating the prices of finished products in the market. They generally used to book the finished products in bulk by paying advance to the artisan households. Sometimes they used to place orders for specific items with specific designs and buy the finished products in lot. The retailers purchase the items and sell them to the customers through their retail outlets. Following Tables 4.4, (c) and 4.4(d) show the price spread of bamboo *Sofa set* in channel-II in Jorhat and Sivasagar market, respectively.

Tables reflect that producer's share in consumer rupee is 58.21 per cent in Jorhat market and 58.49 per cent in Sivasagar market. Wholesalers got 10.98 per cent and retailers got 18.43 per cent in Jorhat market while percentage share of wholesalers and retailers in Sivasagar market were found at 11.74 per cent and 18.04 per cent respectively. Fig. 4(vi) and 4(vii) graphically show the price spread of bamboo sofa set in Jorhat and Sivasagar market under channel-II.

Table -4.4 (c)

Price-spread of bamboo *Sofa* Set in Jorhat Market

(Channel-II: Producer-Wholesaler-Retailer-Consumer)

Sl.No	Items of costs and Market Functionaries	Price per Unit	Margin at different levels	% Share
1	**Net Price to the producer (Wholesaler's Purchase Price)**	**19,500**	**19,500**	**58.21**
2	**Wholesaler's Marketing Cost**	**2,507**	**2,507**	**7.48**
	Labour Charges (loading & unloading)	690	690	2.06
	Transportation Cost	1300	1300	3.88
	Market Cess	172	172	0.51
	Other marketing expenses	345	345	1.03
3	**Wholesaler's Selling Price *i.e.* Retailer's Purchase Price**	**23,228**	**3,678**	**10.98**
4	**Retailer's Marketing Cost**	**1640**	**1640**	**4.90**
	Labour Charge(Handling, Grading, Stacking)	650	650	1.94
	Market Cess	180	180	0.54
	Storage Cost	520	520	1.55
	Other marketing expenses	290	290	0.87
5	**Retailer’s Price *i.e.* Consumer's Purchase Price**	**33,500**	**6,175**	**18.43**
Total			**33,500**	**100.00**

Table -4.4 (d)

Price-spread of bamboo *Sofa* Set in Sivasagar Market

(Channel-II: Producer-Wholesaler-Retailer-Consumer)

Sl.No	Items of costs and Market Functionaries	Price per Unit	Margin at different levels	% Share
1	**Net Price to the producer (Wholesaler's Purchase Price)**	**20,200**	**20,200**	**58.49**
2	**Wholesaler's Marketing Cost**	**2,410**	**2,410**	**6.98**
	Labour Charges (loading & unloading)	680	680	1.97
	Transportation Cost	1,250	1,250	3.62
	Market Cess	160	160	0.46
	Other marketing expenses	320	320	0.93
3	**Wholesaler's Selling Price i.e. Retailer's Purchase Price**	**23,228**	**4,055**	**11.74**
4	**Retailer's Marketing Cost**	**1,640**	**1,640**	**4.75**
	Labour Charge (Handling, Grading, Stacking)	600	600	1.74
	Market Cess	200	200	0.58
	Storage Cost	560	560	1.62
	Other marketing expenses	280	280	0.81
5	**Retailer’s Price *i.e.* Consumer's Purchase Price**	**34,536**	**6,231**	**18.04**
Total			**34,536**	**100.00**

Fig.4.(vi) Price-spread of bamboo *Sofa* Set in Jorhat Market
(Channel-II: Producer-Wholesaler-Retailer-Consumer)

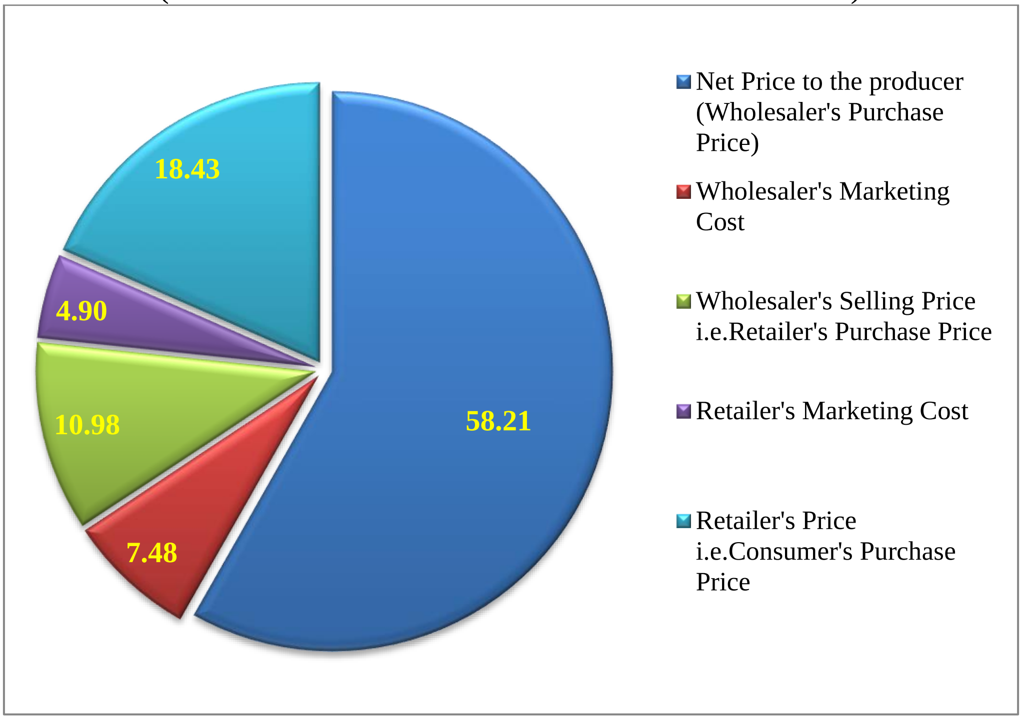
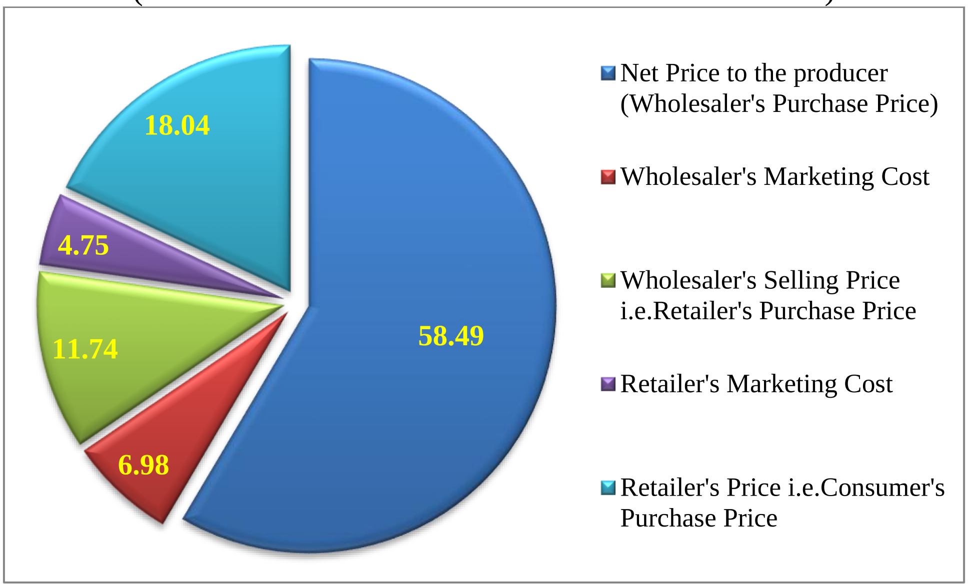


Fig.4 (vii): Price-spread of bamboo *Sofa* Set in Sivasagar Market
(Channel-II: Producer-Wholesaler-Retailer-Consumer)



Channel – III: Producer – Commission agent/ Middleman- Wholesaler - Retailer – Consumer

In this channel, commission agent/middleman played a significant role. Commission agents are local traders who collect the bamboo items from the artisans on commission basis and supply those to the wholesalers. They used to book the

Table - 4.4 (e)
Price-spread of bamboo *Sofa Set* in Jorhat Market

Channel -III: Producer-Middleman/Commission Agent-Wholesaler-Retailer-Consumer)

Sl.No	Items of costs and Market Functionaries	Average Price per Unit	Margin at different levels	% Share
1	**Net Price to the producer (Middleman /Commission Agent's Purchase Price)**	**15,500**	**15,500**	**46.27**
2	**Middleman/Commission Agent's Marketing Cost**	**2,420**	**2,420**	**7.22**
	Labour Charges (loading & unloading)	700	700	2.09
	Transportation Cost	1,200	1,200	3.58
	Market Cess	170	170	0.51
	Other marketing expenses	350	350	1.04
3	**Middleman/Commission Agent's Selling Price i.e. wholesaler's price**	**22,282**	**4,362**	**13.02**
4	**Wholesaler's Marketing Cost**	**1,110**	**1,110**	**3.31**
	Labour Charge(loading & unloading)	550	550	1.64
	Storage Cost	220	220	0.66
	Market Cess	340	340	1.01
5	**Wholesaler's Selling Price *i.e.* Retailer's Purchase Price**	**25,818**	**2,426**	**7.24**
6	**Retailer's Marketing Cost**	**1,810**	**1,810**	**5.40**
	Transportation Cost	1,250	1,250	3.73
	Labour Charge (Handling & Stacking)	220	220	0.66
	Market Cess	340	340	1.01
	Storage Cost	220	320	0.96
	Other marketing expenses	325	325	0.97
7	**Retailer's Price *i.e.* Consumer's Purchase Price**	**33,500**	**5872**	**17.53**
Total			**33,500**	**100.00**

products by paying some lump sum amount to the middleman as advance. After collecting the goods from the middleman, the wholesalers usually store the items in their custody. The retailers purchase their chosen items from the wholesalers and sell them in daily/weekly market or through door to door marketing.

Table 4.4(e) and 4.4 (f) present the price spread of bamboo *Sofa set* for channel-III in Jorhat and Sivasagar market, respectively.

Tables indicate that the share of consumer rupee for the producer in marketing of bamboo *Sofa set*is marginally higher in Sivasagar market (46.91 per cent) as compared to Jorhat market (46.27 per cent). Middleman/commission agents got 13.02 per cent in Jorhat market and 12.41 per cent in Sivasagar market. Wholesalers and retailers got 7.24 per cent and 17.53 per cent share of consumer rupee respectively, in Jorhat market while the corresponding figures in Sivasagar

Table - 4.4 (f)

Price-spread of bamboo *Sofa* Set in Sivasagar Market

(Channel - III: Producer-Middleman/Commission Agent-Wholesaler-Retailer-Consumer)

Sl. No	Items of costs and Market Functionaries	Average Price per Unit	Margin at different levels	% Share
1	**Net Price to the producer Middleman/Commission Agent's Purchase Price)**	**16,200**	**16,200**	**46.91**
2	**Middleman/Commission Agent's Marketing Cost**	**2,457**	**2,457**	**7.11**
	Labour Charges (loading & unloading)	690	690	2.00
	Transportation Cost	1,250	1,250	3.62
	Market Cess	172	172	0.50
	Other marketing expenses	345	345	1.00
3	**Middleman/Commission Agent's Selling Price i.e. Wholesaler's Purchase Price)**	**22,944**	**4,287**	**12.41**
4	**Wholesaler's Marketing Cost**	**1,130**	**1,130**	**3.27**
	Labour Charge(loading & unloading)	570	570	1.65
	Storage Cost	210	210	0.61
	Market Cess	350	350	1.01
5	**Wholesaler's Selling Price *i.e.* Retailer's Purchase Price**	**26,167**	**2,092**	**6.06**
6	**Retailer's Marketing Cost**	**2,655**	**2,655**	**7.69**
	Transportation Cost	1,300	1,300	3.76
	Labour Charge(Handling & Stacking)	650	650	1.88
	Market Cess	160	160	0.46
	Storage Cost	220	220	0.64
	Other marketing expenses	325	325	0.94
7	**Retailer’s Price *i.e.* Consumer's Purchase Price**	**34,536**	**5,714**	**16.55**
	Total		**34,536**	**100.00**

market were 6.06 per cent and 16.55 per cent. Fig. 4(viii) and 4(ix) present price spreads in respective markets for channel –III.

Fig. 4 (viii)) : Price Spread of bamboo *Sofa* Set in Jorhat Market

(Channel-III : Producer-Middleman/Commission Agent-Wholesaler-Retailer-Consumer)

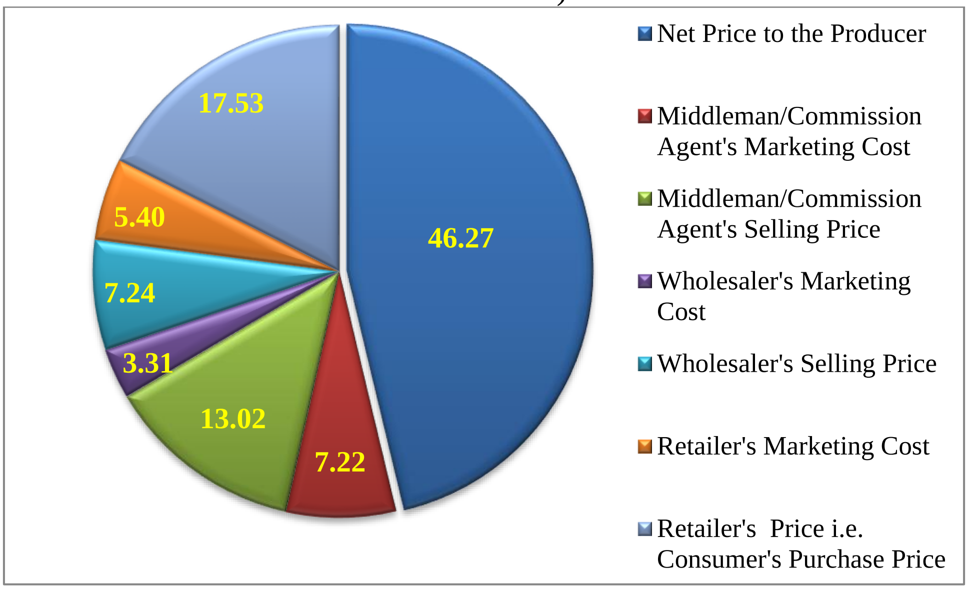
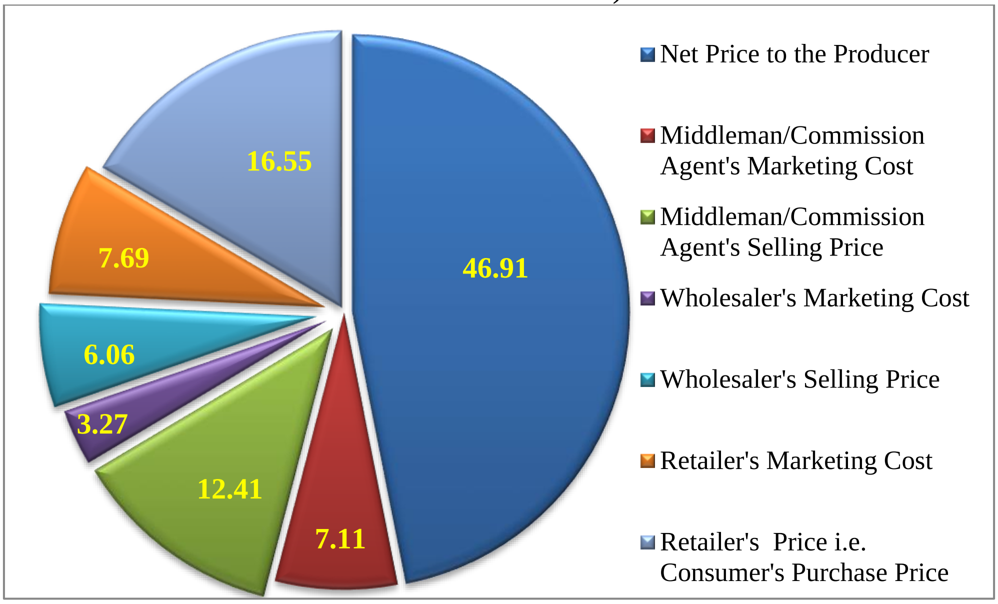


Fig. 4 (ix) : Price Spread of bamboo *Sofa* Set in Sivasagar Market
(Channel-III: Producer-Middleman/Commission Agent-Wholesaler-Retailer Consumer)



Price spread of *Fishing Equipments*

Channel - I : Producer – Retailer – Consumer

In case of marketing of fishing equipments, under channel-I, in Jorhat district, the producer got 60.00 per cent of the net share of consumer's rupee and incurred 11.43 per cent cost on marketing while the retailer obtained17.71 per cent

Table-4.5 (a)
Price-spread of bamboo *Fishing Equipments* in Jorhat Market
(Channel-1: Producer-Retailer-Consumer)

Sl.No	Items of costs and Market Functionaries	Average Price/10 Nos.	Margin at different levels	% Share
1	**Net Price to the Producers**	**2100**	**2100**	**60.00**
2	**Producer's Marketing Cost**	**400**	**400**	**11.43**
	Labour Charges (loading & unloading)	130	130	3.71
	Transportation Cost	180	180	5.14
	Market Cess	50	50	1.43
	Other marketing expenses	40	40	1.14
3	**Producer's Selling Price *i.e* Retailer's Purchase Price**	**2,500**	**0**	**0**
4	**Retailer's Marketing Price Cost**	**345**	**345**	**9.86**
	Storage Charge	160	160	4.57
	Labour Charge(Handling & Stacking)	100	100	2.86
	Market Cess	45	45	1.29
	Other marketing expenses	40	40	1.14
5	**Retailer's Price i.e. Consumer's Purchase Price**	**3,500**	**655**	**17.71**
Total			**3,500**	**100.00**

Table-4.5 (b)
Price-spread of bamboo *Fishing Equipments* in Sivasagar Market
(Channel-1: Producer-Retailer-Consumer)

Sl.No	Items of costs and Market Functionaries	Average price per 10 nos	Margin at different levels	% Share
1	**Net Price to the Producers**	**2,240**	**2,240**	**60.54**
2	**Producer's Marketing Cost**	**390**	**390**	**10.54**
	Labour Charges (loading & unloading)	130	130	3.51
	Transportation Cost	170	170	4.59
	Market Cess	50	50	1.35
	Other marketing expenses	40	40	1.08
3	**Producer's Selling Price *i.e* Retailer's Purchase Price**	**2,630**	**0**	**0**
4	**Retailer's Marketing Price Cost**	**335**	**335**	**9.05**
	Storage Cost	150	150	4.05
	Labour Charge(Handling & Stacking)	100	100	2.70
	Market Cess	45	45	1.22
	Other marketing expenses	40	40	1.08
5	**Retailer's Price *i.e.* Consumer's Purchase Price**	**3,700**	**735**	**19.86**
	Total		**3,700**	**100.00**

of the consumer rupee by incurring 9.86 per cent marketing expenses in the form of storage charge, market fees, labour charge *etc*. (Table - 4.5 (a)) In Sivasagar district, producer's share of consumer rupee was 60.54 per cent while it was 19.86 per cent for retailers. Producer's marketing cost was estimated at 10.54 per cent and retailer's marketing cost was worked out at 9.05 per cent (Table -4.5 (b)). Figures 4(x) & 4(xi) presents the price spread in two different market for channel-I

Fig. 4 (x):
Price Spread of bamboo *Fishing Equipments* in Jorhat Market
(Channel-I : Producer- Retailer-Consumer)

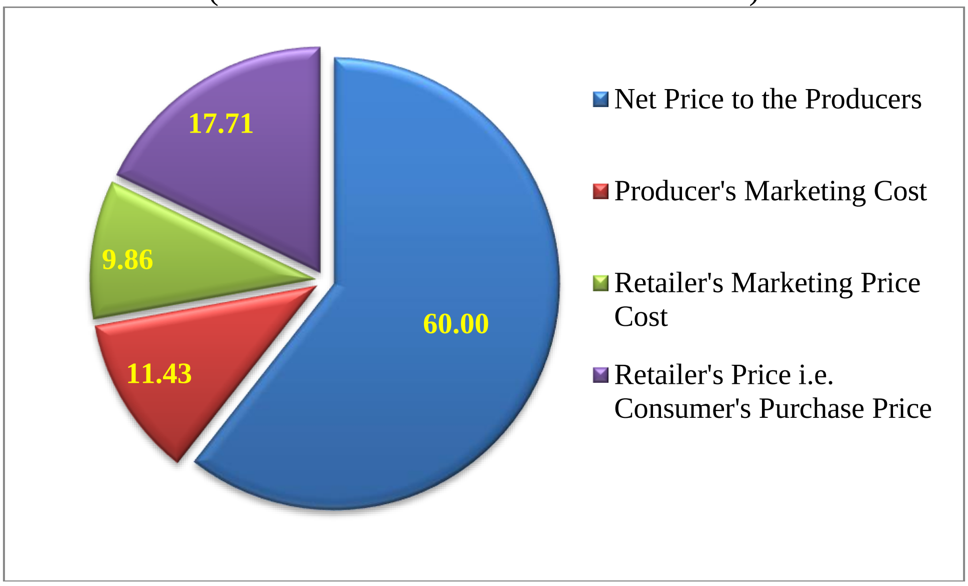
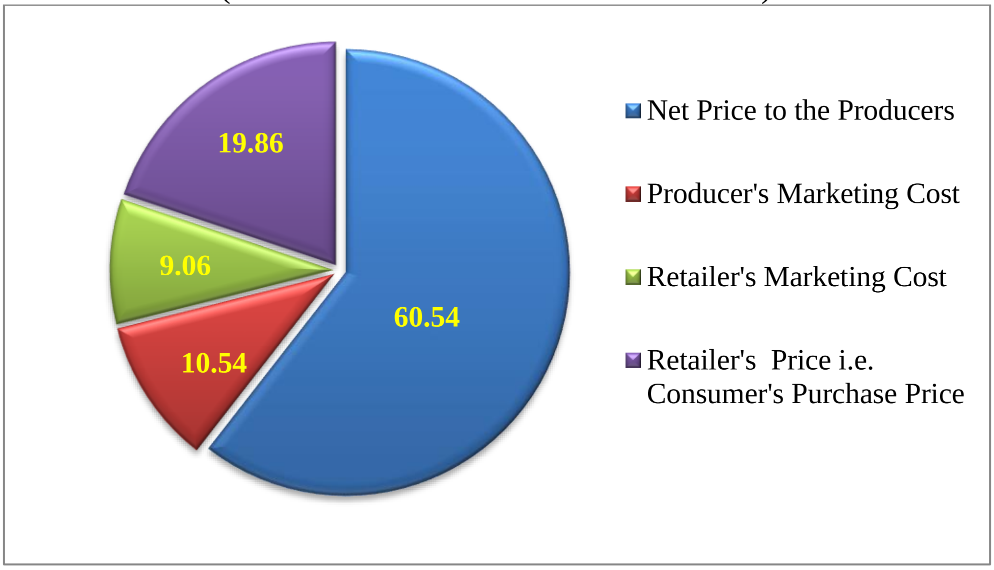


Fig. 4 (xi):
Price Spread of bamboo *Fishing Equipment* in Sivasagar Market
(Channel-I : Producer- Retailer-Consumer)



Channel – II: Producer-Wholesaler-Retailer-Consumer

The price spread of fishing equipments in Channel-II for Jorhat and Sivasagar market are shown in Table-4.5(c) and Table - 4.5(d) along with Fig. 4(xii) and 4.(xiii). It

Table -4.5 (c)
Price-spread of bamboo *Fishing Equipments* in Jorhat Market
(Channel-II: Producer-Wholesaler-Retailer-Consumer)

Sl.No	Items of costs and Market Functionaries	Average Price/10 Nos.	Margin at different levels	% Share
1	**Net Price to the producer (Wholesaler's Purchase Price)**	**1,910**	**1,910**	**54.57**
2	**Wholesaler's Marketing Cost**	**385**	**385**	**11.00**
	Labour Charges (loading & unloading)	125	125	3.57
	Transportation Cost	180	180	5.14
	Market Cess	40	40	1.14
	Other marketing expenses	40	40	1.14
3	**Wholesaler's Selling Price i.e. Retailer's Purchase Price**	**2,655**	**362**	**10.33**
4	**Retailer's Marketing Cost**	**355**	**355**	**10.14**
	Labour Charge(Handling, Grading, Stacking)	120	120	3.43
	Market Cess	45	45	1.29
	Storage Cost	150	150	4.29
	Other marketing expenses	40	40	1.14
5	**Retailer's Price *(i.e.* Consumer's Purchase Price)**	**3,500**	**489**	**13.96**
Total			**3,500**	**100.00**

Table -4.5(d)
Price-spread of bamboo *Fishing Equipments* in Sivasagar Market
(Channel-II: Producer-Wholesaler-Retailer-Consumer)

Sl.No	Items of costs and Market Functionaries	Average Price/10 Nos.	Margin at different levels	% Share
1	**Net Price to the producer (Wholesaler's Purchase Price)**	**2,040**	**2,040**	**55.14**
2	**Wholesaler's Marketing Cost**	**370**	**370**	**10.00**
	Labour Charges (loading & unloading)	120	120	3.24
	Transportation Cost	170	170	4.59
	Market Cess	45	45	1.22
	Other marketing expenses	35	35	0.95
3	**Wholesaler's Selling Price i.e. Retailer's Purchase Price**	**2,770**	**387**	**10.46**
4	**Retailer's Marketing Cost**	**325**	**325**	**8.78**
	Labour Charge(Handling, Grading, Stacking)	100	100	2.70
	Market Cess	45	45	1.22
	Storage Cost	140	140	3.78
	Other marketing expenses	40	40	1.08
5	**Retailer's Price *i.e.* Consumer's Purchase Price**	**3,700**	**578**	**15.62**
Total			**3700**	**100.00**

is evident from the Tables that the producer's share was highest followed by retailers share and wholesalers share in marketing of fishing equipments in both the sample markets.

Fig. -4 (xii)
Price-spread of bamboo *Fishing Equipment* in Jorhat Market
(Channel-II: Producer-Wholesaler-Retailer-Consumer)

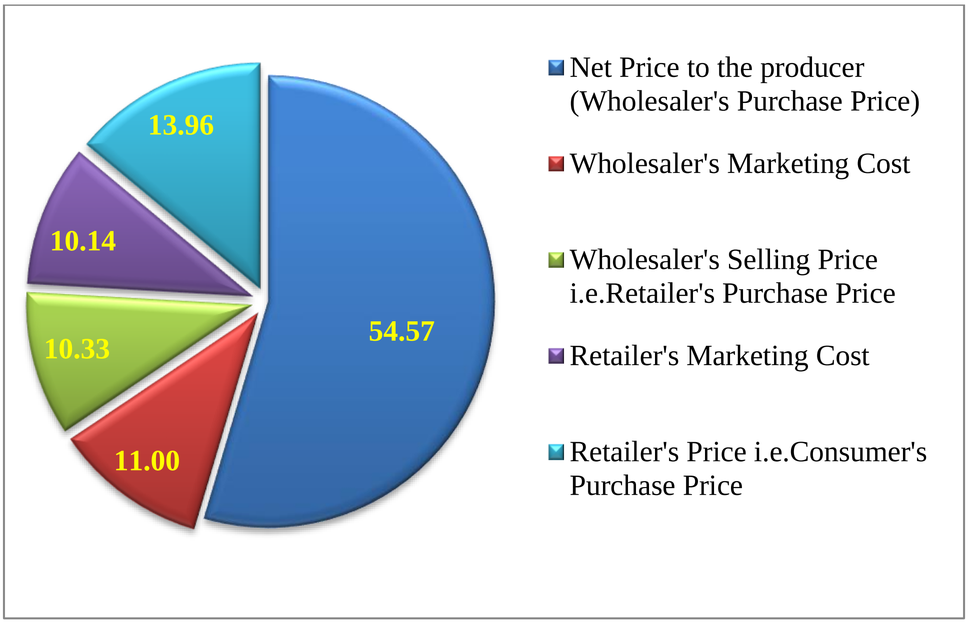
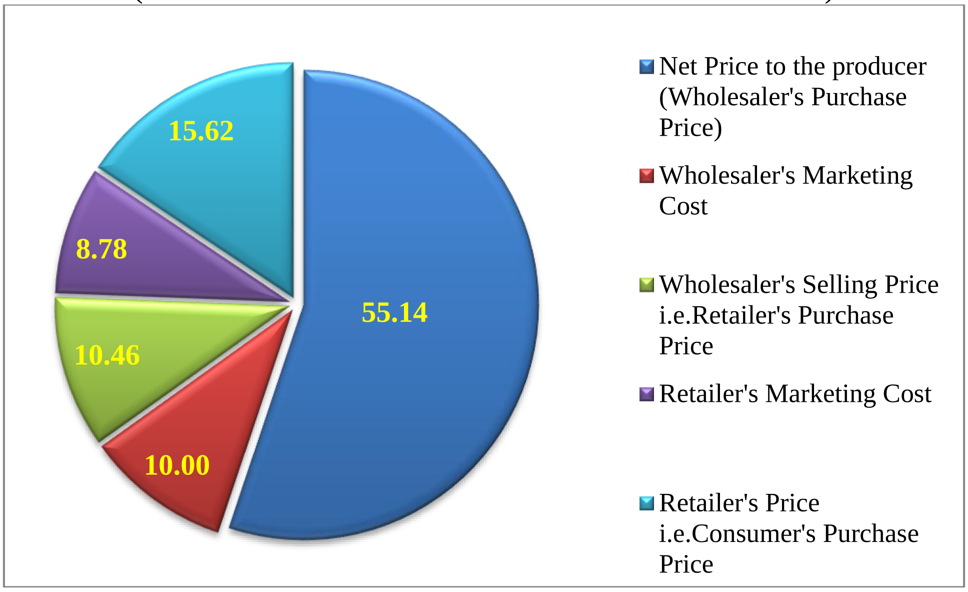


Fig.4(xiii) Price-spread of *Fishing Equipment (Bamboo)* in Sivasagar Market
(Channel-II: Producer-Wholesaler-Retailer-Consumer)



Channel – III : Producer – Commission agent/ Middleman- Wholesaler – Retailer – Consumer

Table - 4.5(e) and Table - 4.5(f) show the price spread of fishing equipments in Jorhat and Sivasagar market for channel-III.

Table -4.5(e)
Price-spread of bamboo *Fishing Equipment* in Jorhat Market
(Channel-III: Producer-Middleman/Commission Agent-Wholesaler-Retailer-Consumer)

Sl.No	Items of costs and Market Functionaries	Average Price /10 Nos.	Margin at different levels	% Share
1	Net Price to the producer (Middleman/Commission Agent's Purchase Price)	**1,510**	**1,510**	**43.14**
2	Middleman/Commission Agent's Marketing Cost	**230**	**230**	**6.57**
	Labour Charges (loading & unloading)	75	75	2.14
	Transportation Cost	80	80	2.29
	Market Cess	35	35	1.00
	Other marketing expenses	40	40	1.14
3	**Middleman/Commission Agent's Selling Price i.e. Wholesaler's purchase price**	**2,162**	**422**	**12.07**
4	**Wholesaler's Marketing Cost**	**190**	**190**	**5.43**
	Labour Charge(loading & unloading)	70	70	2.00
	Storage Cost	85	85	2.43
	Market Cess	35	35	1.00
5	**Wholesaler's Selling Price *i.e.* Retailer's Purchase Price**	**2582**	**230**	**6.56**
6	**Retailer's Marketing Cost**	**270**	**270**	**7.71**
	Transportation Cost	85	85	2.43
	Labour Charge(Handling & Stacking)	35	35	1.00
	Market Cess	40	40	1.14
	Storage Cost	70	70	2.00
	Other marketing expenses	40	40	1.14
7	**Retailer's Price *i.e.* Consumer's Purchase Price**	**3,500**	**648**	**18.52**
Total			**3,500**	**100.00**

Table-4.5 (f)

Price-spread of bamboo *Fishing Equipment (Bamboo)* in Sivasagar Market
(Channel-III: Producer-Middleman/Commission Agent-Wholesaler-Retailer-Consumer)

Sl.No	Items of costs and Market Functionaries	Average Price per Unit	Margin at different levels	% Share
1	**Net Price to the producer (Middleman/Commission Agent's Purchase Price)**	**1,620**	**1,620**	**43.78**
2	**Middleman/Commission Agent's Marketing Cost**	**240**	**240**	**6.49**
	Labour Charges (loading & unloading)	80	80	2.16
	Transportation Cost	85	85	2.30
	Market Cess	40	40	1.08
	Other marketing expenses	35	35	0.95
3	**Middleman/Commission Agent's Selling Price *i.e.* Wholesaler's purchase price**	**2,302**	**442**	**11.94**
4	**Wholesaler's Marketing Cost**	**205**	**205**	**5.54**
	Labour Charge(loading & unloading)	75	75	2.03
	Storage Cost	90	90	2.43
	Market Cess	40	40	1.08
5	**Wholesaler's Selling Price *i.e.* Retailer's Purchase Price**	**2,745**	**239**	**6.45**
6	**Retailer's Marketing Cost**	**300**	**300**	**8.11**
	Transportation Cost	90	90	2.43
	Labour Charge(Handling & Stacking)	40	40	1.08
	Market Cess	50	50	1.35
	Storage Cost	75	75	2.03
	Other marketing expenses	45	45	1.22
7	**Retailer's Price *i.e.* Consumer's Purchase Price**	**3,700**	**655**	**17.70**
	Total		**3,700**	**100.00**

Fig. 4 (xiv) Price-spread of bamboo *Fishing Equipment* in Jorhat Market
(Channel-III: Producer-Middleman/Commission Agent-Wholesaler-Retailer-Consumer)

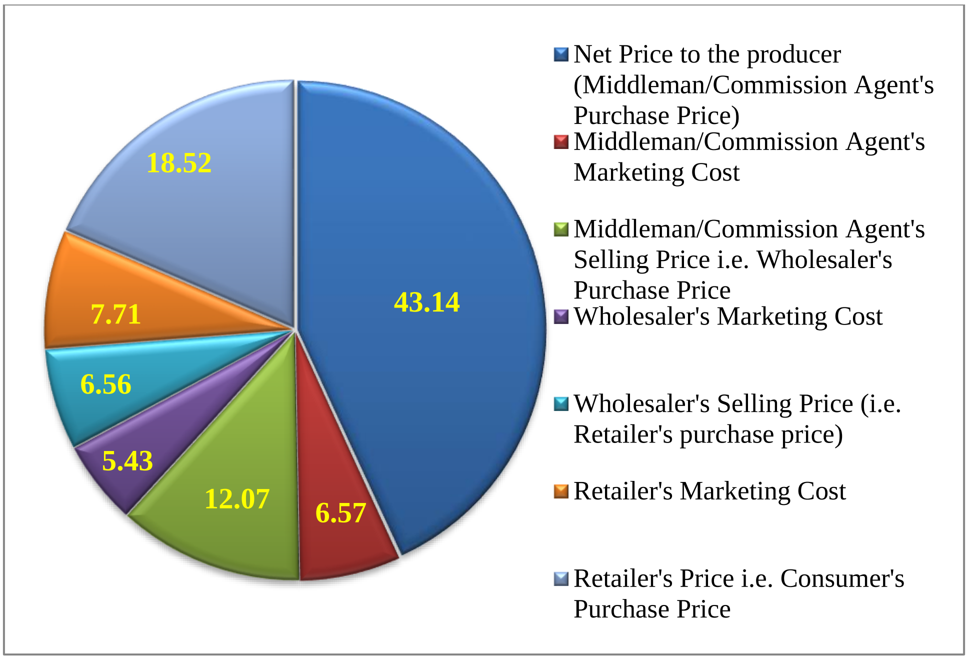
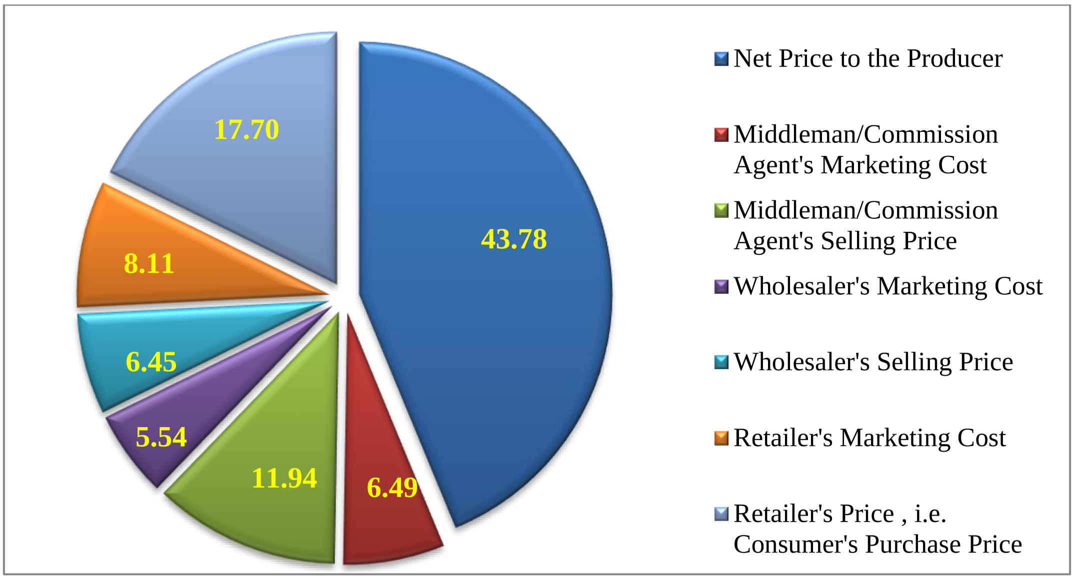


Fig. 4 (xv) Price-spread of bamboo *Fishing Equipment* in Sivasagar Market
(Channel-III: Producer-Middleman/Commission Agent-Wholesaler-Retailer-Consumer)



Tables show that in Jorhat market, the producer got higher share (45.14%) as compared to Sivasagar market (43.78%). The share of Middleman/Commission agents, wholesalers and retailers were higher in Jorhat market as compared to Sivasagar market as shown in the Tables. Price spread of fishing equipments are graphically shown in fig. 4 (xiv) and 4(xv).

Price spread of *Murha* (bamboo Sitting Tool)

Channel - I : Producer – Retailer – Consumer

Table - 4.6 (a) and Table - 4.6 (b) show the price spread of *Murha*in channel-I in Jorhat and Sivasagar market, respectively. With this channel, in Jorhat market, producers fetched 62.86% of the consumer's rupee while retailer got 16.00 per cent. Producer's marketing cost was estimated at 10.29 per cent and retailer's marketing cost was found at 10.85 per cent.

In Sivasagar market, producers get little higher percentage of consumer rupees (64.72%) as compared to Jorhat market. Here, retailer's share was estimated at 16.25 per cent. Marketing cost incurred by the producers and retailers were found 9.44 percent and 9.58 per cent respectively. Fig.4 (xvi) and Fig.4 (xvii) respectively represent the price spread of *Murha* in Jorhat and Sivasagar market respectively.

Table- 4.6(a)
Price-spread of *Murha* (bamboo Sitting Tool)in Jorhat Market
(Channel-1: Producer-Retailer-Consumer)

Sl.No	Items of costs and Market Functionaries	Price per Unit	Margin at different levels	% Share
1	**Net Price to the producers**	**2200**	**2200**	62.86
2	**Producer's Marketing Cost**	**360**	**360**	10.29
	Labour Charges (loading & unloading)	110	110	3.14
	Transportation Cost	160	160	4.57
	Market Cess	50	50	1.43
	Other marketing expenses	40	40	1.14
3	**Producer's Selling Price *i.e* Retailer's Purchase Price**	**2,660**	**0**	**0**
4	**Retailer's Marketing Cost**	**380**	**380**	**10.86**
	Storage Charge	180	180	5.14
	Labour Charge(Handling & Stacking)	120	120	3.43
	Market Cess	40	40	1.14
	Other marketing expenses	40	40	1.14
5	**Retailer's Price *i.e.* Consumer's Purchase Price**	**3,500**	**510**	**16.00**
Total			**3,500**	**100.00**

Table- 4.6 (b)
Price-spread of *Murha (*bamboo Sitting Tool)in Sivasagar Market
(Channel-1: Producer-Retailer-Consumer)

Sl.No	Items of costs and Market Functionaries	Average Price/10 Nos.	Margin at different levels	% Share
1	**Net Price to the producers**	**2,330**	**2,330**	**64.72**
2	**Producer's Marketing Cost**	**340**	**340**	**9.44**
	Labour Charges (loading & unloading)	100	100	2.78
	Transportation Cost	150	150	4.17
	Market Cess	50	50	1.39
	Other marketing expenses	40	40	1.11
3	**Producer's Selling Price *i.e* Retailer's Purchase Price**	**2,770**	**0**	**0**
4	**Retailer's Marketing Price Cost**	**345**	**345**	**9.58**
	Storage Charge	160	160	4.44
	Labour Charge(Handling & Stacking)	100	100	2.78
	Market Cess	45	45	1.25
	Other marketing expenses	40	40	1.11
5	**Retailer's Price *i.e.* Consumer's Purchase Price**	**3,600**	**585**	**16.25**
Total			**3,600**	**100.00**

Fig. 4 (xvi) : Price-spread of *Murha*(bamboo Sitting Tool) in Jorhat Market
(Channel-I : Producer- Retailer-Consumer)

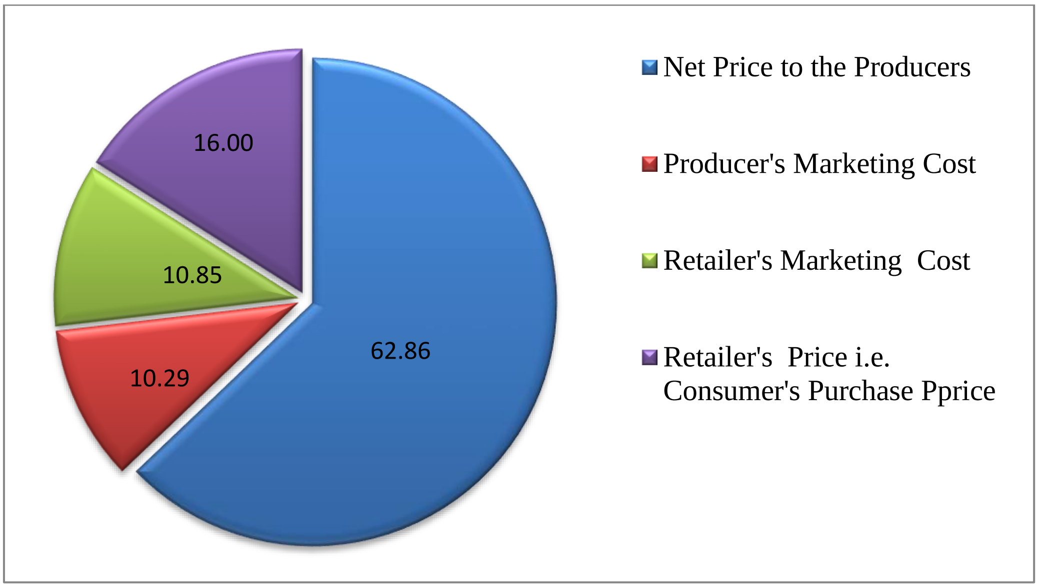
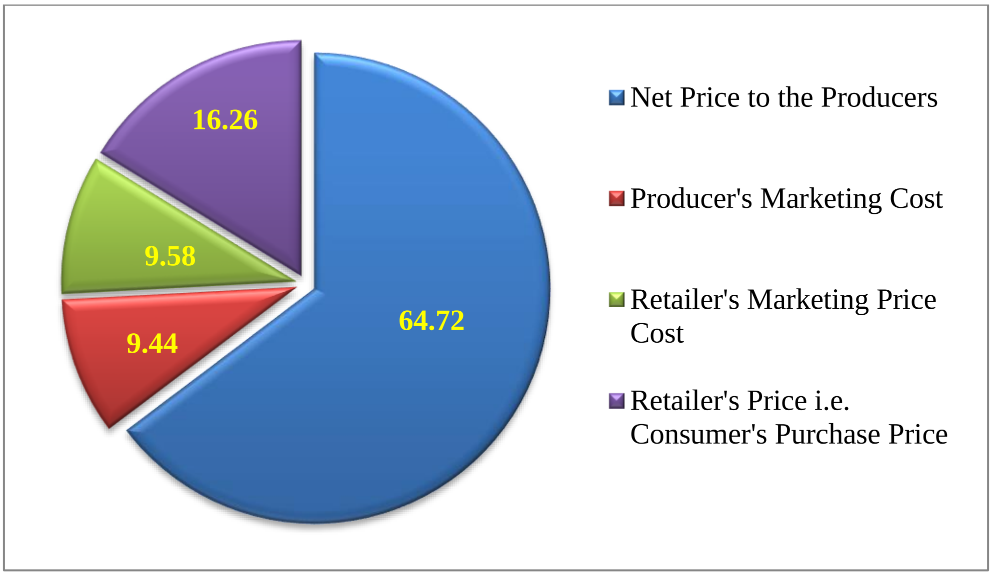


Fig. 4(xvii): Price-spread of *Murha* (bamboo Sitting Tool) in Sivasagar Market
(Channel - I : Producer- Retailer-Consumer)



Channel – II: Producer-Wholesaler-Retailer-Consumer

It was tried to estimate the price spread of bamboo *murha* for channel-II in both the sample markets which are exhibited in Table - 4.6 © and Table - 4.6 (d) and fig.4(xiii) and 4(xiv)

Table -4.6 (c)
Price-spread of *Murha* (bamboo Sitting Tool)in Jorhat Market
(Channel-II: Producer-Wholesaler-Retailer-Consumer)

Sl.No	Items of costs and Market Functionaries	Average Price/10 Nos.	Margin at different levels	% Share
1	**Net Price to the producer (Wholesaler's Purchase Price)**	**1,920**	**1,920**	**54.86**
2	**Wholesaler's Marketing Cost**	**415**	**415**	**11.86**
	Labour Charges (loading & unloading)	130	130	3.71
	Transportation Cost	200	200	5.71
	Market Cess	40	40	1.14
	Other marketing expenses	45	45	1.29
3	**Wholesaler's Selling Price i.e. Retailer's Purchase Price**	**2,695**	**350**	**9.99**
4	**Retailer's Marketing Cost**	**345**	**345**	**9.86**
	Labour Charge(Handling, Grading, Stacking)	120	120	3.43
	Market Cess	40	40	1.14
	Storage Cost	145	145	4.14
	Other marketing expenses	40	40	1.14
5	**Retailer's Price *i.e.* Consumer's Purchase Price**	**3,500**	**471**	**13.44**
Total			**3,500**	**100.00**

Table -4.6 (d)
Price-spread of *Murha (*bamboo Sitting Tool)in Sivasagar Market
(Channel-II: Producer-Wholesaler-Retailer-Consumer)

Sl.No	Items of costs and Market Functionaries	Average Price/10 Nos.	Margin at different levels	% Share
1	**Net Price to the producer (Wholesaler's Purchase Price)**	**2,000**	**2,000**	**55.56**
2	**Wholesaler's Marketing Cost**	**385**	**385**	**10.69**
	Labour Charges (loading & unloading)	120	120	3.33
	Transportation Cost	180	180	5.00
	Market Cess	45	45	1.25
	Other marketing expenses	40	40	1.11
3	**Wholesaler's Selling Price i.e. Retailer's Purchase Price**	**2,745**	**365**	**10.13**
4	**Retailer's Marketing Cost**	**345**	**345**	**9.58**
	Labour Charge(Handling ,Grading, Stacking)	120	120	3.33
	Market Cess	40	40	1.11
	Storage Cost	145	145	4.03
	Other marketing expenses	40	40	1.11
5	**Retailer's Price *i.e.* Consumer's Purchase Price**	**3,600**	**506**	**14.04**
Total			**3,600**	**100.00**

Fig. 4 (xviii) Price-spread of *Murha* (bamboo Sitting Tool)in Jorhat Market
(Channel-II: Producer-Wholesaler-Retailer-Consumer)

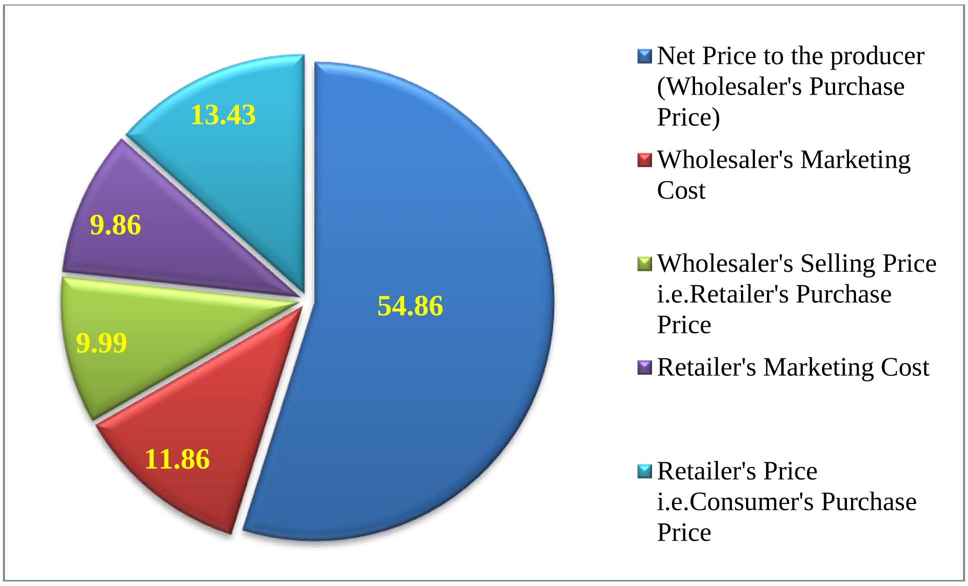
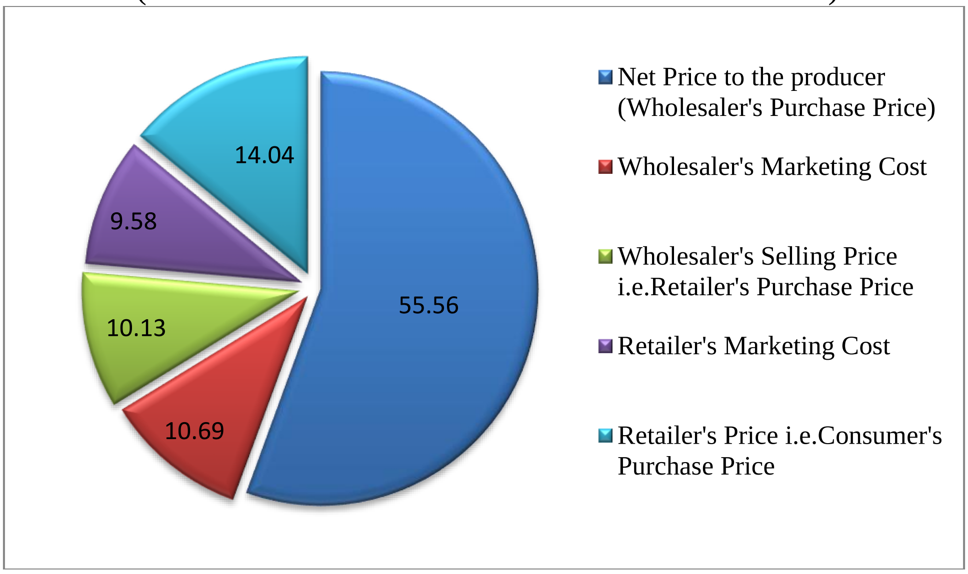


Fig. 4 (xix) Price-spread of *Murha* (bamboo Sitting Tool)in Sivasagar Market
(Channel-II: Producer-Wholesaler-Retailer-Consumer)



Channel – III : Producer – Commission agent/ Middleman- Wholesaler – Retailer – Consumer

Table - 4.6 (e) and Table - 4.6(f) presents the price spread of *murha* for channel-III in Jorhat and Sivasagar market, respectively. In Jorhat market, percentage share of consumer rupee was 45.15 per cent for producer, 11.59 per cent

Table - 4.6 (e) :Price-spread of *Murha (*bamboo Sitting Tool) in Jorhat Market

(Channel -III: Producer-Middleman/Commission Agent-Wholesaler-Retailer-Consumer)

Sl.No	Items of costs and Market Functionaries	Average Price per Unit	Margin at different levels	% Share
1	**Net Price to the producer (Middleman/Commission Agent's Purchase Price)**	**1,580**	**1,580**	**45.14**
2	**Middleman/Commission Agent's Marketing Cost**	**230**	**230**	**6.57**
	Labour Charges (loading & unloading)	75	80	2.29
	Transportation Cost	80	75	2.14
	Market Cess	35	40	1.14
	Other marketing expenses	40	35	1.00
3	**Middleman/Commission Agent's Selling Price i.e. Wholesaler's Purchase Price**	**2,216**	**406**	**11.59**
4	**Wholesaler's Marketing Cost**	**185**	**190**	**5.43**
	Labour Charge(loading & unloading)	70	75	2.14
	Storage Cost	85	80	2.29
	Market Cess	30	35	1.00
5	**Wholesaler's Selling Price *i.e.* Retailer's Purchase Price**	**2,624**	**219**	**6.25**
6	**Retailer's Marketing Cost**	**290**	**275**	**7.86**
	Transportation Cost	85	80	2.29
	Labour Charge(Handling & Stacking)	35	40	1.14
	Market Cess	50	45	1.29
	Storage Cost	75	70	2.00
	Other marketing expenses	45	40	1.14
7	**Retailer's Price *i.e.* Consumer's Purchase Price**	**3,500**	601	**17.16**
	Total		**3,500**	**100.00**

Fig - 4.5 (xx):Price-spread of *Murha* (bamboo Sitting Tool)in Jorhat Market

(Channel -II: Producer-Middleman/Commission Agent-Wholesaler-Retailer-Consumer)

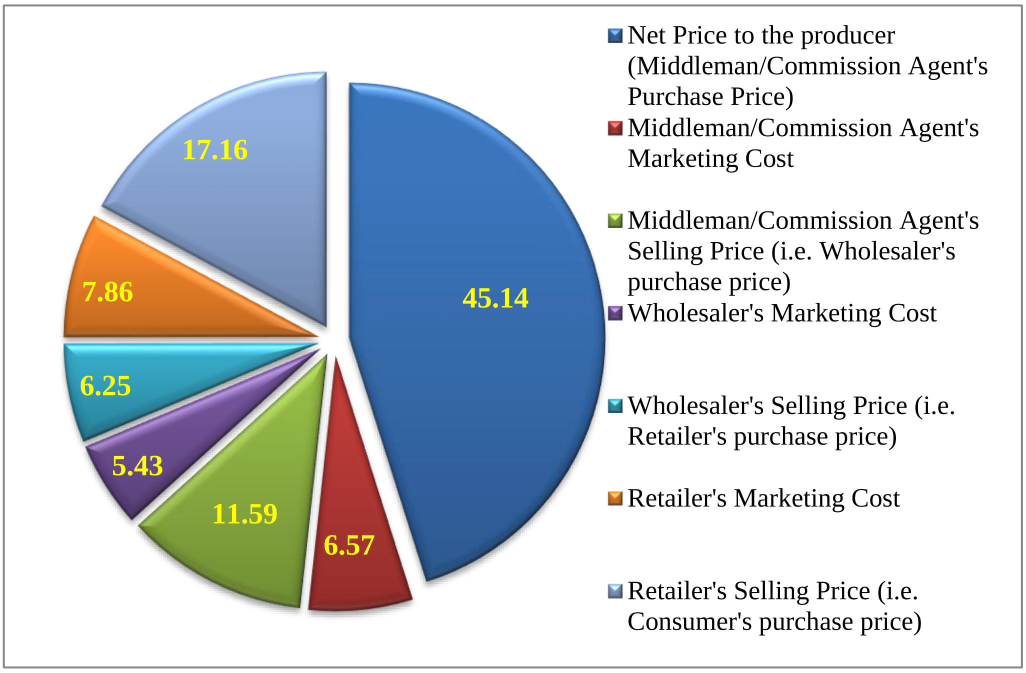


Table - 4.6 (f)

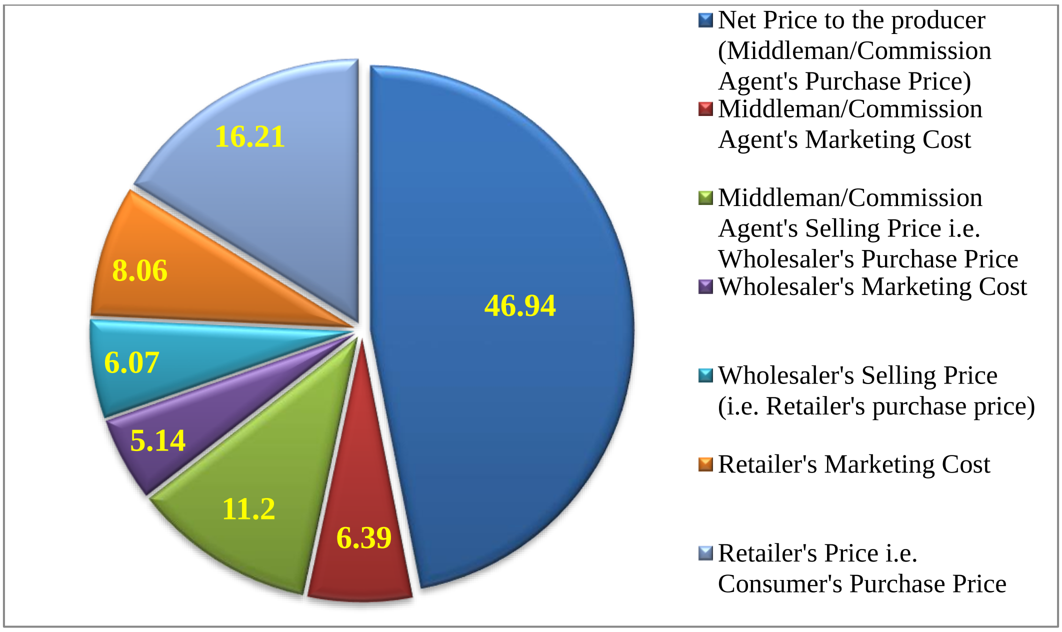
Price-spread of *Murha* (bamboo Sitting Tool)in Sivasagar Market

(Channel-II: Producer-Middleman/Commission Agent-Wholesaler-Retailer-Consumer)

Sl.No	Items of costs and Market Functionaries	Average Price per Unit	Margin at different levels	% Share
1	**Net Price to the producer (Middleman/Commission Agent's Purchase Price)**	**1,690**	**1,690**	**46.94**
2	**Middleman/Commission Agent's Marketing Cost**	**230**	**230**	**6.39**
	Labour Charges (loading & unloading)	75	75	2.08
	Transportation Cost	80	80	2.22
	Market Cess	35	35	0.97
	Other marketing expenses	40	40	1.11
3	**Middleman/Commission Agent's Selling Price i.e. Wholesaler's purchase price**	**2,323**	**403**	**11.20**
4	**Wholesaler's Marketing Cost**	**185**	**185**	**5.14**
	Labour Charge(loading & unloading)	70	70	1.94
	Storage Cost	85	85	2.36
	Market Cess	30	30	0.83
5	**Wholesaler's Selling Price *i.e.* Retailer's Purchase Price**	**2,727**	**218**	**6.07**
6	**Retailer's Marketing Cost**	**290**	**290**	**8.06**
	Transportation Cost	85	85	2.36
	Labour Charge(Handling & Stacking)	35	35	0.97
	Market Cess	50	50	1.39
	Storage Cost	75	75	2.08
	Other marketing expenses	45	45	1.25
7	**Retailer's Price *i.e. Consumer's* Purchase Price**	**3,600**	583	**16.21**
	Total		**3,600**	**100.00**

Fig – 4(xxi) :Price-spread of *Murha* (bamboo Sitting Tool)in Sivasagar Market

(Channel -II: Producer-Middleman/Commission Agent-Wholesaler-Retailer-Consumer)



for middleman/commission agent, 6.25 per cent for wholesalers and 17.16 per cent for the retailers. In Sivasagar market, the corresponding figures were recorded at 46.94 per cent, 11.20 per cent.6.07 per cent and 16.21 per cent respectively. Fig 4.6 © and Fig. 4.6 (d) graphically show the price spread of *murha* in Jorhat's and Sivasagar's market.

Price spread of *Pasi* and *Kharahi (*Bamboo basket*)*

Channel - I : Producer – Retailer – Consumer

Table 4.7 (a) and Table-4.7 (b) together with figures 4(xxii) & 4(xxiii) depict

Table- 4.7 (a)
Price-spread of bamboo *Pasi* and *Kharahi* in Jorhat Market
(Channel-1: Producer-Retailer-Consumer)

Sl.No	Items of costs and Market Functionaries	Price per Unit	Margin at different levels	% Share
1	**Net Price to the Producers**	**2180**	**2,180**	**64.12**
2	**Producer's Marketing Cost**	**400**	**400**	**11.76**
	Labour Charges (loading & unloading)	120	120	3.53
	Transportation Cost	180	180	5.29
	Market Cess	60	60	1.76
	Other marketing expenses	40	40	1.18
3	**Producer's Selling Price *i.e* Retailer's Purchase Price**	**2,580**	**0**	**0**
4	**Retailer's Marketing Price Cost**	**330**	**330**	**9.71**
	Storage Charge	150	150	4.41
	Labour Charge(Handling & Stacking)	100	100	2.94
	Market Cess	45	45	1.32
	Other marketing expenses	35	35	1.03
5	**Retailer's Price *i.e.* Consumer's Purchase Price**	**3,400**	**490**	**14.41**
Total			**3,400**	**100.00**

Table -4.7 (b)
Price-spread of bamboo *Pasi* and *Kharahi* in Sivasagar Market
(Channel-1: Producer-Retailer-Consumer)

Sl.No	Items of costs and Market Functionaries	Average Price/10 Nos.	Margin at different levels	% Share
1	**Net Price to the Producers**	**2,280**	**2,280**	**65.14**
2	**Producer's Marketing Cost**	**370**	**370**	**10.57**
	Labour Charges (loading & unloading)	110	110	3.14
	Transportation Cost	170	170	4.86
	Market Cess	50	50	1.43
	Other marketing expenses	40	40	1.14
3	**Producer's Selling Price *i.e* Retailer's Purchase Price**	**2,650**	**0**	**0**
4	**Retailer's Marketing Price Cost**	**315**	**315**	**9.00**
	Storage Charge	145	145	4.14
	Labour Charge(Handling & Stacking)	90	90	2.57
	Market Cess	45	45	1.29
	Other marketing expenses	35	35	1.00
5	**Retailer's Price *i.e.* Consumer's Purchase Price**	**3,500**	**385**	**15.29**
Total			**3,500**	**100.00**

the share of consumer rupee among the producers and retailers under channel –I in Jorhat and Sivasagar market. Tables show that both producers and retailers got marginally higher share of consumer rupee in Sivasagar market as compared to Jorhat market.

Fig 4 (xxii) Price -spread of bamboo *Pasi* and *Kharahi* (bamboo basket) in Jorhat Market

(Channel - I : Producer- Retailer-Consumer)

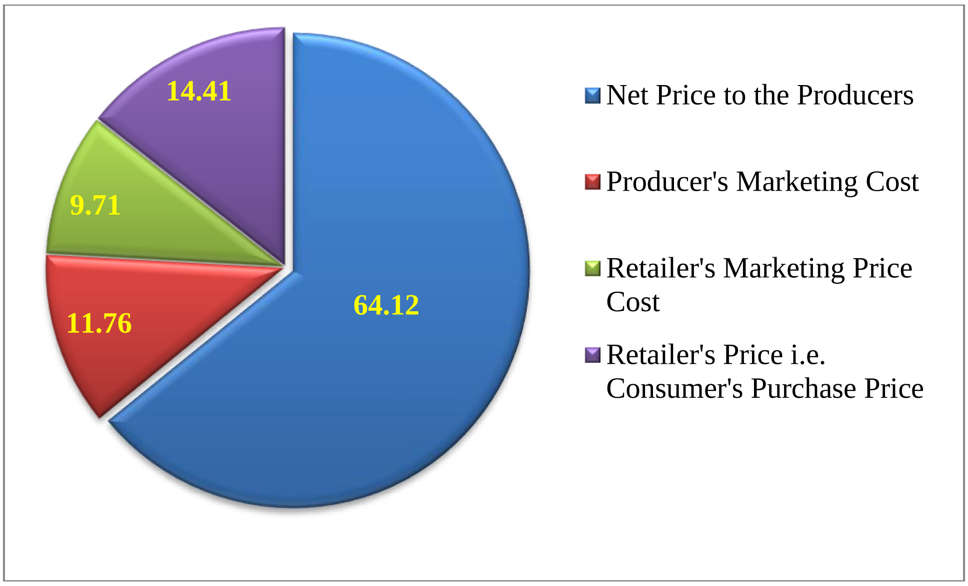
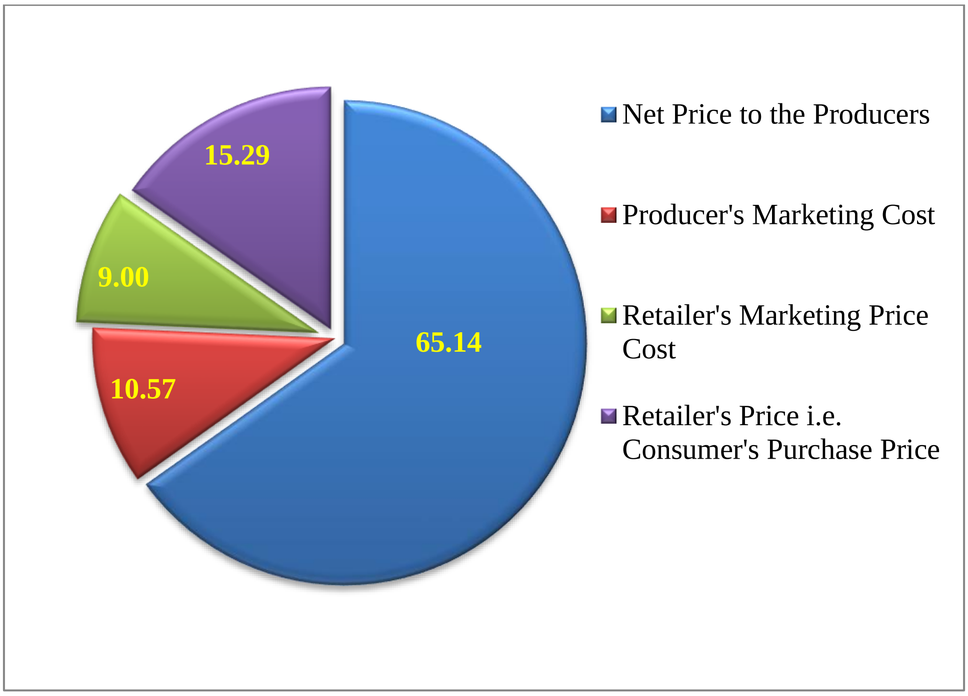


Fig 4 (xxiii) Price -spread of bamboo *Pasi and Kharahi* (bamboo basket) in Sivasagar Market

(Channel - I : Producer- Retailer-Consumer)



Channel – II: Producer-Wholesaler-Retailer-Consumer

Table-4.7(c) and Table-4.7(d) depict the price spread of *pasi* and *kharahi* in Jorhat and Sivasagar district in channel-II along the graphical representation (Fig.4 (xxiv) and Fig. 4(xxv).The Tables clearly indicates that under

Table-4.7(c)
Price-spread of *Pasi* and *Kharahi (Bamboo basket)*in Jorhat Market
(Channel-II: Producer-Wholesaler-Retailer-Consumer)

Sl.No	Items of costs and Market Functionaries	Average Price/10 Nos.	Margin at different levels	% Share
1	**Net Price to the producer (Wholesaler's Purchase Price)**	**1,820**	**1,820**	**53.53**
2	**Wholesaler's Marketing Cost**	**370**	**370**	**10.88**
	Labour Charges (loading & unloading)	120	120	3.53
	Transportation Cost	170	170	5.00
	Market Cess	35	35	1.03
	Other marketing expenses	45	45	1.32
3	**Wholesaler's Selling Price i.e. Retailer's Purchase Price**	**2,550**	**351**	**10.32**
4	**Retailer's Marketing Cost**	**320**	**320**	**9.41**
	Labour Charge(Handling, Grading, Stacking)	110	110	3.24
	Market Cess	40	40	1.18
	Storage Cost	135	135	3.97
	Other marketing expenses	35	35	1.03
5	**Retailer's Price *i.e.* Consumer's Purchase Price**	**3,400**	**539**	**15.86**
Total			**3,400**	**100.00**

Table-4.7(d)
Price-spread of *Pasi* and *Kharahi (Bamboo basket)* in Sivasagar Market
(Channel-II: Producer-Wholesaler-Retailer-Consumer)

Sl.No	Items of costs and Market Functionaries	Average Price/10 Nos.	Margin at different levels	% Share
1	**Net Price to the producer (Wholesaler's Purchase Price)**	**1,900**	**1,900**	**54.29**
2	**Wholesaler's Marketing Cost**	**360**	**360**	**10.29**
	Labour Charges (loading & unloading)	110	110	3.14
	Transportation Cost	165	165	4.71
	Market Cess	40	40	1.14
	Other marketing expenses	45	45	1.29
3	**Wholesaler's Selling Price i.e. Retailer's Purchase Price**	**2,620**	**372**	**10.63**
4	**Retailer's Marketing Cost**	**325**	**325**	**9.29**
	Labour Charge(Handling, Grading, Stacking)	100	100	2.86
	Market Cess	40	40	1.14
	Storage Cost	145	145	4.14
	Other marketing expenses	40	40	1.14
5	**Retailer's Price *i.e.* Consumer's Purchase Price**	**3,500**	**543**	**15.50**
Total			**3,500**	**100.00**

channel-II, there were no such variations in shares in both the markets for producers, wholesalers or retailers. It revolved around 54, 11 and 15 per cent, respectively.

Fig.4 (xxiv) Price-spread of *Pasi* and *Kharahi (Bamboo basket)*in Jorhat Market
(Channel-II: Producer-Wholesaler-Retailer-Consumer)

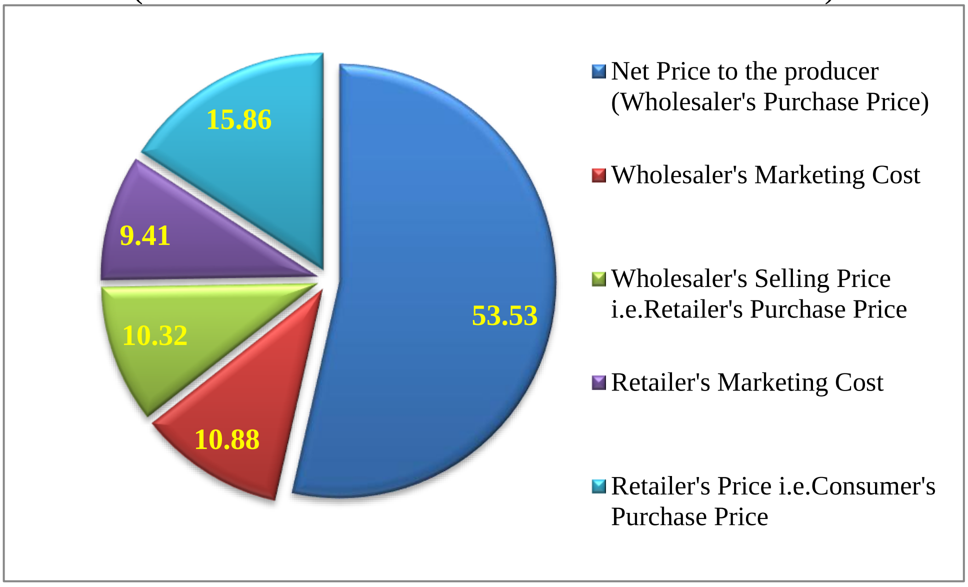
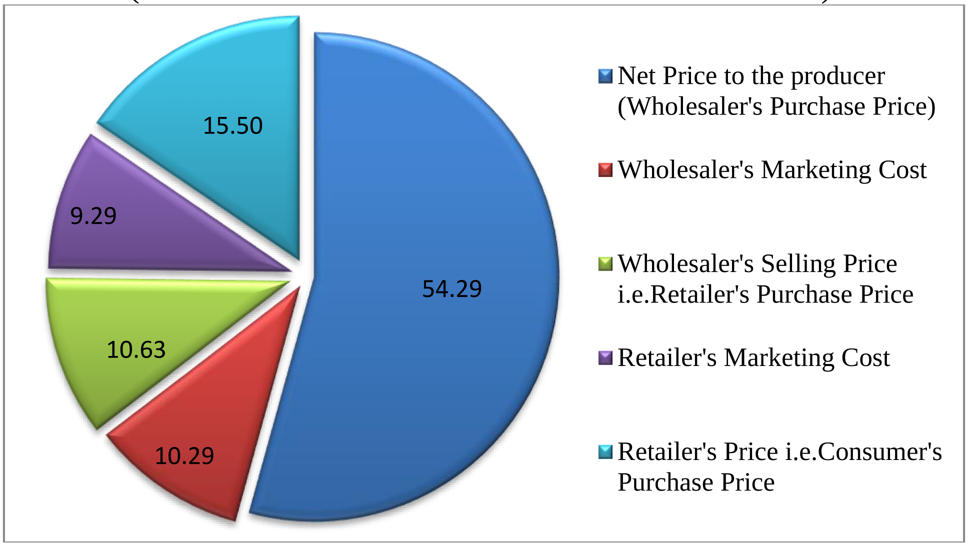


Fig.4(xxv) Price-spread of *Pasi* and *Kharahi (Bamboo basket)*in Sivasagar Market
(Channel-II: Producer-Wholesaler-Retailer-Consumer)



Channel – III : Producer – Commission agent/ Middleman- Wholesaler – Retailer – Consumer

Table - 4.7(e) and Table - 4.7(f) and Fig. 4(xxvi) & 4 (xxvii) show the price spread and share of consumer rupee among different agents involved in marketing of

Table -4.7 (e)

Price-spread of *Pasi & Kharahi (bamboo Basket)* in Jorhat Market

(Channel -III: Producer-Middleman/Commission Agent-Wholesaler-Retailer-Consumer)

Sl.No	Items of costs and Market Functionaries	Average Price per Unit	Margin at different levels	% Share
1	**Net Price to the producer (Middleman/Commission Agent's Purchase Price)**	**1,550**	**1,550**	**45.59**
2	**Middleman/Commission Agent's Marketing Cost**	**230**	**215**	**6.32**
	Labour Charges (loading & unloading)	80	85	2.50
	Transportation Cost	75	60	1.76
	Market Cess	35	40	1.18
	Other marketing expenses	40	30	0.88
3	**Middleman/Commission Agent's Selling Price *i.e.* Wholesaler's purchase price**	**2,157**	**392**	**11.54**
4	**Wholesaler's Marketing Cost**	**195**	**205**	**6.03**
	Labour Charge(loading & unloading)	80	75	2.21
	Storage Cost	75	85	2.50
	Market Cess	40	45	1.32
5	**Wholesaler's Selling Price *i.e.* Retailer's Purchase Price**	**2,570**	**208**	**6.10**
6	**Retailer's Marketing Cost**	**280**	**280**	**8.24**
	Transportation Cost	90	85	2.50
	Labour Charge(Handling & Stacking)	40	35	1.03
	Market Cess	35	40	1.18
	Storage Cost	75	80	2.35
	Other marketing expenses	40	40	1.18
7	**Retailer's Price *i.e.* Consumer's Purchase Price**	**3,400**	**550**	**16.18**
Total			**3,400**	**100.00**

Fig. 4(xxvi) Price -spread of bamboo *Pasi and Kharahi* (bamboo basket) in Jorhat Market

(Channel -III: Producer-Middleman/Commission Agent-Wholesaler-Retailer-Consumer)

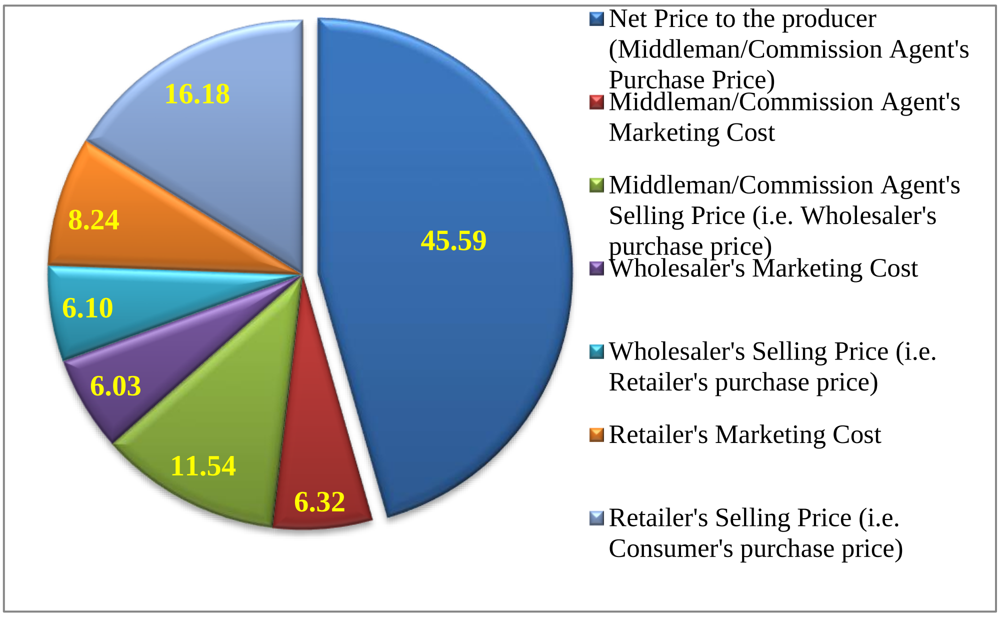


Table -4.7(f)

Price-spread of *Pasi* and *Kharahi (Bamboo Basket)* in Sivasagar Market

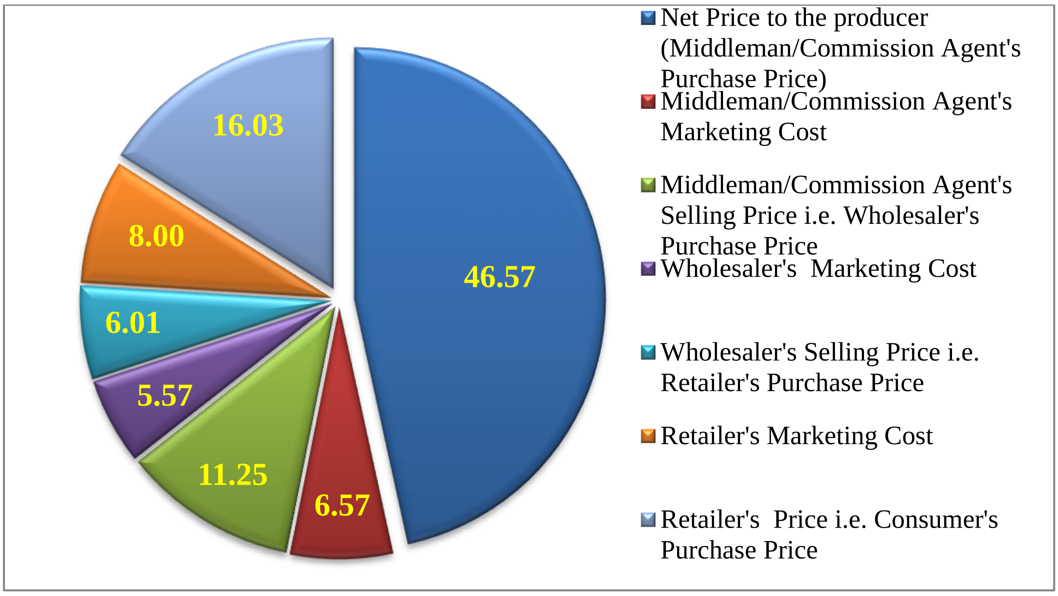
(Channel -II: Producer-Middleman/Commission Agent-Wholesaler-Retailer-Consumer)

Sl.No	Items of costs and Market Functionaries	Average Price per Unit	Margin at different levels	% Share
1	**Net Price to the producer (Middleman/Commission Agent's Purchase Price)**	**1,630**	**1,630**	**46.57**
2	**Middleman/Commission Agent's Marketing Cost**	**230**	**230**	**6.57**
	Labour Charges (loading & unloading)	80	80	2.29
	Transportation Cost	75	75	2.14
	Market Cess	35	35	1.00
	Other marketing expenses	40	40	1.14
3	**Middleman/Commission Agent's Selling Price i.e. Wholesaler's purchase price**	**2,254**	**394**	**11.25**
4	**Wholesaler's Marketing Cost**	**195**	**195**	**5.57**
	Labour Charge(loading & unloading)	80	80	2.29
	Storage Cost	75	75	2.14
	Market Cess	40	40	1.14
5	**Wholesaler's Selling Price *i.e.* Retailer's Purchase Price**	**2,659**	**210**	**6.01**
6	**Retailer's Marketing Cost**	**280**	**280**	**8.00**
	Transportation Cost	90	90	2.57
	Labour Charge(Handling & Stacking)	40	40	1.14
	Market Cess	35	35	1.00
	Storage Cost	75	75	2.14
	Other marketing expenses	40	40	1.14
7	**Retailer's Price i.e. Consumer's Purchase Price**	**3,500**	**561**	**16.03**
	Total		**3,500**	**100.00**

Pasi and *Kharahi* in Jorhat and Sivasagar market in channel-III. Tables show that share of producer is higher in Sivasagar market as compared to Jorhat market while middleman, wholesaler and retailer in Jorhat market enjoyed slightly higher percentage share of consumer rupee in marketing of *Pasi* & *Kharahi*.

Fig. 4(xxvii) Price- spread of bamboo *Pasi and Kharahi* (bamboo Basket) in Sivasagar Market

(Channel -II: Producer-Middleman/Commission Agent-Wholesaler-Retailer-Consumer)



Price spread of *Decorative Items*

The existing marketing Channel for the ***Decorative Items*** in the sample area are discussed here under.

Channel - I : Producer – Retailer – Consumer

Table-4.8 (a) and Table-4.8(b) show the price spread of *Decorative Items* for channel-I in Jorhat and Sivasagar market, respectively. In Jorhat market, producers

Table -4.8 (a)
Price-spread of Bamboo *Decorative Items* in Jorhat Market
(Channel-1: Producer-Retailer-Consumer)

Sl.No	Items of costs and Market Functionaries	Price per Unit	Margin at different levels	% Share
1	**Net Price to the producers**	**1,520**	**1,520**	**60.80**
2	**Producer's Marketing Cost**	**305**	**305**	**12.20**
	Labour Charges (loading & unloading)	70	70	2.80
	Transportation Cost	160	160	6.40
	Market Cess	40	40	1.60
	Other marketing expenses	35	35	1.40
3	**Producer's Selling Price *i.e* Retailer's Purchase Price**	**1,825**	**0**	**0**
4	**Retailer's Marketing Price Cost**	**260**	**260**	**10.40**
	Storage Charge	90	90	3.60
	Labour Charge(Handling & Stacking)	80	80	3.20
	Market Cess	50	50	2.00
	Other marketing expenses	40	40	1.60
5	**Retailer's Price *i.e.* Consumer's Purchase Price**	**2,500**	**415**	**16.60**
Total			**2,500**	**100.00**

Table-4.8 (b)
Price-spread of Bamboo *Decorative Items* in Sivasagar Market
(Channel-1: Producer-Retailer-Consumer)

Sl.No	Items of costs and Market Functionaries	Price per Unit	Margin at different levels	% Share
1	**Net Price to the producers**	**1620**	**1,780**	**62.31**
2	**Producer's Marketing Cost**	**350**	**350**	**13.46**
	Labour Charges (loading & unloading)	80	80	3.08
	Transportation Cost	180	180	6.92
	Market Cess	50	50	1.92
	Other marketing expenses	40	40	1.54
3	**Producer's Selling Price *i.e* Retailer's Purchase Price**	**1970**	**0**	**0**
4	**Retailer's Marketing Price Cost**	**210**	**210**	**8.08**
	Storage Charge	60	60	2.31
	Labour Charge(Handling & Stacking)	70	70	2.69
	Market Cess	45	45	1.73
	Other marketing expenses	35	35	1.35
5	**Retailer's Price *i.e.* Consumer's Purchase Price**	**2,600**	**420**	**16.15**
Total			**2,600**	**100.00**

Fig.4 (xxviii) Price -spread of bamboo *Decorative Items* in Jorhat Market
(Channel - I: Producer- Retailer-Consumer)

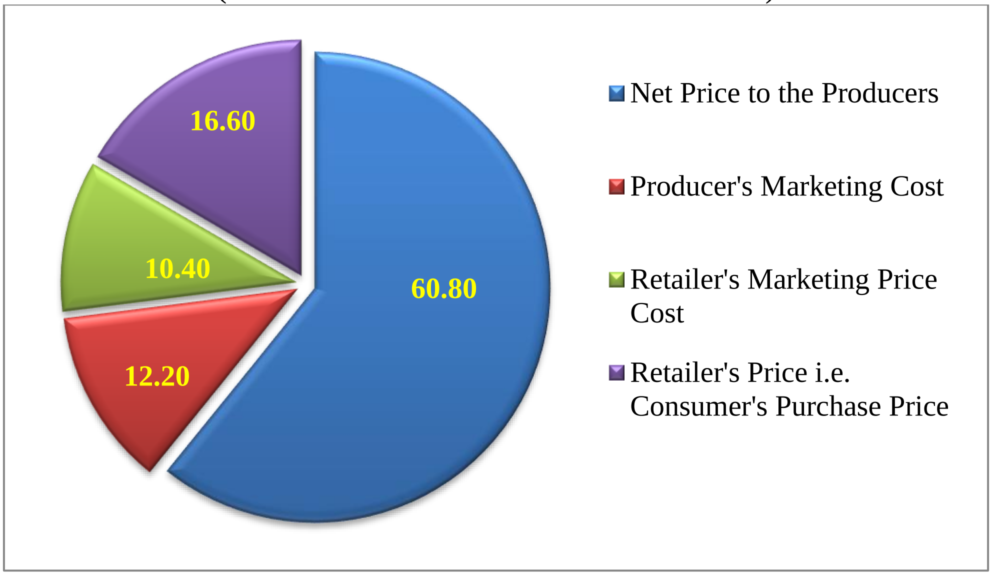
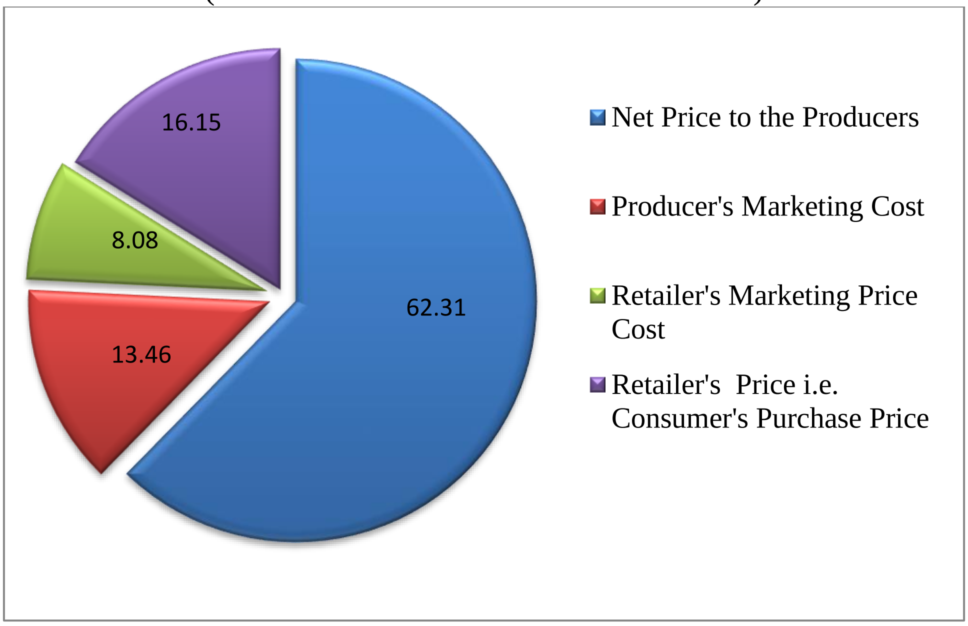


Fig.4 (xxix) Price -spread of bamboo *Decorative Items* in Sivasagar Market
(Channel - I: Producer- Retailer-Consumer)



obtained 60.80 per cent net share of consumer rupee in marketing of 10 units of production, while the corresponding figure in Sivasagar market was 62.31 per cent. Retailers fetched 16.60 per cent net share in Jorhat market and 16.15 per cent in Sivasagar market. Producer's marketing cost was estimated at 12.20 per cent and 13.46 per cent in Jorhat and Sivasagar market, respectively, while retailers marketing cost was found at 10.40 per cent in Jorhat and 8.08 per cent in Sivasagar market.

Graphical representations of the price spread for marketing of decorative items for channel-I are presented by figures 4(xxviii) and 4(xxix).

Channel – II : Producer-Wholesaler-Retailer-Consumer

Table-4.8(c) and Table 4.8(d) show the price spread of decorative items in channel II in Jorhat and Sivasagar market. In this channel, the producer's share in consumer's rupee is 52 per cent in Jorhat market and 53.85 per cent in Sivasagar market. The wholesalers got a share of 10.44 per cent of consumer's rupee in Jorhat market

Table-4.8 (c)

Price-spread of Bamboo made *Decorative Items* in Jorhat Market

(Channel-II: Producer-Wholesaler-Retailer-Consumer)

Sl.No	Items of costs and Market Functionaries	Average Price/10 Nos.	Margin at different levels	% Share
1	**Net Price to the producer (Wholesaler's Purchase Price)**	**1,300**	**1,300**	**52.00**
2	**Wholesaler's Marketing Cost**	**330**	**330**	**13.20**
	Labour Charges (loading & unloading)	90	90	3.60
	Transportation Cost	160	160	6.40
	Market Cess	35	35	1.40
	Other marketing expenses	45	45	1.80
3	**Wholesaler's Selling Price i.e. Retailer's Purchase Price**	**1,990**	**261**	**10.44**
4	**Retailer's Marketing Cost**	**240**	**240**	**9.60**
	Labour Charge(Handling, Grading, Stacking)	80	80	3.20
	Market Cess	40	40	1.60
	Storage Cost	80	80	3.20
	Other marketing expenses	40	40	1.60
5	**Retailer's Price *i.e.* Consumer's Purchase Price**	**2,500**	**369**	**14.76**
Total			**2,500**	**100.00**

Table-3.8 (d)

Price-spread of Bamboo made *Decorative Items* in Sivasagar Market

(Channel-II: Producer-Wholesaler-Retailer-Consumer)

Sl.No	Items of costs and Market Functionaries	Average Price/10 Nos.	Margin at different levels	% Share
1	**Net Price to the producer (Wholesaler's Purchase Price)**	**1,400**	**1,400**	**53.85**
2	**Wholesaler's Marketing Cost**	**345**	**345**	**13.27**
	Labour Charges (loading & unloading)	100	100	3.85
	Transportation Cost	160	160	6.15
	Market Cess	40	40	1.54
	Other marketing expenses	45	45	1.73
3	**Wholesaler's Selling Price i.e. Retailer's Purchase Price**	**2,105**	**257**	**9.87**
4	**Retailer's Marketing Cost**	**240**	**240**	**9.23**
	Labour Charge(Handling, Grading, Stacking)	80	80	3.08
	Market Cess	40	40	1.54
	Storage Cost	80	80	3.08
	Other marketing expenses	40	40	1.54
5	**Retailer's Price *i.e.* Consumer's Purchase Price**	**2,600**	**359**	**13.79**
Total			**2,600**	**100.00**

Fig.4 (xxx) Price-spread of Bamboo made *Decorative Items* in Jorhat Market
(Channel-II: Producer-Wholesaler-Retailer-Consumer)

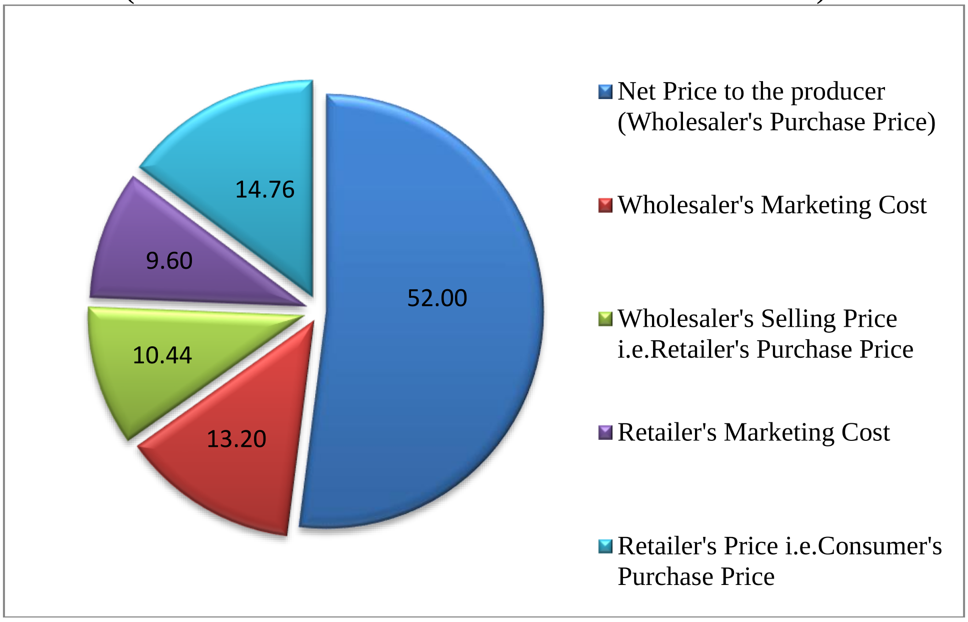
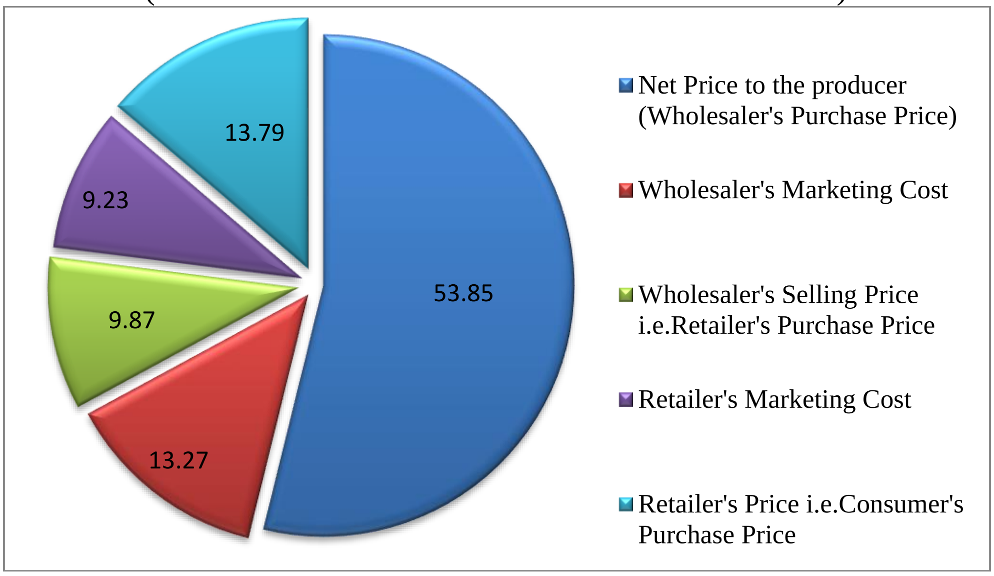


Fig.4(xxxi) Price-spread of Bamboo made *Decorative Items* in Sivasagar Market
(Channel-II: Producer-Wholesaler-Retailer-Consumer)



and 9.87 per cent in Sivasagar market whereas; the share of retailers was 14.76 per cent in Jorhat and 13.79 per cent in Sivasagar market. Fig. 4(xxx) and Fig. 4(xxxi) graphically depicted the price spread under Channel-II in both the markets.

Channel – III: Producer – Commission agent/ Middleman- Wholesaler - Retailer – Consumer

Table-4.8(e) and Table-4.8(f) and Fig.4.(xxxii) & 4.(xxxiii) show the price spread of *decorative items* produced by sample artisans in Jorhat and Sivasagar market. Tables show that, in Jorhat market, producer got a share of 44.00% of the

Table-4.8 (e) Price-spread of Bamboo made *Decorative Item*s in Jorhat Market

(Channel -III: Producer-Middleman/Commission Agent-Wholesaler-Retailer-Consumer)

Sl.No	Items of costs and Market Functionaries	Average Price /10 Nos.	Margin at different levels	% Share
1	**Net Price to the producer (Middleman/Commission Agent's Purchase Price)**	**1,100**	**1100**	**44.00**
2	**Middleman/Commission Agent's Marketing Cost**	**210**	**210**	**8.40**
	Labour Charges (loading & unloading)	70	70	2.80
	Transportation Cost	65	65	2.60
	Market Cess	40	40	1.60
	Other marketing expenses	35	35	1.40
3	**Middleman/Commission Agent's Selling Price i.e. Wholesaler's purchase price**	**1596**	**286**	**11.42**
4	**Wholesaler's Marketing Cost**	**160**	**160**	**6.40**
	Labour Charge(loading & unloading)	55	55	2.20
	Storage Cost	65	65	2.60
	Market Cess	40	40	1.60
5	**Wholesaler's Selling Price *i.e.* Retailer's Purchase Price**	**1,904**	**149**	**5.96**
6	**Retailer's Marketing Cost**	**255**	**255**	**10.20**
	Transportation Cost	65	65	2.60
	Labour Charge(Handling & Stacking)	35	35	1.40
	Market Cess	40	40	1.60
	Storage Cost	75	75	3.00
	Other marketing expenses	40	40	1.60
7	**Retailer's Price *i.e.* Consumer's Purchase Price**	**2,500**	**341**	**13.62**
	Total		**2,500**	**100.00**

Table-4.8 (f) Price-spread of Bamboo made *Decorative Items* in Sivasagar Market

(Channel -III: Producer-Middleman/Commission Agent-Wholesaler-Retailer-Consumer)

Sl.No	Items of costs and Market Functionaries	Average Price /10 Nos.	Margin at different levels	% Share
1	**Net Price to the producer (Middleman/Commission Agent's Purchase Price)**	**1,180**	**1,180**	**45.38**
2	**Middleman/Commission Agent's Marketing Cost**	**225**	**225**	**8.65**
	Labour Charges (loading & unloading)	65	65	2.50
	Transportation Cost	75	75	2.88
	Market Cess	40	40	1.54
	Other marketing expenses	45	45	1.73
3	**Middleman/Commission Agent's Selling Price i.e. Wholesaler's purchase price**	**1,692**	**287**	**11.03**
4	**Wholesaler's Marketing Cost**	**205**	**155**	**5.96**
	Labour Charge(loading & unloading)	75	50	1.92
	Storage Cost	90	70	2.69
	Market Cess	40	35	1.35
5	**Wholesaler's Selling Price *i.e.* Retailer's Purchase Price**	**1,997**	**151**	**5.79**
6	**Retailer's Marketing Cost**	**260**	**260**	**10.00**
	Transportation Cost	70	70	2.69
	Labour Charge(Handling & Stacking)	40	40	1.54
	Market Cess	35	35	1.35
	Storage Cost	80	80	3.08
	Other marketing expenses	35	35	1.35
7	**Retailer's Price *i.e.* Consumer's Purchase Price**	**2,600**	**343**	**13.19**
	Total		**2,600**	**100.00**

Fig. – 4(xxxii) Price-spread of Bamboo made *Decorative Items* in Jorhat Market
(Channel -III: Producer-Middleman/Commission Agent-Wholesaler-Retailer-Consumer)

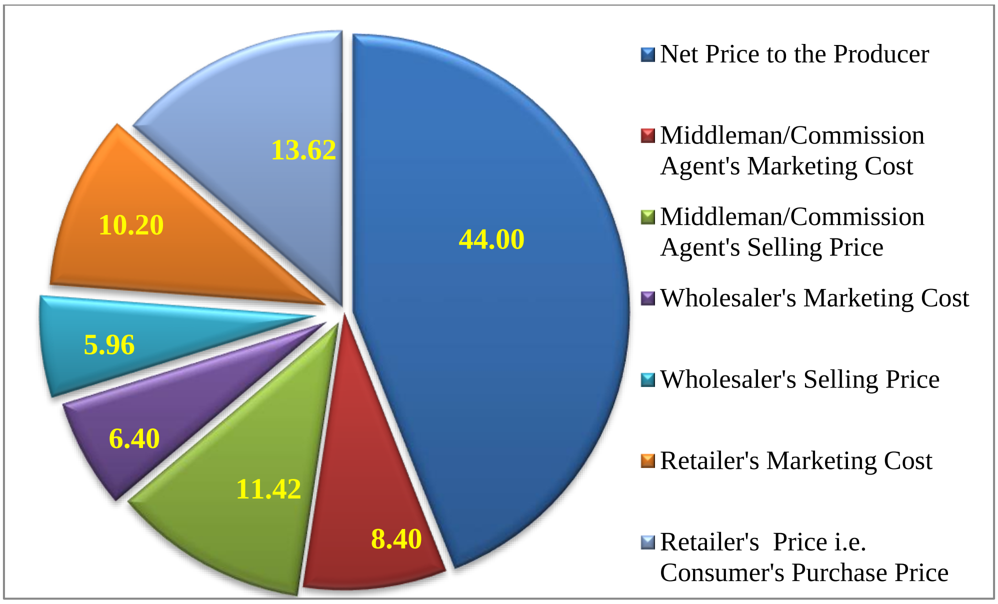
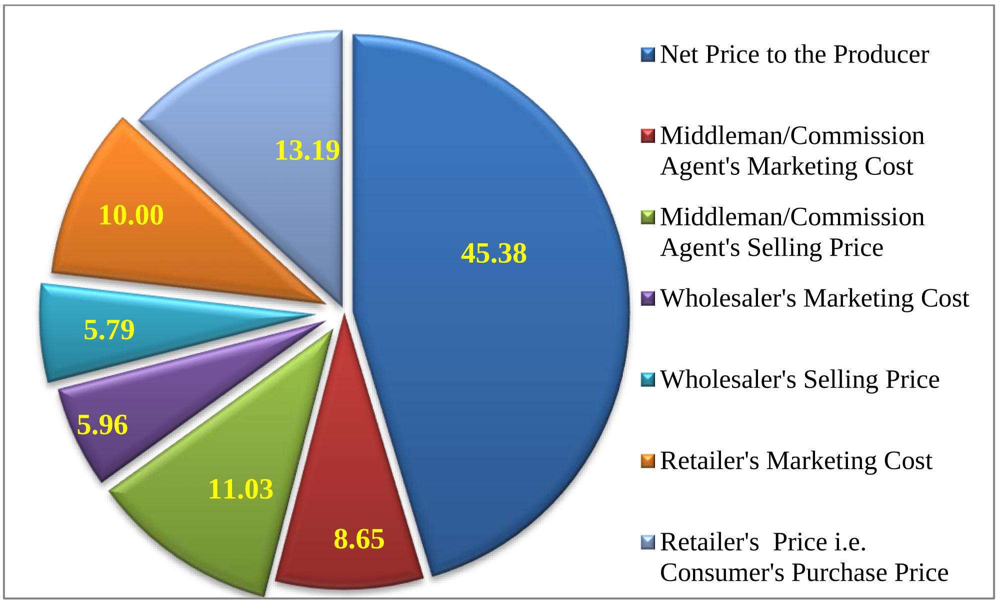


Fig.– 4(xxxiii)Price-spread of Bamboo made *Decorative Items* in Sivasagar Market
(Channel -III: Producer-Middleman/Commission Agent-Wholesaler-Retailer-Consumer)



consumer's rupee followed by retailer (13.62%), middleman/commission agent (11.42%) and wholesaler (5.96%). In Sivasagar market, producer got 45.38 per cent, middleman/commission agents got 11.03 per cent, wholesalers got 5.79 per cent and the retailer's share in consumer's rupee was worked out at 13.18 per cent.

4.8 Volume of transaction of bamboo products through different channels

It was tried to estimate the volume of transaction of different bamboo products produced by the sample artisans through different channels and presented in Table -4.9. Table shows that maximum volume of trade was occurred in channel-III (63.59 %) trailed by channel-II (28.24%) and Channel-I (8.17%).

Table -4.9

Volume of Transaction (In Rs.) of Different Bamboo Products through Different Marketing Channels of the Sample Farmers

Channels	Below Rs.1 lakh	Rs.1-2 lakh	Rs.2-3 lakh	Rs.3 lakh & above	Amount of transactions (Rs.)	PC (%)
Channel- I	545,925	609,888	424,133	714,680	2,294,626	8.17
Channel- II	1,484,916	1,949,125	1,421,123	3,073,126	7,928,289	28.24
Channel- III	2,336,559	3,728,488	3,662,971	8,123,534	17,851,551	63.59
Total					**28,074,466**	**100**

Source: Compiled from field survey data

4.9 Market Efficiency

Market efficiency refers to the degree to which market prices reflect all available relevant information. Channel efficiency is the channel's ability to reach the target based on the cost of use.

Marketing efficiency can be calculated (Acharya's approach) by using the formula: MEE = PP/ (MC+MM), where, PP is price received by the producers, MC and MM denotes marketing costs and marketing margin, respectively.

During the course of the study, market efficiency of three different marketing channels prevailed in two markets of the two sample districts were examined and presented in Table-4.10(a) and Table -4.10 (b).

Table – 4.10(a)

Market Efficiency of different Channels based on Marketing Transaction of Bamboo Products of Sample artisans in Jorhat District

Sl.No.	Particulars	Bamboo *Sofa* Set	*Fishing Equipment*	*Murha* (Bamboo Sitting Tool)	*Pasi & Kharahi* (Bamboo basket)	*Decorative Items*
1	Channel -I	2.05	1.50	1.69	1.79	1.55
2	Channel -II	1.39	1.20	1.21	1.15	1.08
3	Channel-III	0.86	0.76	0.82	0.84	0.79

Source: Compiled from field survey data

Table – 4.10 (b)

Market Efficiency of different Channels based on Marketing Transaction of Bamboo Products of Sample artisans in Sivasagar District

Sl.No.	Particulars	Bamboo *Sofa* Set	*Fishing Equipment*	*Murha* (Bamboo Sitting Tool)	*Pasi & Kharahi* (Bamboo basket)	*Decorative Items*
1	Channel -I	2.17	1.53	1.83	1.87	1.65
2	Channel -II	1.41	1.23	1.25	1.19	1.17
3	Channel-III	0.88	0.78	0.89	0.87	0.83

Source: Compiled from field survey data

From the above analysis of Tables, it can be concluded that although maximum amount of transaction was taken place in channel-III, yet, channel-I can be considered as the most efficient. It may be due to the fact that the number of market intermediaries were less in channel-I as compared to the other channels and thus producers could earn higher margin in channel-I as compared to the other channels existed in the study area.

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Images of Different Bamboo Products Produced by the Sample Artisans

Chapter – V

Problems of (Bamboo) Products Marketing in Assam and Policy Implications

Based on the primary level data and observations made during the investigations, it has been attempted to highlight the problems faced by the bamboo artisans in the sample area in order suggest ameliorative policy measures for efficient (bamboo) products marketing leading to upliftment of the economic status of the bamboo artisans in Assam.

The study highlighted that bamboo- based craft in Assam is mainly a household industry and it occupies an important place among all the handicraft activities of the state. It is a subsidiary occupation for the poor cultivators and a full-time occupation for the skilled artisans who produce various bamboo products on commercial scale.

In spite of having highest concentration of bamboo plantation in the country, North Eastern India's bamboo sector remains highly underdeveloped and the majority of bamboo farmers and artisans in the region live a very tough life in remote villages. Traditional products made at the village level mainly serve domestic purposes. Value chains for bamboo-products are inefficient and inadequate in this region despite the fact that there lies adequate domestic and international demand for it. Adaptation of appropriate technologies, production techniques and market linkages can significantly contribute to boost the bamboo sector and improve the economic conditions of the stakeholders involved in bamboo cultivation and value addition activities.

During the course of the study, the sample artisans were asked to identify the major constraints faced by them in production and marketing of bamboo products and are highlighted in the Table -5.1.

The Table shows that most of the sample artisans encountered a number of challenges to continue with their business. Eighty three per cent of the sample respondents did not access to improved equipments, 90 per cent had no training exposure, 85 per cent felt that cost of raw materials was high, 70 per cent opined that labour cost was higher and 79 per cent suffered due to shortage of labour, another 86 per cent opined that credit facility was very limited, 81 per cent felt that transport cost was higher while 76 per cent viewed that their products were very much prone to insect pests. Moreover, some of the respondents lacked knowledge about latest design and marketing strategies which they identified to be as problem ever.

Table -5.1

Challenges faced by the Sample Artisans

(In percentage)

Sl.No.	Constraints	Frequency		
		Never	Sometime	Always
1.	Inadequate supply of raw materials	45	40	15
2.	Lack of improved equipment	5	12	83
3.	Lack of training facility	6	4	90
4.	High cost of raw materials	6	9	85
5.	High cost of labour	5	25	70
6.	Shortage of labour	3	18	79
7.	Less knowledge about marketing strategies	2	36	62
8.	Lack of technical guidance	5	27	68
9.	Unsound economic condition	2	46	52
10.	Poor access to organized market	7	24	69
11.	Inadequate financial facility	2	12	86
12.	Competition from established and large units	39	26	35
13.	Higher commission charges	21	36	43
15.	Poor road connectivity	42	20	38
16.	High transport charges	2	17	81
17.	Low demand due to high cost and non- durable nature	58	39	3
18.	Presence of intermediaries	18	36	46
19.	Lack of knowledge about latest designs/ current market demands	32	44	24
20.	Lack of modern managerial skills	46	19	35
21.	Problems of quality and prone to insect pests	10	14	76
22.	Lack of strong marketing network	15	26	59

Source: Field Survey

In addition to above cited problems faced by the sample artisans, the bamboo craft artisans of the state are facing some other common problems which are mentioned below –

1. **Low level of education**: Most of the bamboo plantations are concentrated in rural areas and the education levels of the rural artisans are also very low. Lack of proper education makes it difficult for the artisans to manage inventory, access the opportunities of Government schemes and gain market information and to bargain with traders and middlemen. Due to low level of education, they often cannot identify the potential of new markets for their products, nor do they understand the requirements for accessing these markets. Market intelligence continues to be a

neglected area for them. They still remain unaware of the agencies initiated by the Govt. for the benefits of the rural artisans.

2. **Exploitation of middleman**: Exploitation by the intermediaries yet another crucial problem faced by the bamboo artisans in Assam. The middleman/commission agents collected the bamboo products from the producers at a very low price and they usually sold those items at a high price to the consumers. Thus the producers were not getting due share for their products in spite of their hard work.
3. **Lack of organized market**: Lack of proper selling outlets was a genuine problem confronted by the bamboo artisans. The irregular and temporary stalls normally erected for marketing of those products cannot bring in financial gain for the producers. This restricts the entry of new producers to the bamboo industry.
4. **Absence of price mechanism**: In the absence of a price mechanism the bamboo producers were affected adversely. Due to unorganized nature, same products were sold in different prices and it varied from place to place and some producers were compelled to sell their produce at very low price.
5. **Burden of debt**: Large numbers of artisans started their business by taking loan at higher interest rate from the private money lenders and they had to spend a good proportion of their profit in paying the interest of their loans. As a result, the artisans found it difficult to earn commensurate benefit out of their hard labour.
6. **Inflow of low cost products**: Large scale inflows of machine-made items at relatively lower prices competing with the handmade product with higher price tag put the bamboo artisans at a great disadvantageous position. Due to durability and appealing designs, the consumers usually preferred those items to high cost and short durable bamboo products which dampened the spirit of the bamboo artisans.
7. **Insufficient market information**: Lack of market information was continued to be a stumbling block for marketing of bamboo products in Assam. Local artisans were found to be unaware of prevailing market prices and they relied upon the traders/middleman for fixing the prices of their products. So they had to dispose off their produce to the middlemen at lower prices in village market.
8. **Use of age old tools and equipments**: The study revealed that the local artisans are still using simple traditional tools and techniques of production which were very laborious and time-consuming. Availability of modern machines is either not known to them, or they might not have sufficient money to acquire those.

9. **Dearth of market linkages**: Usually, the consumers of bamboo products are from urban areas and the items are generally sold through middleman or local markets and artisans have very limited opportunities to reach the new consumers in urban areas through retail platforms like as departmental stores or shopping malls. Further, due to their rural orientation and limited network support, the artisans were not in a position to utilized online channels as well.
10. **Lack of aggregation**: Production of bamboo based items typically takes place in scattered clusters in rural areas. There was not any organized systems in the study area to efficiently aggregate the items from small producers, carry out quality checks, store the items in warehouses, and supply them to wholesalers and retailers in urban areas. A against this, retailers had to directly collect those from select producers, which was not viable in the long run.

Foregoing discussion clearly indicates that even with the implementation of various programmes and efforts made by the Government for revitalization of handicraft industries in rural areas, the artisans in this sub-sector are yet to improve their economic condition because of various problems they entwined with. Without a reasonable level of income, bamboo artisans are constrained to go for adoption of modern innovations. Considering the potential of bamboo plantation in the state, the Government may come forward to address the problems identified by the artisans highlighted above.

5.1 Artisans' Perceptions

During the course of the study, opinions of the artisans were sought for on various issues relating to bamboo product marketing and are documented in Table- 5.2.

From the Table, it is evident that most of the sample respondents used to run their bamboo product business (90 %) because it was the family activity of their forefathers. Forty percent respondents started the business due to the reason of low investment and 56 percent sample respondents motivated to get involved in the business because of rising demand for bamboo products.

Regarding the marketing of bamboo products, it was found that 24 percent sample artisan sold their products directly in the market, 45 percent disposed off their product to the middleman and rest 31 percent of the sample respondents vended their products to the wholesalers.

Although the Central and the state Government had taken various measures to develop the bamboo sector with timely initiatives to uplift the bamboo artisans under different components of NBM, yet, only 40 per cent of the sample respondents heard about the NBM programme

Table -5.2

Opinion of the Sample Artisans on different aspects of bamboo products marketing

Sl.No	Concern	Opinion
1	What are the motivating factors for getting involved in bamboo product marketing	Less investment-40%, High Demand-56%,Traditional Activity-90%
2	Where do you sell your bamboo Product?	Directly in the Market- 24%, to the middleman-45%, to the wholesaler-31 %
3	Have you heard about NBM ?	Yes – 40% , No -60 %
4	Whether you are satisfied with the return from bamboo products?	Yes - 0 % , No – 100 %
5	Have you undergone any skill development training?	Yes -20% , No-80 %
6	Whether you have Pehchan Card? Whether benefit availed from the card?	Yes-10 %, No-90 %
7	Whether you want to improve the quality of products for better return?	Yes- 75% , No- 25%
8	Whether the demand for bamboo products is increasing?	Yes- 90% No -10 %
9	Whether you have joined any National/ International Expo? If Yes, Whether is profitable?	Yes -18 % , No- 82 % Profitable – 50 %
10	Whether you want to continue and develop your business?	Yes- 92 % , No- 8 %

All the sample artisans reported that they are not satisfied with the return from their products. Due to high cost of labour and materials, it became very difficult to run their family with this venture alone. Eighty percent of the sample artisans did not get any opportunity for skill development training to develop the quality of their products. Only 20 percent of the sample artisans underwent very short duration training which they considered beneficial.

Only 10 percent sample artisans possessed Pehchan Card (Artisan Identity Card) with which they can get some incentives from the Ministry of Textile, Government of India. But, 90 per cent of the total respondents were not aware about the benefits of the card. Seventy five percent of the respondents wanted to improve the quality and design of their products while 25 percent were satisfied with the design and quality of their products.

Most of the sample artisans felt that the demands for their products are increasing due to its unique design, bio degradable nature and durability.

Among the sample artisans, 82 percent took part in national and international exhibition organized by various Government organizations and NGOs and 50 percent of them considered to be very useful.

Nearly 92 percent of the bamboo artisans wanted to take bamboo products marketing as a main occupation for commercial production of bamboo items while only 8 percent of the respondents were averse to expansion of their business.

From the above analysis, it becomes clear that although a large chunk of sample artisan wanted to develop and expand their trade, the situation had not changed over the years because of a number of problems highlighted earlier. So, the Government should come forward to help these artisans with adequate support programmes so that the bamboo sector gets a boost in this part of the country.

5.2 Suggestions for improvement of bamboo craft sector in Assam

Based on the findings of the study and observations made thereon, the following policy implications have been suggested for the development of bamboo sector and bamboo- product marketing in Assam -

1. **Price uniformity in handicraft products**: The prices of handicraft products are very much erratic and not uniform. There lies significant difference in prices of the same article if purchased from two different shops or from two different places. Under the situation, the customer feels very much exploited and harassed. Pricing of the product should be based categorization of art in itself, skill exhibited and quality of raw materials.
2. **Awareness campaign**: The majority of the artisans are not aware of various schemes & programmes launched by the Government, extending loan at concessional rates, free tools& implements, dyes and chemical, work shed-cum-housing facilities, training programme *etc*. Proper promotional campaign should be undertaken to make them educated with all these benefits & opportunities.
3. **Research and development**: There should be continuous research and development efforts for modernization of product-process and upgradation of techniques to meet the changing requirements of the customers.

4. F**oreign collaboration with designers and artisans**: Foreign master designers may be invited by the Government to provide training and render guidance to the bamboo artisans in the state.
5. **Export promotion**: There is considerable scope of exporting of bamboo products to other states of the country and abroad. But, due to heavy export and excise duty levied by the Governments, the prices of bamboo products become very high. It is therefore suggested that the State Government and Central Government should exempt the bamboo items from excise and other taxes and to promote export of bamboo products.
6. **Value addition in bamboo products**: The various dedicated organization, like Development Commissioner (Handicrafts), may help the local units to produce various value added items which would not only help to penetrate the local market, but also help in exporting of such items to other states of the country and abroad.
7. **Proper publicity:** To attract more and more number of buyers both within and outside the country, vigorous promotional campaign should be developed. For this, regular exhibitions and fairs may be arranged by the Government or NGO sector.
8. **Training facility**: It was found that very few artisans had the opportunity of availing some kind of training in the line. As such, facilities may be created to train those artisans so that they can really make a living with making bamboo craft.
9. **Showroom facility**: State Government may take necessary steps to arrange for display of the bamboo craft items in various airports, railway stations, bus stands and commercial centers, *etc*.
10. **Organizing marketing network**: Absence of systematic marketing network of bamboo products has been a matter of much concern in this region. The artisans may organize themselves under the co-operative umbrella for marketing their products. For

    this, more and more linkages are being established with outside consumers. This will encourage the bamboo artisans to produce more attractive and designable products.
11. **Adequate supply of raw materials and inputs**: Government should open raw material shop in every village area in which the rural artisans can get their necessary raw materials at reasonable price on time.
12. **Provision of institutional credit**: Rural artisans should be provided with adequate, timely and cheaper loan facilities for establishment of bamboo-based industries.

Benefits of the subsidy policy, if any, should reach the rural artisans.

13. **Ensure remunerative price for the produce**: The Government policy of announcing minimum support price system has helped the growers of agricultural crops only. But, there is no provision of fixation of prices for bamboo products. It is therefore suggested that the State Government should be empowered to enact pricing policy for fixing minimum prices for the bamboo items produced by the artisans.
14. **Government intervention**: It is suggested that both in production and marketing of bamboo products the Government Agencies should interfere from time to time to ensure the better return to the artisans.
15. **Development of infrastructural facilities**: Adequate infrastructure facilities are a prerequisite for any development process. As such, facilities like transport, communication & power supply can give a boost to the livelihood of bamboo artisans as well.
16. **Attract the young generation**: An institutional approach may create a positive environment to attract the younger generation to adopt the traditional handicraft practices as an alternative avenue for livelihood. For that matter, effective measures may be taken to educate this lot on potentialities and profitability of bamboo & bamboo products.

5.3 Conclusion

The field study clearly indicated that there lies an immense potentiality of growing bamboo plantation in the state of Assam and so is the future of bamboo products. Activities of the NBM are found to be very limited in the entire NE region despite having vast opportunities. A comprehensive approach with restructured NBM, ably supported by Government policy is must for growth and development of this sector. Bamboo craft still continues to be a household enterprise and no serious look has been given for marketing of bamboo products as yet. The critical issues as encountered by the bamboo artisans are needed to be addressed through Government intervention, which may include market intelligence, market support & an efficient price mechanism. A concerted effort, if made and executed in true sense of the term, it can open up a new vista for bamboo craft in the state of Assam, which in turn will uplift a large chunk of people in terms of income & employment.

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Appendix -1

Comments on the Draft Report received from Agro-Economic Research Centre Visva- Bharati, Santiniketon

1. Title of report: Market Analysis of Bamboo Products in Assam
2. Date of receipt of the Draft report 12 June 2020
3. Date of dispatch of the comments 06 July 2020
4. Comments on the methodology

   Methodology followed in the study was good enough to justify the objectives of the study. *Proper sampling and appropriate analytical tools have been used.*

5. Comments on analysis, organization, presentation etc.

   Detailed analysis is undertaken and organized as required to satisfy the objectives of the study. However, there are few minor corrections needed:

   a. Delete the word "Suggest" from the content page for the heading of Chapter – V
      Action: Done as per suggestion

   b. Give some references for the facts and figures mentioned in the very first paragraph in Introduction (Chapter –I)
      Action: Done as per suggestion

   c. Use either "ample opportunity" or "greater opportunity" instead of "ample greater opportunity".
      Action: Done as per suggestion

   d. Use standard concept of Price Spread. Price spread is the difference between what consumers pay and what producer receives. The difference consist of both marketing cost and marketing margin by intermediaries.

      Price Spread =Consumer's Price – Producer's Price

      =Marketing Cost + Marketing Margins

      In your report it is wrongly mentioned as Retailer's Price in figures. Thus make necessary corrections in all the tables and figures in section 4.7 of Chapter-IV
      Action: It has been done as suggested.

6. References: The references are exhaustive and good enough. Sources of data mentioned.

7. General remarks: The researchers have done excellent work on an important topic for North East India.

8. Overall view on acceptability of report: The overall quality of the report is very good and covered important issues and components on the topic.

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