

Horticulture for Sustainable Farm Income

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Introduction

In the recent years horticulture provides high value crops and bears a significant role in the economy. Varied agro climatic conditions of North East India allow producing a wide variety of horticultural crops such as fruits & vegetables, tuber crops, plantation crops, flowers, spices etc. The horticultural crops cover approximately 11.35 % of the total cropped area (192.20 million hectares) with an annual production of about 114 million tons which contribute more than 18% in terms of gross agricultural out put of the country in 2010-11. Through implementation of various successful programmes, there has been tremendous progress in the production of fruits and vegetables in terms of both quality and quantity. After China, India is the second largest producer of fruits and vegetables. The country gets the first ranks in production of fruits mango, Banana, Sapota and acid lime and also has recorded the highest productivity in grapes as well. The importance of production and productivity of fruit has been increased substantially owing to its vast export potentiality in the WTO regime. The growths of horticultural crops now provide gainful employment to a larger majority of the farmers and agricultural labour throughout the year. One hectare of fruit production generates 860 man days per annum as against 143 man days for cereal crops. Whereas some industrial attributed crops and cultural intensive crops like grape, banana and pineapple etc. generate much larger employment ranging from 1,000-2,500 man days per hectare per annum.

Field investigation and collected surveying data suggest 50.04 tones of tissue culture banana per hectare yield whereas the yield of sucker banana produces 40.05 tons per hectare land. Data analysis gives the compound fruit growth rate in Assam is 1.89% and that in Sikkim it has been seen to 13.33%, the highest growth rate fruit production in North East India. In Mizoram, the area under horticultural land is found the highest 60.57 than that of other NE States in India

Importance of Horticultural Crops

Diversification of agriculture is considered as an important strategy for agricultural development in India and importance of horticultural crops as a means of diversification and

creation of additional employment opportunities in rural areas is well accepted. Besides, it also promotes development of agro-industries with value addition. Although, Assam has its potentiality for development of horticulture with its wide range of topographical and agro-climatic variations, despite the state is need to harness it better. In a flood affected state like Assam where productivity of major crops like rice is not stable, increase in production of horticultural crops can minimize the impact of crop failure and also can provide monetary security to the farmers.

The horticultural crops have tremendous potentiality to generate gainful employment, flourishing trade and commerce and have the ability to earn foreign exchange besides fighting against malnutrition a common menace production and productivity in NE regional states in India.

Review of Literature

Baruah ("Horticultural Development in Assam", News Star, July 7, 1986) in his research paper on horticultural crop cultivation in Assam has pointed out that in the North-Eastern Region, there is a vast scope for development of horticulture because of its congenial climate, rainfall, soil variability, topography and altitude. Proper and scientific development of horticultural crops will greatly help in increasing the growth of the rural economy and in maintaining the nutritional security.

There are some very good varieties of fruit crops, which have got export quality to the neighbouring countries. For this, more scientific research is needful for all round development to get quality product. In order to harness commercial potentiality of horticultural crops, he has emphasised that a strong growers' co-operative is needed for getting inputs and at the same time, planting materials, proper storage and transport facilities and credit do increase. Growers should be assisted right from planting to marketing and a co-operative effort of all concerned departments of the State government is essential for solving some of the vexed problems.

Bora ("Focus of E. Himalayan Region", The Hindu Survey of Indian Agriculture, 1989, p.43) in his article on the "East Himalayan Region" has observed that there is sufficient development capacity of horticulture in the hill regions of North-East India, particularly for fruit production and processing enterprises as the conditions are ideally suited for cultivation of pineapple, mandarin orange and other sub-tropical and temperate fruits. The region has already produced some of the finest varieties of orange in the country. There are 24,000 hectares of land in the region under pineapple production sector, about 2.82 lakh tones and 30,000 hectares under citrus fruits with an average annual production of 1.38 lakh tones. Considering its potential, the development of fruit processing and preservation industry leaves much to be desired.

Sarkar ("Development in the North-East : Priority Area", Yojana, No.20, 1990) in his paper has examined the potentials and prospects of the development of agriculture, horticulture and allied activities in the North-Eastern Region. He has observed that horticultural crop cultivation can be taken up at different elevations in the hilly region. The ICAR evolved and standardised certain agro techniques on scientific cultivation of agro-horticultural crops either as a single crop or in combination with other crops to derive maximum yield and economic benefits.

Goswami, Sarma and Choudhury (1993), in their research paper opined that the strength for development of horticulture is very high in most of the hilly areas and this is more so in the North-Eastern hills where all kinds of horticultural crops can be grown as the region has been

recognised as valuable gene pool for horticultural crop improvement. They, however, emphasised for the qualitative improvement of variety of horticultural crops followed by adoption of post harvest technology, storage, transportation and marketing.

Saha (1973) has opined that horticulture has a bright prospect in the hill areas of the North Eastern region. The soil and climate of the region provide excellent scope for growing varieties of fruits. Table indicates the highest CGR (%) in the state Sikkim while it is the lowest in Nagaland.

Objectives

The main three objectives are as follows -

- (i) To assess the place of changes in pattern of fruit production in the District of Goalpara.
- (ii) To assess the status of Area Production and productivity of banana in comparison with the production of horticultural crops produced in North East Region.
- (iii) To make an overview of labour practices in producing banana.

Scope of the study

Horticulture is the unique axis of economic development mainly in the region of hills in terms of area, production and productivity. This horticulture study intends to highlight the variation of horticultural crop area.

Methodology

In this paper, analytical and descriptive data based methodology is used. The analysis is based on both Primary and Secondary sources whereas the Primary information have been collected through a purposive random sampling method and Secondary information have been collected from various published sources such as journals, periodicals and reports relating to Goalpara District.

Data analysis and Findings

To pursuit the objective, the data have been analysed under the following three heads:

1. Changes in pattern of fruit production in the District of Goalpara.
2. The status of Area Production and productivity of banana in comparison with the production of horticultural crops produced in North East Region.
3. Overview of labour practices in producing banana.

1. Changes in pattern of fruit production in the District of Goalpara.

The changes in pattern of fruit production in the District of Goalpara has been analysed as follows-

Table 1- Changes in Pattern of Production and Productivity of Fruit (banana) in Assam

Year	Production Year (‘000’ tone)	Productivity (in kg/ua)	Area (in '000' ha)
2001	606.19	13.90	7.18
2002	589.60	13.83	6.94
2003	595.00	13.83	7.00
2004	581.00	13.83	7.00
2005	578.00	13.76	6.00
2006	599.00	13.93	7.00
2007	606.75	14.08	6.14
2008	629.05	13.80	6.03
2009	621.75	13.82	7.10
2010	653.50	13.72	7.37
% Change	7.24	- 1.33	2.58

Source: Horticultural Board of Assam

The above table analyses that percentage change in producing banana from 2001-2011 is 7.24 tones with productivity -1.33 under crop area 2.58 ha.

Table-2: Operational Holdings in the District of Goalpara

Categories	No of holdings	Area (ha)
Large (>2.00 ha)	6987	18929
Small (1.00-2.00 ha)	50479	72867
Marginal (< 1.00 ha)	35143	22921
Landless (<0.50 ha)	10255	

Table-3: Land Use Pattern of the District of Goalpara

Particulars	Area(ha)	%of total area
Gross cropped area	139448	76.43
Net sown area	53502	45.76
Cultivable waste	675	0.37
Current fallow	8886	4.87
Forest area	36503	20.01
Permanent pasture	3576	1.96
Non agricultural use	22122	12.12
Misc. plantation	7156	3.92
Barren and uncultivable	32819	17.99
Cropping intensity	30471	16.7
Total geographical area	182462	100

Table 4: Input Service Providers in the District of Goalpara

Inputs	No of outlets	Quantity
Seed (Argil use)	157	467.60 MT
Nitrogen fertilizers	157	2598 MT
Phosphorus fertilizers	157	1978 MT
Potash fertilizers	157	834 MT
Pesticides	157	843 Lt
Animal/poultry feed	3	24 MT
Vety. Drugs	4	NA
Fish seed (hatchery)	3	5.5 MT
Planning materials (Hort0	2	1.5 MT

Table 5 - Extension Service Providers in the District

Sector	Personnel	Farmers coverage
Govt. sector	144	1,85,522
Input dealers	157	92,181
NGOs	17	2,560
KVK	9	20,500

Table 6 - Farmers Group/Organization in the district

Type	Numbers	Sponsor
SHGs	2570	DRDA, NGOs, SIRD
Farm Management Committee	1670	Dept of Agriculture
Fish Cooperative Society	11	Dept. Cooperative Societies
Dairy Cooperative Society	3	Dept. Cooperative Societies
Consumer Cooperative Society	22	Dept. Cooperative Societies

Table 7- Agro Ecological Situations of the District

AES	Description	Blocks	Area (ha)
AES-I	Foot hills, Old mountain valley, Alluvial	Lakhipur(south) Balijana, Kochdhuwa, Rongjuli	31,324.50
AES-II	Flood free, Old reverine, Alluvial, Middle plains	Part of RongjuliLakhipur, Jaleswar, Kharmuza, Balijana, Matia, Krishnai	71826.20
AES-III	Flood prone, Recent reverine, Alluvial Plains	Part of Rongjuli, Lakhipur, Jaleswar, Kharmuza, Balijana, Matia	36852.40
AES-IV	Hills and hillocks	Krishnai, Balijana, Matia, Lakhipur, Kharmuza	23,954.10
AES-V	Char	Jaleswar and	20,268.80

2. The status of Area Production and Productivity of banana in comparison with the production of horticultural crops produced in North East Region.

The status of Area Production and productivity of banana in comparison with the production of horticultural crops produced in North East Region have been analysed as follows-

Table 8: State-wise Area under Fruits in NE States during 1998-99 to 2009-10

(Area in '000 Hectare) States	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	CGR (%)
Arunachal Pradesh	29.70	44.10	51.10	41.60	40.81	51.42	50.70	51.70	54.60	57.60	57.60	57.60	5.66
Assam	104.80	106.10	107.00	110.80	91.79	94.30	110	113	114	116	122	127	1.61
Manipur	23.80	24.60	24.70	26.10	26.68	53.07	51.20	31.20	33.90	39.10	42.40	42.40	4.93
Meghalaya	23.20	26.90	24.10	24.00	15.27	23.81	23.80	28.30	28.50	28.50	33.00	32.95	2.97
Mizoram	16.40	13.00	18.00	19.00	17.21	21.15	21.20	18.60	20.50	22.30	27.00	24.50	6.39
Nagaland	11.30	19.30	24.70	25.00	8.50	13.31	13.30	9.60	255.70	265.20	28.80	18.16	4.02
Sikkim	9.50	5.90	9.40	12.30	9.95	0.01	8.20	8.90	9.00	9.30	10.50	12.19	2.10
Trnpura	30.40	30.40	28.90	28.30	28.39	30.46	32.40	33.00	33.20	33.90	96.50	31.31	0.25

Source: Department of Agriculture, Govt. of Assam.

Table 9- Production and Productivity of fruit (banana) in Assam:

Year	Production Year ('000' tone)	Productivity (in kg/ua)	Area (in '000' ha)
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Source: Horticultural Board of Assam

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Table 10- Trend of Area, Production & Productivity of Horticultural Crops in Assam from 2004-05 to 2010-11

(Area in lakh hectare, Production in lakh MT & Productivity in Kg. per hectare)

Year	Fruits Crop Area	Production	Productivity	Vegetables Area	Production	Productivity
2004-05	1.10	13.25	12,045	2.23	36.61	16,417
2005-06	1.13	13.52	12,005	2.32	38.18	16,485
2006-07	1.14	13.72	12,139	2.36	38.87	16,469
2007-08	1.16	14.08	12,142	2.38	39.18	16,462
2008-09	1.22	14.95	12,256	2.42	40.52	16,744
2009-10	1.27	15.65	12,370	2.51	42.55	16,952
2010-11	1.32	16.47	12,480	2.60	44.70	17,192
2011-12	1.37	17.63	12,600	2.66	46.20	17,380
CGR (%)	19.12	22.70	4.40	16.17	20.76	5.54

Year	Tubers Area	Production	Productivity	Spices Area	Production	Productivity
2004-05	0.84	6.30	7,500	0.83	2.06	2,482
2005-06	0.80	3.93	4,930	0.86	2.12	2,475
2006-07	0.88	5.46	6,166	0.86	2.14	2,476
2007-08	0.85	5.57	6,553	0.88	2.18	2,478
2008-09	0.87	5.82	6,690	0.90	2.24	2,490
2009-10	0.93	6.39	6,871	0.94	2.35	2,505
2010-11	0.95	6.99	7,327	0.97	2.45	2,530
2011-12	0.90	7.25	8,015	0.98	2.48	2,535
CGR (%)	6.67	13.10	6.43	15.31	16.94	2.09

Source: Department of Agriculture, Govt. of Assam.

Table 11: The state-wise area under horticulture are given by this table as below

States	Area under Horticulture (%)
Arunachal Pradeshs	31.70
Assam	14.04
Manipur	43.48
Meghalaya	30.09
Mizoram	60.57
Nagaland	7.70
Sikkim	45.76
Tripura	30.03
Total	18.91 %

According to the table the highest percentage of area under horticultural crops has been existed in Mizoram and that of lowest percentage in Nagaland among seven states in NE region.

Table 12: Production of fruits in NE Region:

States	Year	Production in '000' MT	CGR % (Compound growth rate)
Arunachal Pradesh	2000-01	123.10	1.38
	01-02	124.90	
	02-03	82.06	
	03-04	101.26	
	04-05	103.2	
	05-06	105.10	
	06-07	107.90	
	07-08	107.00	
	08-09	108.00	
	09-10	108.00	
Assam	2000-01	1293.80	1.89
	01-02	1335.10	
	02-03	1126.46	
	03-04	1181.10	
	04-05	1325.00	
	05-06	1352.00	
	06-07	1372.00	
	07-08	1408.00	
	08-09	1495.00	
	09-10	1565.00	
Manipur	CGR 9.471		
Meghalaya	3.90		
Nagaland	-0.04		
Mizoram	7.62		
Sikkim	13.33		
Tripura	2.09		

Horticultural Fruit Pattern:

Fruits - Banana, Pine apple, Papaya, Assam lemon, Orange, Litchi, Guava, Mango, Sapeta.

Traditional Fruits - Carambola, Letekr, Paniyal, Thekara, RababTenga, AuTanga.

Vegetables - Ash Guard, Bitter gourd, Botle gourd, Brinjal, Broccoli, Cabbage, Capsicum, Carrot, Cauli flower, Chilli, Chow Chow, Cow Pea, Cucumber, Cucurbits, French Bean, Garlie, Knolkhol, Ladies Finger/okra, Lettuce, Mush Melon, Pea, Pointed gourd, Pumpkin, Radesh,

Ridge guard, Snake guard, spinach, Beet, Spine gourd, Sponge gourd, Tomato, Water melon.

Tuber crops-Potato, Sweet Potato, Tapioca, Colacasia, Yam, Kathalu..

Spices - Coriander, Ginger, Chilly, Turmesice, Onion, Garlic, Black Papper, Cumin,Blach cumin, Mint, Fennel, Fenugreek, Bay leaf, curry leaf, Vanilla.

Flowers - Marigold, Tubeiose, Gladioli, Gerbera, Bougainvillea, Mussaeuda, Chry san themum, Dahlia, Orchids, Antirrhinum, Aster, Balsam, Calendula, Camation, Petunia, Portulaca, Salvia, Zinnia.

Medicinal Plants: Amlakhi, silikha, Bhumura, Bael, Nefafu, Brahmi, Sak, Maha, Brhringaraj, Madhusoleng Sarpagandha, Kalmegh, Neem, SafedMusli, Tulsi.

Aromatic Plants: Citronella, Lemongrass, Vetiver, Patchouli.

Nut crops: Areca nut, coronut, cashewnut.

Plantation crops -Belel vine, tea, Rubber, Coffee, Agar.

Source: <http://assamagribusiness.nic.in>

During the last two decades, it has become a significant increase in area and production of horticultural crops in Assam. In case of fruits, the area and production is increased from 19.12% to 22.70% during the period of 2004-05 to 2011-12 respectively. But the increase in productivity was almost negligible (4.40%). This might be attributed to existence of bari-system, use of traditional low yielding varieties and lack of adoption of improved technology. It is observed that the area of vegetables increased only 16.17%, production increased 20.76% and productivity 5.54% only during the same period. In case of tuber crops, the increase in area, production and productivity was 6.67%, 13.10%.

3. Overview of labour use Practices in producing banana.

Overview of labour use Practices in producing banana of Goalpara District have analyzed as follows-

Table 13: Labour use pattern in banana production in Crop-I

Sl No	Particulars	Sucker propagated			Tissue culture banana		
		Family	Hired	Total	Family	Hired	Total
1	Bullock labour(pair days)						
1	Ploughing	2.00	5.00	7.00	2.00	4.75	6.75
2	Harrowing	2.00	2.19	4.19	1.00	1.50	2.50
	Leveling	2.00	2.00	4.00	2.50	1.11	3.61
	Total	6.00 (39.40%)	9.19 (60.60%)	15.19	5.50 (42.70%)	7.36 (57.30%)	12.86
II	Machine labour (hours)						
1	Ploughing	1.33	3.00	4.33	1.46	2.54	4.00
2	Harrowing	1.00	2.24	3.24	1.25	2.30	3.55
3	Leveling	0.30	1.24	1.54	0.43	1.15	1.58
	Total	2.53 (28.80%)	6.48 (71.20%)	9.11	3.14 (34.30%)	5.49 (65.70%)	9.13
III	Human Labour (Man days)						

1	Pit formation	7.00	13.11	20.11	7.00	12.07	19.07
2	Transportation of FYM	5.00	8.66	13.66	5.00	9.72	14.72
3	Pit filling with FYM	5.00	6.22	11.22	4.00	8.92	12.92
4	Planting Fertilizer	4.00	7.75	11.75	5.00	10.02	15.02
5	Application	15.73	16.81	32.54	7.80	26.26	34.06
6	Earthing up	10.00	13.84	23.84	9.00	14.93	23.93
7	Weeding	5.00	17.61	22.61	4.50	20.81	25.31
8	Dry leaf removing	6.69	10.98	17.68	5.78	13.80	19.58
9	Propping	5.38	7.5	12.88	4.82	9.10	13.92
10	Irrigation	44.49	75.05	119.54	38.52	83.83	122.35
11	PPC application	2.50	6.18	8.68	5.35	14.81	20.16
12	Harvesting	15.00	29.91	44.91	13.00	27.41	40.41
	Total	125.78 (37.00%)	213.62 (63.00%)	339.41	109.77 (30.30%)	251.67 (69.70%)	361.44

Table shows that family human labour, nitro genus fertilizers and phosphate fertilizers used were high in case of sucker propagated banana (80.94 man days) than tissue culture banana (69.64 man days). Also hired human labour in case sucker banana were 65.30% which was less than tissue culture banana (71.6%) (Man days)

Major Problems of Horticultural Crops

Though the state of Assam has high strength for the development of horticultural crops, yet it is to become a commercial venture. Factors hindering the horticultural development in the state are as follows-

1. Poor cultivation practices & low yield.
2. Lack of desirable planting facilities.
3. Lack of marketing facilities.
4. Scarcity of trained manpower and extension support.

Conclusion

The above analysis reflects the status area production and productivity of the fruit (banana) in the district of Goalpara. The findings show a sheer need of rapid production of fruit banana in the area as an important and valuable item. The factors responsible indicate two sets of reforms - 1) Attitude of farmers and 2) The Socio-economic conditions of the area. Farmer's attitude must be changed. Strong motivational programs with demonstrative actions must be initiated by the concerned departments and agencies.

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Marketing and Institutional Arrangements for the Development of bamboo with Special Reference to Rangjuli Block under Goalpara District

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Introduction :

Bamboo is just a grass but it varies in height from 1 foot (30cm) plants to giant timber bamboos that can grow to over 100 feet (30m). It grows in many different climates, from jungles to high on mountain side. Bamboo, the poor man's timber is one of the most important forestry species with wide distribution throughout the India. Bamboo has made a major contribution in the rural economy in most of the state of the country. Bamboo has been an important source of income for millions of rural people for sustaining their livelihood. Using various physical and mechanical techniques Bamboos can be made suitable for different purposes. Bamboo grows fast and matures early. The output of Bamboo plantation is great and the use of Bamboo stem is wide. Once successfully planted, Bamboo plants keep on rhizome shooting and maturing every year. The annual selective cutting and sustainable utilization can be implemented without damaging ecological environments

Cottage industries in Assam are many but the most feasible among them can be bamboo industry. The availability of Bamboo in Assam abundance is a motivating factor for the growth of this industry. It can be practice as a household industry where less mechanical equipments are used which makes it ideal for economically weak people. But marketing network and market channels are not properly established. It is a product that has quick turnover and relatively low cost. This study mainly focuses on to identify the nature of marketing change needs of rural people towards Bamboo product and analyzed the impact upon socio economic life.

Bamboo represents one of the world's best natural and renewable resources with large number of use and application which serve as an eco friendly alternative to the rapidly depleting wood resources.

There is immense potential for Bamboo products in the NE region which has abundant bamboo resources which has long been recognized as an essential item for sustenance. If both the supply and demand can be augmented a vibrant bamboo economy can flourish here. There are already existing plywood factories and Paper mills which shut down due to the timber

felling ban which represent existing capacity and a labour force which is familiar with the use and usefulness of Bamboo. Additionally though the dominant species *Melocanna baccifera* is harvester friendly (This is a non-clump forming variety which is easier to harvest than clump forming which require a special method like the horse-shoe method used in Kerala to ensure young clumps are preserved) it is also inflicted by the problem of gregarious flowering on a mass scale not observed anywhere in India. This calls for special and much required attention being paid to this region.

Local names of bamboo in india: Bamboo (English), Banas (Hindi), Veduru (Telugu), Moongil(Tamil), Mulankoombu (Malayalam), Basberankur (Bengali), Kalkipan (Marathi), Baunsagaja (Oriya), Baans (Urdu and Punjabi)'

As a horticulture crop Bamboo will be promoted through the initiative of the government to promote allied sectors in Agriculture. It will also to a large extent remove the stigma of Bamboo being a poor man's timber or an inferior good. Bamboo has the potential to be a cash crop and only when the growers recognize this potential can these opportunities be leveraged. Bamboo grows fast and matures early. Bamboo is an important resource in our socio economic and cultural context. It is best growing wide spread renewable versatile and environment resource. It is important resource of income for rural households in India and elsewhere.

Bamboo, the poor man's timber is one of the most important forestry species with wide distribution throughout the India. Bamboo has made a major contribution in the rural economy in most of the state of the country. Bamboo has been an important source of income for missions of rural people for sustaining their livelihood. Using various physical and mechanical techniques Bamboos can be made suitable for different purposes.

Bamboo grows fast and matures early. The output of Bamboo plantation is great and the use of Bamboo stem is wide. Once successfully planted, Bamboo plants keep on rhizome shooting and maturing every year. The annual selective cutting and sustainable utilization can be implemented without damaging ecological environment.

Importance of study :

Bamboo, the poor man's timber as earlier mentioned, has a vital importance in different aspect. There is sufficient number of bamboo plantaion in the study area it has immense utility and demand. We can produce different products from bamboo and we can set up an industry for different proucts. So far the market is concerned the question arises - who gets? how much is the profit?, and where the marketing places are, and how it helps people? people have also realised the benefits of bamboo plantation and some shift their occupation towards the prospects of this crop. By observing all the prospect and potentiality of bamboo product for an improved livelihood of mass in general in the study area a depth study is necessary. Therefore it is an attempt to study assess

"Marketing and Institutional Arrangements for the Development of Horticulture with Special Reference to Rangjuli Block" in view of the above, this study is undertaken with the following objectives.

Objectives :

1. To study about the marketing practices followed by the bamboo craftsman and bamboo based product seller.
2. To identify the problems or challenges of bamboo base product marketing in rural area.

Methodology of the study :

The study is based on the literature view and field survey. In this study the data has been collected through primary data as well as secondary data. In primary data the main source was field survey and by asking questions to bamboo based product seller and marketing agencies of bamboo through questionnaire. In the secondary we have used books, journals, magazines, internets etc. to collect and gather information for the project. We have to used random sampling method to collect information from bamboo based product seller and from the marketing agencies under Goalpara District..

Bamboo based product :

Literature regarding the multiple uses of bamboo highlights the utility of bamboo for house construction, bamboo ply, agricultural implements, handicraft, irrigation brooms, medicine food, fodder, paper and pulp etc. - Bamboo base flooring, panels, bamboo sticks, bamboo for paper and pulp industries, handicraft and weaving products, bamboo housing, bamboo furniture and stationery, showpieces, bamboo base gasified for electricity, bamboo base fuel, bamboo base fiber and fabric, bamboo base food products, musical instrument, kitchen tools, construction and structural application and also in agricultural application.

Analysis and interpretation :

The present study is based on above objectives and according to those objectives this analysis and interpretation have been made. By following the objectives of the study the below analysis has been done:

1. To study about the marketing practices followed by the bamboo craftsman and bamboo based product seller:

In the study area there is no permanent market place to sell the bamboo based product but there is weekly haat where the craftsman can sell their products. The craftsmen carry their lots and sell in the weekly market. The lots or product are- jaapi, jakoi, khaloi, dola, khorahi, saloni, sepa,,. They sell it at different prices. It varies from time to time i.e. season wise they sell it in different prices. Now a days the prices are like japi-rs.100-120, jakoi-RS.80-110, KHALOI-Rs.40-70, dola-Rs.80-120, khorahi-Rs. 70-100, saloni-Rs.50-100, sepa-Rs. 100-140,. Besides, there are some temporary dealer of bamboo stick who collect the bamboo stick(jharu) from the agents and supply it to different places. The bamboo sticks are collected by the agent from the bamboo stick maker at Rs 6per kg and provide it to dealer at RS7per kg. The seller gathered it from different agent and supply it to different places i.e Jaipur, Hariyana, Kanpur, delhi, Mumbai. Where they made different product from

the sticks like kite, sweep, ice cream stick, scent thick stick. They supply it daily one or two trucks to different places as mentioned above. The dealers don't like to disclose the original rate of the rate that they supply for their threat. like that we collect some data on bamboo made torza bera that is sold at square feet system at Rs. 15 per feet of good quality and the low quality is at Rs 10-12 square feet. there is also no proper market place for the torza ber.

2. To identify the problems or challenges of bamboo base product marketing in rural area: In the proposed area there are almost two or three unorganised sub dealer and many agent in every villages of bamboo sticks product. The prices are different among them. The agent also collect it at different rate from the sticks maker. Due to unavailability of the proper market and organised market the stick makers are not getting the proper amount for their works. Still some people take it as an income source and it become a source of livelihood for them. Like that the craftsmen who made different product are not getting sufficient amount for their labor.

Problem and prospects of cottage industries with special reference to bamboo based products in Rangjuli under Goalpara district.

Inherent problems of small scale and cottage industries in Rangjuli :

The NE regions of India comprising the seven states are quite different from the rest of the country due to their socio-economic, geographical and cultural diversities. Similarly the problem faced by the industrial sector in this area also different from their counter parts in other parts of the country.

The SSI sector in this region suffers from a number of innate constraints like geographical, financial, social, political, infrastructure, entrepreneurial, despites the vast potential for different types of resources based industries, the pace of industrialization is too slow due to the unique geographical location poor availability of capital, inadequate infrastructures, and apprehensive investment climate.

The limitation and constraints which kinks the growth of small scale bamboo based industries at the national level are more or less equally applicable to the problem of this sector in the north eastern region.

Transportation Problem :

Transport of efficient cheap and quick means the wide verities is essential for the expansive of trade and commerce. Geographical location and inadequate transport system in the entire NE region have resulted in gripping disincentives of excessive transportation cost, unique delay in movement of materials and problems of marketing.

It has been observed that the study area - Rangjuli of Goalpara District suffers from inadequate transports and communications facilities, which is the major obstacle to the socio-economic development of the area. Geographical and transport disadvantage discourages industry from locating their units in the backward area.

Findings :

1. There is a lack of an organised market to sell the marketable products.
2. Due to craftsmen are not much educated the marketing strategies followed by them are not upto the mark.
3. Lack of scientific technique.
4. Government scheme nil.
5. Transportation problem
6. Weak marketing channel

Suggestion :

For the development and promotion of bamboo industries which has been recognized as important and appropriate means for accelerating economic development necessary steps to be taken by entrepreneurs, bankers, educational institution, training institution government, NGOs for socio-economic development of the district in particular and the village. The state and the nation in general in respect of the following:-

1) Improving financial facilities: - It is suggested that the banks can eliminate the available delays, guiding the entrepreneurs to overcome ignitions hurdles at the time of lunching their enterprise, effective, monitoring and follow up of utilisation, easy way of receiving loans rescheduling of loan repayment in case of genuine difficulty of entrepreneurs to overcome financial problem.

2) Development management skill and knowledge:- Managerial problem like absenteeism, negative work culture etc. can be removed by participation of the entrepreneurs in the seminars, work shops, training programmes etc.

3) Marketing hat: - Marketing arrangements should be developed the area for the smooth marketing of the products of bamboo sector and elimination of middleman.

Conclusion :

Small scale and bamboo industries are no doubt very important for the economy of NER in particular and the economy of India as a whole recognizing the important role that small scale industrial sector play in the national economy, both the central and state government have to take steps to develop promote and faster their growth. Small scale and bamboo industries are suffering from a number of problems. Some are more or less common to a wide range of industries which others have particular relevance to group of industries located in rural and backward areas. The opportunities are vast in the region, but the still need a holistic approach for overall development of the economy of North East together with Goalpara District.

Bamboo has an important role to play in development. It is a natural vehicle with which to encourage sustainable, integrated burning system. It is an excellent resource on which to build a variety of income and implement generating opportunities with its multiple uses and high value in a range of products aimed at national and international markets, Bamboo shows a great potential for value adding operations, and many different entry points for



Horticulture for Sustainable Farm Income and Protection of Environment

development interventions. Bamboo is not just a crop for poor people, it can generate important political and economic support which, if things are managed well, can translate in to true sustainable development.

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