DETAILED PROJECT REPORT (DPR)

VALUE ADDED PRODUCTS OF BAMBOO BY A COOPERATIVE SOCIETY IN ASSAM

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List of Abbreviations	
NBM	National Bamboo Mission
NMSA	National Mission for Sustainable Agriculture (NMSA)
FC	Finance Commission
CPP	Captive Power Plant
DPR	Detailed Project Report
EHV	Extra High Voltage
Ha	Hectare
BPL	Below Poverty Line
ESP	Electro Static Precipitator
FIs	Financial Institutions
HP	High Pressure
KV	Kilo Volt
KW	Kilo Watt
MCC	Motor Control centre
MP	Medium Pressure
MT	Metric Tonnes
MU	Million Unit
MW	Mega Watt
NCDC	National Cooperative Development Corporation
FRP	Fair and Remunerative Price
FCI	Food Corporation of India
TCD	Tonnes Crushed Per Day
TCH	Tonnes Crushed Per Hour
DSCR	Debt Service Coverage Ratio
Pa	Per annum
FACR	Fixed Assets Coverage Ratio
IRR	Internal Rate of Return
ROI	Rate of Interest

Chapter -1: Summary

1.1 Project at a Glance

The project is for setting up of a bamboo article manufacturing unit by XYZ cooperative society in Assam. The aim is to enhance the income of Below Poverty Line(BPL)/small/marginal farmers by 20% to 30% to their existing income.

Assam is rich in sylvan resources and most of its forests are richly stocked with bamboo and cane of its various species. Bamboo is a raw material of great versatility and forms an integral part of the lifestyle and economy of Assam. With 91 genera and over 1000 species, it is also the fastest growing woody plant in the world. India is the second richest country in terms of Bamboo genetic diversity with a total of 136 species under 36 genera. It encompasses about 8.96 million hectares of forest area, which is equivalent to 12.8 per cent of the total forest cover of the country. In Assam, the important species of bamboo of economic value are the Bhaluka bamboo(bambusa balcooa), Jati bamboo(Bambusa tulda), 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 later for the mat and basket industry.

In fact, certain species of the bamboo can grow 91 cm in just a day, at a rate of almost 4cm/hour. It grows so fast that bamboo groves are easily replaced making it a renewable resource. It absorbs 35% more CO2 per hectare than equivalent trees. There is a 3-5 year return on investment for a new bamboo plantation. It can grow on marginal and degraded land, elevated ground, river banks etc. It adapts to most climatic conditions and soil types. The best thing about bamboo is that it is so versatile that it can be put to all kinds of uses from making furniture to food. In addition to subsistence and livelihood, the real benefits of bamboo accrue from value-added products. Handicrafts (mats, baskets, tools, toys and utensils) and furniture are established possibilities, produced in finished form. Bamboo is also popular in various kitchens where bamboo shoot is used to make pickles, curries and other delicious cuisines. There are musical instruments made of Bamboo.

1.2. Technical Specification of the Machinery

Stages of production and equipments used			
Different stages		Process	Tools and machinery used
Preparation	Primary	Cross cut and remove nodes	Knifes, cutting machine & Hawk saw
	Secondary	Extraction of gummy substances and reduction in starch content	Knifes
Processing	Primary	Splitting into strips	Knifes & splitting machine
		Strips into splits and slivers	Knifes & slivering machine
	Secondary	Treatment	Boiling machine
		Dying	-
		Weaving	-
		Finishing	Blow lamp, spray paint gun and grinding Machine

1.3 About the purchaser of Electricity

The bamboo will be procured by local vendors in the Assam state and national vendors in other state of the country.

1.4 Financial Highlights

1.	Name of the Product	Bamboo Articles
2.	Project Cost a) Capital Expenditure Land Building Shed 500 Sq.ft. Equipment (Hacksaw, Knives, Bamboo Spliter, Hammer, hand drill with bits, scale, fixtures, blow lamp, tin cuter, fret saw etc.) Total Capital Expenditure	 Own Rs.100000.00 Rs. 15000.00 Rs.115000.00
	b) Working Capital Total Project Cost	Rs. 80000.00 Rs.195000.00

1.5 Means of Finance

Financing Pattern	Cogeneration
Own Contribution	100000.00
NCDC loan	95000.00
	195000.00

1.6 Financial Parameters

Sr.No.	Particulars	1st year	2nd year	3rd year	4th year	5th year
1.	Expected net surplus	70.00	70.00	70.00	70.00	70.00
2.	Repayment of principal	23.00	23.00	23.00	23.00	23.00
3.	Interest installment @ 10.60% per annum	12.19	9.75	7.31	4.87	2.44
4.	Total Debts to be served	35.19	32.75	30.31	27.87	25.44
5.	DSCR	1.98	2.14	2.31	2.51	2.75
6.	Average DSCR	2.31				
7.	IRR	30%				
8.	Break-Even Period	51%				
9.	Payback period (PBP)	5 years				

1.7 Strengths of the Project

The main strengths of this project include:

- Background and experience of the promoters
- Project location in potential bamboo area
- Experienced, willing and committed farmers
- Ensured cane availability
- Demand supply gap in bamboo in Assam
- Sustained availability of raw materials
- Substantial socio-economic and environmental benefits
- Latest technology equipment with highest efficiency

1.8 Risk & Mitigates

Risk	Particular	Mitigates
Performance Risk	Ensured Bamboo availability	Experienced senior professionals and staff appointed for the purpose. Excellent support from Farmers
Marketing Risk	Bamboo product Sale / Export	Good marketing channel. Value added products proposed
Regulatory Risk	Conversion / clearance / tariff order	No problem as Government policies are favorable for Bamboo product
Financial Risk	Financial viability of the project	Satisfactory DSCR. Equity Participation.

1.9 Implementation Schedule

The entire project will be commissioned by January, 2019. Meticulous planning and strong project management proposed will ensure this schedule.

1.10 Environment & socio-economic value:

The socio-economic benefits arising out of this project for the local populace will include creation of direct and indirect jobs and rise in the income levels of the Farmers and other people associated with the project.

1.11 Conclusions

Over all, the project is well conceived and conceptualized, with sound commercial viability. The expected financial returns are quite satisfactory. The project is being implemented by promoters having requisite background and experience and with proposed employment of experienced professionals, experts and consultants. All perceived risks have adequate safe guards. The project is recommended for equity participation and lending by financial institutions.

The captioned cogeneration power project is technically feasible and commercially viable. The project is recommended for financing term and working capital loans. The backward and forward linkages of this project / as well as socioeconomic and environment benefits to the local populace make this a win-win project to all the stakeholders.

Chapter -2: Introduction

2.1 Project Background

The proposed project is that of setting up of a bamboo article manufacturing unit by a cooperative society in Assam. Our aim is to enhance the income of Below Poverty Line(BPL)/small/marginal farmers by 20% to 30% to their existing income.

Manufacturing of bamboo based utility and fancy articles are being used in every housed in India and abroad. Bamboos are mainly growing in hill border areas and available in plenty in north eastern states including Assam in India. Various types of domestic utility, decorative and fancy articles are produced out of bamboo by doing certain preliminary process of bamboo with simple technology. Simple tools are being used for making desired articles by the traditional artisans.

There are traditional and non-traditional artisans working in the bamboo handicraft sector and they produce both conventional and modern items. Raw material is sourced from the home gardens as well as from forest and the price of one bamboo ranges between Rs. 25 to Rs. 100 depending on its length and size. Fancy and show case items such as, lamp shade, flower vase, house models and boat models and other household utility articles also produced like baskets, mats and winnows are the main products produced. Traditional and common tools are used for different stages of production purpose. Trained artisans and traditional people are engaged in the bamboo sector with training obtained from the Office of the Development Commissioner (Handicrafts).

Bamboo is a raw material of great versatility and forms an integral part of the lifestyle and economy of Assam. With 91 genera and over 1000 species, it is also the fastest growing woody plant in the world. India is the second richest country in terms of Bamboo genetic diversity with a total of 136 species under 36 genera. It encompasses about 8.96 million hectares of forest area, which is equivalent to 12.8 per cent of the total forest cover of the country. In Assam, the important species of bamboo of economic value are the Bhaluka bamboo(bambusa balcooa), Jati bamboo(Bambusa tulda), 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 later for the mat and basket industry.

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On 25.4.2018, The Cabinet Committee on Economic Affairs has approved Centrally Sponsored Scheme of National Bamboo Mission(NBM) under National Mission for Sustainable Agriculture (NMSA) during remaining period of 14th Finance Commission (2018-19 & 2019-20). An outlay of Rs. 1290 crore (with Rs. 950 crore as Central share) is provisioned for implementation of the Mission during the remaining period of 14th Finance Commission (2018-19 and 2019-20). The Mission will focus on development of bamboo in limited States where it has social, commercial and economic advantage, particularly in the North Eastern regions. The scheme will benefit directly and indirectly the farmers as well as local artisans and associate personnel engaged in bamboo sector including associated industries. The Mission is expected to establish about 4000 treatment/product development units and bring more that 100000 ha under plantation.

2.2 Bamboo handicraft products and market dynamics

Product categorization: Bamboo handicraft products can be categorized into value added products, household utility items and intermediary products. *Value added products* are bamboo blinds, lamp shades, flower vase, bamboo tray, among others; *household utility items* are bamboo baskets, winnow, mat, and Kitchen wears and *intermediary products* include incense sticks, bamboo rearing trays and bamboo mats. These products are produced in all the Assam in varying numbers depending the market

demand. In Assam, most of the bamboo dependent people are involved in the production of household or traditional items which is largely marketed through local markets.

Product linkages to other sectors: Bamboo and its products have various uses and this primary industry is linked to the other secondary and tertiary sectors of the economy. The main linkages of the handicraft sector in Assam are with the agriculture sector, industry sector and tourism sector.

Agriculture sector : Bamboo baskets is the main item used in the agriculture sector and it is used for packing vegetables, fruits and flowers from the farms, betel leaves and sea food containers. Silk worm rearing tray is another important bamboo product used in the sericulture.

Industrial sector: Bamboo products are used in the production of intermediary products in the industrial sector and the key product is the incense stick and bamboo mat. Incense sticks used for the production of agarbathi stick and bamboo mat for the production of bamboo ply. The Cooperative Societies may supply Agarbathi sticks to (1) ITC (Indian Tobacco Company)- Jaya perfumery works, Bangalore, Swasthick Agarbathi Company Haryana, Icon Company, Coimbatore, Sankranthi Agarbathi Company, Bangalore, and Cottage Industries, Amrita, Pondichery; (2) Ambica Aroma Industries, Eluru, (3) Vaibhav Gramodyog Sangh, Mysore and (4) Masthan Agarbathi Company, Hyderabad.

Bamboo mats is another industrial raw material for making bambooply and marketed to different dealers/customers in the Government/Private sector in Assam. Sale of Bamboo mats-mainly are used by Food Corporation of India (FCI), Central/State Warehousing Corporations for storage purpose and for covering temporary shelters by the Sugar mills in Maharashtra & Tamil Nadu.

Tourism sector: Value added finished products are mainly marketed to the tourism centers where they are marketed through exhibitions, emporiums, and private outlets. Bamboo wall hanging is one of the major item.

Market size and nature: In the case of Cooperative Societies, the societies do not sell directly to the consumers as they often do not have direct access to information on final demand. This is more significant in the case of intermediate products and produces. In the case of products which have a

limited local market, the entrepreneurs‘ ability to decide on the product specification is also limited. The units are largely dependent on exhibitions as well as agents for marketing their products; that is detrimental to the smooth functioning and marketing of these products in the peak season of sales. There is limited market accessibility in Assam formal bamboo handicraft sector and the important marketing source are the emporiums, exhibitions and private owned outlets. Emporiums are government owned under Handicraft Development Corporation, and they have established number of outlets in each state. Exhibitions have a major role in the marketing of these products in Assam. These exhibitions are organized by various government and non government institutions around India.

It is thus evident that the formal sector is organized in nature, such as, undertaken by Forest Department, Co-operative Societies, Self Help Groups and NGOs among others. Informal sector is unorganized in nature without any institutional support and guidelines. The nature of technological changes, including development and adoption of new technology is determined by the market forces. The private sector has been in the forefront in adopting new technologies, initiating research and development. There may also be a segment of more organized informal sector catering to global demand through unauthorized harvesting and marketing of bamboo products. The informal sector is expected to grow especially if the formal sector fails to expand to meet the growing demand of modern times. Lack of a structural market is the weakest link in the bamboo based productive chain. Intermediaries still play an important role in the industry which often hinders progress.

Chapter – 3: The project and the Proposal

The proposed project is that of setting up of a bamboo article manufacturing unit by a cooperative society in Assam. Our aim is to enhance the income of Below Poverty Line(BPL)/small/marginal farmers by 20% to 30% to their existing income.

The Assam produce on the whole different variety of bamboo products that include domestic, commercial, value added, premium, intermediary, interior decoration, furniture largely. The production of these items depends on their local and domestic demand, technical skills and raw material accessibility. The production system varies between the different places and the artisans also exhibit different skills and capability although the basic traditional skills are the same. The artisans are traditional and non-traditional, while some are trained and others are not. The source and availability of bamboo are different therefore the price of bamboo too varies and results in cost differences in each area of Assam.

Technological innovation: Technological advancement is the key factor for any production sector as it enhances productivity on one hand and reduces cost of production. In bamboo handicraft sector in Assam technological advancement is poor and most of the people depend on traditional tools and equipments.

Stages of production and equipments used			
Different stages		Process	Tools and machinery used
Preparation	Primary	Cross cut and remove nodes	Knifes, cutting machine & Hawk saw
	Secondary	Extraction of gummy substances and reduction in starch content	Knifes
Processing	Primary	Splitting into strips	Knifes & splitting machine
		Strips into splits and slivers	Knifes & slivering machine
	Secondary	Treatment	Boiling machine
		Dying	-
		Weaving	-
		Finishing	Blow lamp, spray paint gun and grinding Machine

Most of the units being small scale or cottage with poor financial capability use low cost tools and machineries in their different stages of production. Being largely labour intensive they apply manual labour in all stages and this results in reduced productivity per day. These traditional tools are also often locally produced or purchased from the market. They use different types of knifes in the different stages of production.

Important features of mechanization are, increasing the productivity of labour, high quality maintained, large scale production, reducing the cost of production and create variety of design and shapes. Technical developments are more necessary in bamboo treatment methods in Assam. One of the major weaknesses of bamboo used as raw material for production of various items is that it is prone to fungal and insect attacks unless treated appropriately. Therefore, it is necessary to treat the bamboos properly to prevent such occurrences. Borax, Boric acid and copper sulphate are commonly used components in treatments. Most of the artisans do not know the proper combination of the chemical solutions; therefore, it affects the durability and quality of products and largely the health of the users, causing respiratory, skin problems, and other severe ailments if not handled with care and caution. Treatment machines are not cost–effective and hence not in common use. This calls for low cost effective machines to cater to these small scale and cottage industrial units.

Chapter 4: Vision / Mission

The project is for setting up of a bamboo article manufacturing unit by XYZ cooperative society in Assam. The aim is to enhance the income of Below Poverty Line (BPL)/small/marginal farmers by 20% to 30% to their existing income.

The visions are

- To provide better services and facilities to bamboo growers, employees and consumers.
- To earn trust of consumers by yielding superior experience and value.
- To step out for reduction of pollution to improve environmental conditions and thereby achieve area development.
- Driving ambitiousness by operating our businesses at benchmark levels.

Chapter – 5: Feasibility Assessment

Manufacturing of bamboo based utility and fancy articles are being used in every housed in India and abroad. Bamboos are mainly growing in hill border areas and available in plenty in north eastern states including Assam in India. Various types of domestic utility, decorative and fancy articles are produced out of bamboo by doing certain preliminary process of bamboo with simple technology. Simple tools are being used for making desired articles by the traditional artisans.

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new bamboo plantation. It can grow on marginal and degraded land, elevated ground, river banks etc. It adapts to most climatic conditions and soil types. The best thing about bamboo is that it is so versatile that it can be put to all kinds of uses from making furniture to food. In addition to subsistence and livelihood, the real benefits of bamboo accrue from value-added products. Handicrafts (mats, baskets, tools, toys and utensils) and furniture are established possibilities, produced in finished form. Bamboo is also popular in various kitchens where bamboo shoot is used to make pickles, curries and other delicious cuisines. There are musical instruments made of Bamboo.

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It has the following merits:

- It is environmental friendly as it does not add to the existing pollution level
- The transmission and distribution losses are minimized as the plants are located invariably in the rural areas.
- Operating cost is very low.

Chapter – 6: Business Model / Revenue Model

For implementing this project within the desired time and cost schedules, it is essential to undertake meticulous planning, right from the conceptual stages. Following aspects of the project implementation will be crucial:

i) Intensifying bamboo development activities by networking and supporting the farmers from the command area.
ii) Effecting timely project development activities, including securing various approvals / NoC's / permissions for each component.
iii) Appointment of pre-investment consultants and experts for preparation of DPRs, approaching select FIs / bankers, rendering required follow up and achieving financial closure, through raising of required equity and providing necessary securities.
iv) Finalization of mode of project implementation, package route and O&M contracts for individual project components, along with strong owner engineering / consultancy team for effective monitoring of the implementation / commissioning of each component as per the schedule, is recommended, considering the complexities of individual projects.

Benefits

The socio-economic benefits arising out of this project for the local populace will include creation of direct and indirect jobs and consequent rise in the income levels, associated commercial and social infrastructure development in the areas, improved quality and availability of bamboo, better environment and higher returns for the cane crop due to higher yield and bamboo price.

At the national and the State levels, the benefits include, reduced emissions, reduction in the imports of bamboo products, increased tax revenues and reduction in the transportation costs.

The project will have excellent multiplier effect and will become truly a win-win situation for all the stakeholders. Thus, the proposed project has substantial socio-economic and environmental benefits at the local, the State, the Regional and the National levels.

Chapter – 7: Project SWOT Analysis

Strengths (S):

- Background and experience of the shareholders, as well as leadership from the promoters.
- Adequate irrigation from three major irrigation projects of nearby ponds and canals as well as wells, ponds and tube wells, ensuring sustainable bamboo cultivation and availability on a long term basis.
- Favorable policy regime for bamboo product at the Central Govt. and in Assam.
- Innovation, commitment and vision of the promoters, with backward and forward integration planned right from beginning.
- Professional and business like approach of the promoters, with meticulous planning for speedy and successful implementation and operation.
- Excellent response to project, at the local farmer level, State Government., national and international financial institutions, and equity partners.
- Availability of bamboo in the command area to ensure off season operation of the plant.
- Sound financial viability and technical feasibility of the project at the estimated project capital cost and prevailing selling prices of bamboo products, as well as landed prices of various raw materials and inputs.
- Deployment of latest technologies and equipment for bamboo processing machinery.
- A very high order of socio-economic and environmental value to the local populace, Assam State and the country without any impact on the socio-ecological balance.

Weaknesses (W):

- Complexities and higher investment levels of the project. Employment of experienced and professional teams and consultants, as well as project and equity partners, directors on board will reduce this weakness.
- Fluctuating prices of procured Bamboo.
- Changes in the Govt. policies related to Bamboo & Bamboo products.
- Delay in project implementation may affect the overall momentum and support

Opportunities (O):

- Excellent opportunity for expansion of plants and export of surplus products for maximizing returns.

Threats (T):

- Adverse changes in Govt. policies.
- Drought & Natural calamities.

Chapter – 8: Risk Management

Risk	Particular	Mitigates
Performance Risk	Ensured Bamboo availability	Experienced senior professionals and staff appointed for the purpose. Excellent support from Farmers
Marketing Risk	Bamboo product Sale / Export	Good marketing channel. Value added products proposed
Regulatory Risk	Conversion / clearance / tariff order	No problem as Government policies are favorable for Bamboo product
Financial Risk	Financial viability of the project	Satisfactory DSCR. Equity Participation.

Chapter – 9: Products and Markets

Product categorization: Bamboo handicraft products can be categorized into value added products, household utility items and intermediary products. *Value added products* are bamboo blinds, lamp shades, flower vase, bamboo tray, among others; *household utility items* are bamboo baskets, winnow, mat, and Kitchen wears and *intermediary products* include incense sticks, bamboo rearing trays and bamboo mats. These products are produced in all the Assam in varying numbers depending the market demand. In Assam, most of the bamboo dependent people are involved in the production of household or traditional items which is largely marketed through local markets.

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Market size and nature: In the case of Cooperative Societies, the societies do not sell directly to the consumers as they often do not have direct access to information on final demand. This is more significant in the case of intermediate products and produces. In the case of products which have a limited local market, the entrepreneurs‘ ability to decide on the product specification is also limited. The units are largely dependent on exhibitions as well as agents for marketing their products; that is detrimental to the smooth functioning and marketing of these products in the peak season of sales. There is limited market accessibility in Assam formal bamboo handicraft sector and the important marketing source are the emporiums, exhibitions and private owned outlets. Emporiums are government owned under Handicraft Development Corporation, and they have established number of outlets in each state. Exhibitions have a major role in the marketing of these products in Assam. These exhibitions are organized by various government and non government institutions around India.

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Chapter – 10: Resource Mobilisation

Availability of Raw material

The viability of this Project mainly depends on availability of bamboo. The site of the XYZCSL is located in the heart bamboo area. The distance of water supply scheme is 5 km from the site. The required labour is easily available in nearby villages. All infrastructure facilities are available near the site of the factory.

Rainfall

The intensity of water supply depends on irrigation projects and supporting rainfall.

Soil

The majority of the soil which is suitable for bamboo cultivation.

The area is traditional bamboo growing area. The existing and proposed irrigation facilities are adequate to support bamboo cultivation however XYZCSL proposes to improve varietal composition to provide early maturity and high yielding.

From above it can be easily concluded that:

- The factory of ASCSL has good availability and potential for developing bamboo cultivation in the surrounding areas of the factory.
- As the farmers in the region have grown bamboo in the past, it will not be difficult for the society to induce the farmers to bring additional area under cane cultivation.
- The bamboo for the factory of XYZCSL should come from the command area, as this will reduce its transportation cost.
- There is good scope for increasing area under bamboo as the irrigation of these tehsils along the riverside is very good.

CHAPTER – 11: ENVIRONMENT & SOCIO-ECONOMIC BENEFITS

The proposed project is utilizing the bamboo crop in the most efficient manner for eco-friendly products. The optimum production of conventional but quality bamboo products will cater to value added domestic and international markets. The sound techno-economic and commercial viability of this project, coupled with highest efficiency in all aspects of product manufacture, will pave the way for integration of bamboo industry in the country.

The socio-economic benefits arising out of this project for the local populace will include creation of direct and indirect jobs and consequent rise in the income levels, associated commercial and social infrastructure development in the mofussil areas, better environment and higher returns for the bamboo crop due to higher yield and cane price.

At the national and the State levels, the benefits include reduced emissions, reduction in the imports of bamboo products, increased tax revenues and reduction in the transportation costs. At the project and promoter levels, the captioned project offers excellent opportunities for expansion, flexibility of operations depending on the market situation for each product.

The project will have excellent multiplier effect and will become truly a win-win situation for all the stakeholders. Thus, the proposed project has substantial socio-economic and environmental benefits at the local, the State, the Regional and the National levels.

Chapter – 12: Financials

FINANCIALS OF BAMBOO ARTICLE MANUFACTURING UNIT

Manufacturing of bamboo based utility & fancy articles are being used in very houses in India and abroad. Bamboos are mainly growing in hill border areas and available in plenty in north eastern states in India. Various types of domestic utility, decorative and fancy articles are produced out of bamboo by doing certain preliminary process of bamboo with simple technology. Simple tools are being used for making desired articles by the traditional artisans.

1.	Name of the Product	Bamboo Articles
2.	Project Cost c) Capital Expenditure Land Building Shed 500 Sq.ft. Equipment (Hacksaw, Knives, Bamboo Spliter, Hammer, hand drill with bits, scale, fixtures, blow lamp, tin cuter, fret saw etc.) Total Capital Expenditure	 Own Rs.100000.00 Rs. 15000.00 Rs.115000.00
	d) Working Capital Total Project Cost	Rs. 80000.00 Rs.195000.00

Means of Finance

Financing Pattern	Cogeneration
Own Contribution	100000.00
NCDC loan	95000.00
	195000.00

Estimated Annual Production of Bamboo

(Value in thousands)

Sr.No.	Particulars	Capacity in Quintal	Rate	Total Value
(a)	Various Bamboo Articles			500.00
	Total			500.00

(Value in Rupees)

1.	Raw Material	170000.00
2.	Lables and Packing Material	2000.00
3.	Wages (Skilled & Unskilled	150000.00
4.	Salaries	36000.00
5.	Administrative Expenses	5000.00
6.	Overheads	10000.00
7.	Miscellaneous Expenses	5000.00
8.	Depreciation	6500.00
9.	Insurance	1150.00
10.	Interest on term loan(Rs.1,15,000/-)	12200.00
11.	Interest on working capital loan(Rs.80,000/-)	6250.00
12.	Total	404100.00

Estimated Cost Analysis

Sr.No.	Particulars	Capacity Utilization (Rs in thousands)			
		100%	60%	70%	80%
1.	Fixed Cost	62.10	37.26	43.47	49.68
2.	Variable Cost	342.00	205.20	239.40	273.60
3.	Cost of Production	404.10	242.46	282.87	323.28
4.	Projected Sales	500.00	300.00	350.00	400.00
5.	Gross Surplus	95.90	57.54	67.13	76.72
6.	Expected Net Surplus	89.00	51.00	61.00	70.00

Working of DSCR at 80% capacity utilization:

(In thousands)

Sr.No.	Particulars	1st year	2nd year	3rd year	4th year	5th year
1.	Expected net surplus	70.00	70.00	70.00	70.00	70.00
2.	Repayment of principal	23.00	23.00	23.00	23.00	23.00
3.	Interest installment @ 10.60% per annum	12.19	9.75	7.31	4.87	2.44
4.	Total Debts to be served	35.19	32.75	30.31	27.87	25.44
5.	DSCR	1.98	2.14	2.31	2.51	2.75
6.	Average DSCR	2.31				
7.	IRR	30%				
8.	Break-Even Period	51%				
9.	Payback period (PBP)	5 years				

Note: All figures mentioned above are only indicative and may vary from place to place.

Chapter – 13: Plan, Implementation, Monitoring & Evaluation

Project Implementation

For implementing this project within the desired time and cost schedules, it is essential to undertake meticulous planning, right from the conceptual stages. Following aspects of the project implementation will be crucial:

a) Intensifying bamboo development activities by networking and supporting the farmers from the command area.
b) Effecting timely project development activities, including securing various approvals / NoC's / permissions for each component of the integrated project.
c) Appointment of pre-investment consultants and experts for preparation of DPRs, approaching select FIs / bankers, rendering required follow up and achieving financial closure, through raising of required equity and providing necessary securities.
d) Finalization of mode of project implementation, package route and O&M contracts for individual project components, along with strong owner engineering / consultancy team for effective monitoring of the implementation / commissioning of each component as per the schedule, is recommended, considering the complexities of individual projects.
e) XYZCSL proposes to appoint experienced project engineering management consultancy firm, as well as experienced in-house project team for the purpose.
f) Manpower and resource mobilization at required time and effectively.

Project Schedule

The zero date of the project starts from the date of achieving financial closure, expected to be completed by January, 2019. The project will start commercial production by March, 2019.

Monitoring & Evaluation

The society will give half yearly report of the newly commissioned project.

Recommendation

The captioned project is technically feasible and commercially viable. The project is recommended for financing term and working capital loans. The backward and forward linkages of this project / as well as socioeconomic and environment benefits to the local populace make this a win-win project to all the stakeholders.