

BAMBOO CORPORATION MASTERPLAN



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5.1 KEY SUPPORTS REQUIRED.....	40

About us

Bamboo Corporation started on 1971 during that period 1 lakhs families are depending on the corporation for their livelihood as Reed cutters and Mat weavers. At present more than 10000 families depend on the corporation.

At present we are having 6500 Mat weavers and 3500 reed cutters. They are working various part of Kerala In Thiruvanthapuram, Ernakulum, Idukki, Pathanthitta, Kozhikode, Waynad, Thrissur and Palakkad

Our major activities are cutting reeds from forest by tribels and distributing the same for mat weavers and collecting bamboo mats, we are getting reeds from the forest free of cost.

Since demand of mats decreases due to increasing in use of plastic. We are diversified our activities as under.

CHAPTER 1 - **VISION AND MISSION**

VISION

HEALTHY ENVIRONMENT THROUGH BAMBOO AND ITS DERIVATIVES

MISSION

- Production, marketing, distribution of and promotion of environment friendly household products, office equipment and stationery products, industrial products, construction and interior designing products (for home, office and industry), tourism infrastructure, etc.
- Employment generation for skilled, semi-skilled and unskilled population in all strata of the population and create a livelihood opportunity
- Equipping the current infrastructure of High-tech Nellalam Factory at Kozhikode, Bamboo Board Factory at Angamaly and other production centres including Community Weaving Centres to cater to the production and marketing of all the bamboo products
- Creating awareness for cultivation and use of bamboo products for healthy environment among population
- Cultivation of bamboo through own means and contract farming
- Skill development initiatives for production of various bamboo related products
- Creation and development of Research facility in cultivation, harvesting and manufacture of various bamboo derivatives

CHAPTER 2 - **BAMBOO INDUSTRY
OVERVIEW – A BASE FOR
MASTERPLAN**

2.1 POTENTIAL OVERVIEW – BAMBOO PRODUCTS

- Bamboo is a naturally occurring composite material which grows abundantly in most of the part of the world. It is treated as a composite material because it has cellulose fibers imbedded in a lignin matrix. As a cheap and fast-grown resource, with superior physical and mechanical properties, bamboo offers great potential as an alternative to wood. Bamboo can widely substitute not only wood, but also the plastics & other materials in structural and product applications through improvements in processing technologies, product innovation with the application of scientific and engineering skills. Bamboo based industry has vast potential for generating income and employment, especially in the rural areas.
- While considering the sustainability of wood resource around the globe, availability of industrial wood from natural forests is declining. This has raised a growing concern to save forests. Consequently the wood based industry as well as the opportunities in this area have also affected to a large extent. Wood is largely being replaced by plastics, wherever possible. However, the environmental hazards of the plastics always a major concern. Bamboo is renewable, abundantly available, low cost and environment friendly wood resource that creates an upcoming opportunity for the struggling wood based industry with its excellent strength. It has tremendous economic potential with its significant applications and innovative products.
- Some of the major products which can be produced from bamboo are summarised in the following table.

SL NO	NAME OF PRODUCT
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SL NO	NAME OF PRODUCT
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1	BAMBOO PLY	17	TENT POLES
2	BAMBOO MATS	18	LADDERS,
3	BAMBOO TILES	19	HAND-FANS
4	BAMBOO HUTS / ECO CONSTRUCTIONS	20	HANDICRAFTS LIKE TOYS AND DOLLS,
5	BAMBOO HANDICRAFTS	21	MUSICAL INSTRUMENTS
6	BAMBOO CURTAINS	22	VARIOUS DOMESTIC
7	BAMBOO FURNITURE	23	AGRICULTURAL IMPLEMENTS
8	BAMBOO CRUSH BOARD	24	BAMBOO OFFICE STATIONARY
9	BAMBOO LUMBER	25	BAMBOO INCENSE STICK
10	PREFABRICATED INTERLOCKING ECO CONSTRUCTION	26	BAMBOO TOOTH PICKS
11	BAMBOO BASKETS	27	BAMBOO TOOTH BRUSH
12	BAMBOO HATS	28	BAMBOO CLOTHS, TURKEY, TOWELS, ETC.
13	BAMBOO UMBRELLA HANDLES	29	BAMBOO TISSUE NAPKINS
14	BAMBOO WALKING STICKS,	30	BAMBOO KITCHEN TOWEL, UTENSILS, ETC.
15	TOOL HANDLES	31	BAMBOO GARBAGE BAGS
16	FISHING RODS	32	BAMBOO FOOD PRODUCTS - SHOOTS

- Since, majority of these products are a sustainable solution for green and healthy environment, and a major substitute for plastic, these products have very high social and environmental value. If these products can be produced at a cost effective manner, these products will have very high demand in the market.

2.2 MARKET SIZE – BAMBOO PRODUCTS

- The International Bamboo and Rattan Organisation estimates the total annual output value of the global bamboo and rattan sector at around USD 60 billion, in 2017, whereas the world export of bamboo and rattan products was estimated at USD 1.7 billion.
- Industrialised bamboo products, which includes bamboo flooring and panels, comprised the main type of export in 2017, with an export value of USD 360 million, accounting for 21% of the total. The second most popular product categories were canned bamboo shoots (19 percent) and

bamboo and rattan furniture (16 percent). Although China is the main exporter of almost all individual bamboo products, the extent of its share in total world exports varies across products. Indonesia is the dominant exporter of seats and an important exporter of furniture. Italy is also a significant player in bamboo furniture. The United States is the largest market for several of the product categories, including plywood, furniture, seats, basketwork, and plaits. Countries in Western Europe are also large buyers of bamboo products across categories.

2.3 AVAILABILITY OF BAMBOO RAW MATERIAL

- According to the Concept Note Issued by the National Bamboo Mission during February 2021, “National Consultation on Opportunities and Challenges for Bamboo in India”, the three main centers for bamboo production are the Asia-Pacific Region (45% of the world’s bamboo forests), Latin America, and Africa.
- The largest importer of bamboo raw material is India (17 percent of world imports), followed by the United States and the Netherlands. India is reportedly home to about 125 indigenous species and 11 exotic species of bamboo from 23 genera. India’s annual bamboo production potential is estimated at 3.23 million tonnes. The poor yield of Bamboo is one of the perennial problems in India. In contrast to China’s average yield of 50 MT/Ha, the maximal yield range in India lies in the range of 10-15 MT/ha since it has not till recently been ‘cultivated’ as any other agri crop. Yields are targeted to be increased by the propagation of quality planting material of the correct species and thereafter giving the right inputs like irrigation and fertilisers.

2.4 RAW BAMBOO PRODUCTION INITIATIVE AND ROLE OF KERALA BAMBOO CORPORATION

(1) NATIONAL INITIATIVE

- The National Bamboo Mission is promoting holistic growth of the bamboo sector by adopting the area-based, regionally differentiated strategy and increasing the area under bamboo cultivation, processing, branding, and marketing. Under the Mission, steps have been taken to increase the availability of quality planting material by supporting the setting up of new nurseries and strengthening existing ones. Guidelines for accreditation of bamboo nurseries and certification of planting material have been released by NBM and States are in the process of accrediting all nurseries – Government and Private.
- To address forward integration, the Mission is taking steps to strengthen the marketing of bamboo products, included industry produced as well as the rich Indian tradition of handcrafted articles moulded to contemporary markets. Correspondingly the area under bamboo plantation is being increased in non-forest Government and private lands to supplement farm income, make available quality raw material to industries and contribute towards resilience to climate change as well. The bamboo plantations are being promoted predominantly in farmers, fields, homesteads, community lands, arable wastelands, and along irrigation canals, water bodies, etc. The Mission is being implemented in States where it has a social, commercial, and economical advantage, particularly in the States of North-Eastern region and Madhya Pradesh, Maharashtra, Chhattisgarh, Odisha, Karnataka, Uttarakhand, Bihar, Jharkhand, Andhra Pradesh, Telangana, Gujarat, Tamil Nadu, and Kerala.

(1) KSBC'S PRESENT AND PROPOSED INITIATIVES FOR RAW BAMBOO PRODUCTION

- As a part of this initiative, Kerala State Bamboo Corporation has also a part in high-density bamboo plantation in the State of Kerala and NBC has sanctioning grant for the same recently. The NBC has approved grant for high-density bamboo plantation in 588 hectares of land. In this connection KSBC has already made MOU with Aligarh University, Malappuram for cultivation in 300 acres and Aralam Farm, Kannur for an extent of 200 acres of bamboo cultivation. There are many other MOUs under pipeline with various Governmental and Non-Governmental organizations for the cultivation of Bamboo. There are many Government and other Universities and Colleges interested to execute MOU for bamboo cultivation.
- The implementation of High-density Bamboo plantation shall be executed on a modular basis with in a period of 4 years. All major varieties of bamboo which are required to be used as raw material for the production of various products will be cultivated. It is estimated to plant about 2.35 lakh bamboo plants over the project period. This will in-turn ensure continuous supply of raw material from the 5th year onwards. This initiative will ensure seamless supply of raw material at affordable cost to the Corporation and will enable the Corporation to bring in cost effective bamboo products.

2.5 NEED FOR TECHNOLOGY UPGRADATION – AND KSBC'S MEASURES

(1) NEED FOR TECHNOLOGY UPGRADATION

- (a) According the National Bamboo Mission's Concept note, the communities that grow or conserve Bamboo diversity in our country are among the poorest. One of the key reasons could be lack of adequate R&D support, tools and techniques value addition, characterization of Bamboo diversity

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for multiple high-value products like composites for industrial use, and diversity of bamboo-based food, nutrition, and health products.

- There is sufficient literature on bamboo for construction, hardboards, furniture, crafts, incense sticks, etc., though the diffusion of innovative machines to facilitate these uses is still highly limited.
- Characterization of Bamboo diversity for High value uses such as immuno-boosting and other human and livestock medicines, nutraceutical, food, and nutrition substances like vinegar, shoot and leaf extracts, etc. require further attention.
- The use of bamboo charcoal, composites, fibres, and other derivative products in the industry, water treatment, and other industrial and environmental applications requires a major effort to analyze species, space, and season interactions with social practices of managing cultivation areas.
- Soil conservation, fire management, and numerous other applications have been researched. But more precise location-specific recommendations need further work.
- Folk Classification and other kinds of traditional knowledge of Bamboo have to be systematically mapped to the modern systems of classification and utilization. Perhaps new areas of fertile collaborative research will emerge through the close involvement of local communities protecting their IPRs/knowledge rights.
- Local biotechnological, mechanical, and electronic innovations in processing bamboo for conventional as well as new applications needs focused attention to mobilize and initiate action research experiments through thousands of community-based enterprises.

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- Social science including management science applications in institution building for bamboo-based social and market enterprises, DIY knowledge databases, and other open-source multi-language, multi-media databases are needed.
- Dedicated incubators for bamboo-based enterprises need to be set up in tribal and other regions for promoting innovation-based enterprises.
- Cultivating ideas and capitalising the strength of innovation across sector a network of incubation centres could really help develop entrepreneurial mindset among youth. This would support startups towards sector rejuvenation and bringing new innovation with equal participation from Industry to Academia and stakeholder connect while developing future road map for bamboo-based agroforestry models.

(2) KSBC'S PRESENT AND PROPOSED INITIATIVES IN TECHNOLOGY UPGRADATION

- (a) Since, there are lot of new technologies coming in to place across the world, KSBC's current facilities need to be upgraded to the latest to improve productivity and cost competitiveness. Considering these facts and improve the productivity of existing facility and to promote and facilitate diversification and venturing in to various upcoming opportunities and to offer higher earnings to the all the bamboo industry value-chain, more particularly the rural and urban poor across the State of Kerala, KSBC has made various associations and co-operations with different research institutions. Some of the major associations KSBC had made for research support for technology development are with IPRIT, KFRI, IWST, Universities, etc. Further, the Corporation is also associating with these institutions for bamboo cultivation and preservation, new product development, training and skill development, etc. too.

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- (b) In addition, KSBC is also proposing to develop two Incubation Centres, one at Kothamangalam and the other at Kozhikode, for training and skill development of bamboo workers. KSBC is planning to bring up these Incubation Centres as research centre in association with esteemed institutions and Universities in another 3 to 4 years.
- (c) KSBC has already obtained technological supports from above specified institutions for production of cost effective bamboo products such as Corrugated Bamboo Sheets, Bamboo preservation and seasoning, etc. Further, the Corporation is planning to produce Bamboo Crush Boards, Crush Bamboo Lumber, Bamboo Cloths, Bamboo Kitchen Utensils, etc with the support of technology providers.

2.6 NEED FOR INCLUSIVE BUSINESS MODEL FOR 'LIVELYHOOD OF POOR' AND TO PROMOT AND SUPPORT STARTUPS

- (a) Currently, Bamboo is mainly being grown in the natural forests. Only very few farms and households cultivate bamboo in Kerala. Hence, the availability of bamboo is limited mainly to forest or hill areas in the State. Since Bamboo being a renewable source, and it takes only about 4 years to harvest, it will be a consistent and sustainable source of raw material for bamboo based products. Currently, the traditional workers are in to hand made bamboo products including handicraft items. If proper training is being imparted, many of the households, other than the traditional workers, can start producing wide variety of bamboo based products inhouse. Various products like office stationary products, kitchen utensils, household accessories, etc. can be produced in individual households across the State. If proper mechanism for procurement, sales and distribution of these products can be made, majority of the economically backward population can make a livelihood out of bamboo products.

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- (b) In this connection, KSBC is planning to increase its reach in relation to bamboo based hand made products such as office stationary, household accessories, kitchen utensils on a piece rate / piece work basis in all possible areas where the Corporation has a CWC or other centres. Further, KSBC is also proposing to make cluster based bamboo product development in different locations across the State. With this regard, Cluster development for specified bamboo products are under consideration. Bamboo clusters will be developed mainly based on availability of raw material. The Corporation is planning to develop 10 to 14 clusters across the state in the coming 5 to 8 years. The clusters will include production units for Bamboo Incense Sticks, Bamboo Tooth Picks, Bamboo Tooth Brushes, Bamboo Kitchen Utensils, Bamboo Handicrafts, etc. The output so produced in the clusters will be procured by the KSBC and will do marketing and distribution and there by ensure higher return to the member units in the cluster.
- (c) To support and equip the States labour force, KSBC is planning 14 incubation centres minimum one in each district over next 5 to 8 years. Of which the construction of two incubation centres are scheduled to start in current year itself. These incubation centres will impart skills required for production of different bamboo products and bamboo cultivation.
- (d) To support the low income migrant population, who are not in a position to afford to procure raw materials (raw bamboo) or those who does not have a place to work at their residence, KSBC also proposes Common Facilitation Centres at all possible locations more particularly affiliated with CWCs or Depots. In the Common Facilitation Centres, the workers can come and work in the facility and they will be paid on a piece rate basis. This will help them avoid payment for raw material and any person having skill can earn their livelihood. Raw material supply, Quality control, marketing and distribution of such products shall be taken up by the Corporation.

2.7 BAMBOO FOOD PRODUCTS AND FOOD PROCESSING CLUSTERS

- (a) As discussed earlier, KSBC as is implementing the High-Density Bamboo Cultivation at different parts of the State. It proposed to cultivate bamboo in 588 hectares of land. The shoots of almost all these bamboo species proposed can be used as food products. There will be about 5.00 lakh Kg. of bamboo shoots per year available from 4th year onwards. Hence, KSBC is planning to setup bamboo shoots processing facilities at major cultivation locations, more particularly at Kannur and Malappuram. These facilities are proposed to be functional by the end of 4 years from now.

2.8 BAMBOO TOURISM - BAMBOO HUTS AND BAMBOO BAZAARS

- (a) KSBC is already in to Bamboo Hut development projects. It has already completed various Bamboo Hut projects as tourism infrastructure for its clients. KSBC is planning Bamboo Tourism projects in association with KFDC, KTDC, and other major tourism infrastructure providers. KSBC is planning eco friendly bamboo tourism projects to benchmark and impart awareness in this sector within next 5 years. KSBC also plan to develop a Bamboo Village project in association with Panchayaths and KFDC.
- (b) KSBC with the support of NBM is setting up 5 Bamboo Bazaars at different tourism destinations in the State. NBM has approved all the five bamboo bazaars as sales outlet of bamboo products. Out of the 5, one has already inaugurated and started functioning at Kumarakam. The bazaar is obtaining very good tourist attraction and has obtained excellent appreciation from different stakeholders. Other three Bazaars are under construction at major tourist destinations namely Munnar, Thekkdy Mananthavady. Further, KSBC is planning to have one Bazaar at all major

tourism destinations in Kerala. This Bazars will not only increase the business turnover for KSBC but will be a path for export market.

2.9 OTHER PRODUCTS AND PROJECTS UNDER CONSIDERATION

(1) CRUSHED BAMBOO BOARDS AND FLOOR TILES

- (a) KSBC, in addition to the current products under manufacture, planning to start production of Bamboo Crush Board at Hi-Tech Bamboo Factory, Nellalam and Bamboo Board Factory at Angamali. Since, the raw material cost for Bamboo Ply is high and there are shortage of rawmaterial, these factories are functioning at below 50% of its normal capacity. KSBC, after detailed research conducted test production of Crushed Bamboo Boards and it has confirmed that the Crushed Bamboo Boards is a very cost effective production without compromising for quality. It is estimated that with a nominal addition in the machineries, both in BBF and in HTBF 140 numbers of 8x4 sqft (about 4,480 sqft) of Crushed Bamboo Boards can be manufactured per shift (per factory). Further, with miner value addition, these boards can be converted to Bamboo Floor Tiles, and a portion of the production shall be converted to Bamboo Floor Tiles. This project is expected to generate cash profit for KSBC in the coming years. It is expected that, with in a period of 6 months, commercial production of Crushed Bamboo Boards and its value added products more particularly flooring tiles can be started.

(2) BAMBOO PREFABRICATED ECO CONSTRUCTION

Hi-Tech Bamboo Factory at Nellalam will also start production of prefabricated bamboo construction products including interlocking bamboo blocks. It is proposed to start production of prefabricated construction materials with in 3 years.

(3) BAMBOO INCENSE STICK

KSBC has already started manufacturing Incense stick at Nadapuram. There is a huge demand of Incense stick from all over the southern parts of India, Mysore, Bangalore and Kerala. KSBC is planning in start some more Incense stick manufacturing facilities affiliated to its current facilities located at different parts in Kerala.

Chapter – 3 SWOT Analysis

2.10 SWOT ANALYSIS – OVERVIEW

- Strength, Challenges, Opportunities and Threats for Bamboo Industry and KSBC as a PSU are summarised hereunder.

(1) STRENGTHS

Industry Perspective

- The Bamboo and bamboo products are getting prominence worldwide
- It is one of the major renewable source of material which can be substituted for wood and plastic products
- Bamboo is a fast growing wood and plastic substitute for wide range of products
- Bamboo can be grown almost all areas and terrines
- Since Bamboo and its products are environment friendly, it has high potential in the new social life
- Central and States are giving more thrust to Bamboo industries since it is eco-friendly renewable and sustainable
- Many bamboo products can be made without having high end machineries.
- Handicrafts, Kitchen Utensils, etc. can be manufactured in households and will be a livelihood opportunity if properly trained
- Since, majority of the products can be made in households, Cluster development is possible
- It will give an inclusive social and economic growth for the State

KSBC Perspective

- Have good network and infrastructure across the State in procurement and processing (Depots, CWC, etc.)
- Have access to more than 10,000 bamboo workers across the State. Further, have excellent network of skilled and semi-skilled labour.
- Have two major manufacturing facilities in two districts which are strategically located to have access to raw materials and have proximity to domestic and export markets

- Being a PSU it has got high confidence among all stakeholders

(2) WEAKENS

Industry Perspective

- Lack of awareness, knowledge and know-how for ecological oriented bamboo development
- Lack of high quality skilled manpower
- Reduction happening in traditional labour force
- Restricted R&D facilities
- Lack of training facilities
- Weak cross sectoral synergy
- Scarcity of specific bamboo species
- Lack of organised farming
- Import from China
- GST and Taxation

KSBC Perspective

- Working Capital shortage
- Accumulated interest cost on Government Borrowings
- Distribution requirement of bonus and other benefits as per Government direction
- High labour cost since the objective of the organization itself is to support the traditional and economically and socially backward population
- Poor net-worth restrict KSBC from obtaining loans from banks and financial institutions
- Restriction or difficulties in obtaining additional capital for new projects and developments
- Statutory dues.

(3) OPPERTUNITIES

Industry Perspective

- A growing industry, getting more importance across the world
- There is high potential for Incubation Centres to impart skills
- New starts ups are coming in to Bamboo based projects. There is a huge potential for handholding services and marketing supports to these units
- There are enormous potential for R&D
- Construction, Interrail Designing, Stationary, Kitchen Utilities, etc. are now realising the potential for Bamboo based products
- High-Density Bamboo cultivation with the support of NBC will reduce the scarcity of specific bamboo species and thereby leads to reduction in raw-material cost
- There are good potential for export of Bamboo products to US, Europe and Gulf region

KSBC Perspective

- Government support in the form of reduction in interest burden and additional capital infusion will enable the Corporation to go ahead based on the Master Plan
- PSU status and stake holder confidence can be converted to good business opportunity domestically and in export market
- The current networks and labour force can be converted to business volume of handmade products

(4) THREATS

Industry Perspective

- Bamboo Industry development of neighbouring Countries
- Comparing prices to cheaper mass produced articles (plastics etc.)
- Product substitution from wood.

KSBC Perspective

- Competition from imports

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- Government policy decisions

CHAPTER 3 - **KSBC MASTERPLAN
SUMMARY**

3.1 CURRENT AND PROPOSED BAMBOO PRODUCT SPECTRUM

- In line with the Vision and Mission stated above, KSBC has started different activities and plotted its Business current and proposed business plan. A broad spectrum of products / activities which are currently in the product or activity list and proposed to be introduced by the corporation in line with the organization vision are summarised hereunder.

NAME OF PRODUCT		PRODUCTION LOCATION	CURRENT OR PROPOSED
1	BAMBOO PLY	BBF	Current
2	BAMBOO MATS	CWC	
3	BAMBOO TILES	HTBF	
4	BAMBOO HUTS / ECO CONSTRUCTIONS	Client Location	
5	BAMBOO HANDICRAFTS	Home made	
6	BAMBOO CURTAINS	Feeder unit Palakkad	
7	BAMBOO FURNITURE	HTBF	
8	BAMBOO INCENSE STICK	Nadapuram	
9	BAMBOO CRUSH BOARD	BBF and HTBF	Proposed
10	BAMBOO LUMBER	BBF and HTBF	
11	PREFABRICATED INTERLOCKING ECO CONSTRUCTION	HTBF	
12	BAMBOO OFFICE STATIONARY	Home made	
13	BAMBOO CLUSTERS	Different locations	
14	BAMBOO INCUBATION CENTRES	Different locations	
15	COMMON FACILITY CENTRES	Different locations	
16	BAMBOO CULTIVATION	Different locations	

- **3.2 Major Projects and Their Status**
- **3.2.1 Crushed Bamboo Board and Floor tile**

KSBC, after detailed research conducted test production of Crushed Bamboo Boards and it has confirmed that the Crushed Bamboo Boards is a very cost-effective production without compromising for quality. Further, with minor value addition, these boards can be converted to Bamboo Floor Tiles, and a portion of the production shall be converted to Bamboo Floor Tiles.



Scope Of the Project

- Bamboo crush board/strand woven board based projects is high output, less wastage, viability is good Diversity of end product, it can use for furniture, strand woven flooring tile, strand woven boards ,etc.
- This proposal is for the manufacture of strand board of size 8 ft x 4 ft and thicknesses varying from 6mm to 25mm by a new process for making boards from bamboo.
- . From the variance analysis, it can be seen that if the basic price of bamboo is taken as Rs.6500 / wet ton, instead of Rs.7500/- the profitability will go up by Rs.90 lakhs per annum for 250 boards a day and Rs. 180 lakhs per annum for 500 boards a day.

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. PROJECTED ANNUAL PROFIT AND LOSS (for 140 boards in one shift)

		<u>Rs.lakhs</u>
a.	NET SALES VALUE	1680.00
b.	VARIABLE COST:	
	RAW MATERIAL:	450.00
	ADHESIVES :	288.00
	POWER :	25.20
	FUEL :	72.00
	OTHERS:	60.00

	TOTAL b	895.2
c.	GROSS CONTRIBUTION (A-B)	784.80
d.	FIXED COST:	
	Salaries and Wages	310.00
	Other Admin Cost	90.00

	TOTAL	400.00
e.	PROFIT BEFORE INTEREST, DEPRECIATION AND TAXES (C-D)	<u>384.80</u>
f.	Depreciation:	100.00
g.	Interest : on machine loan	180.00
	: on other term loan	20.00
	: on working funds	45.00

g.	Net Profit before taxes	39.80

REQUIREMENT OF WORKING CAPITAL (RS. Lakhs)

	Total	Margin	Borrowed
Bamboo 3 months	108.00	20.00	88.00
Adhesive 1 month	25.00	6.25	18.85
Finished goods 4 weeks	100.00	25.00	75.00
Bills – 4 weeks	125.00	31.25	93.75
TOTAL	358.00	82.50	275.60

- **Bamboo Livelihood Business Incubation Centre, Kothamangalam and Kozhikode**

Livelihood business Incubation center, the main objective is to provide training to traditional bamboo workers to transform or achieve healthy market products is sufficient to meet the future human needs with green living, and also giving opportunity to youth, especially for women empowerment.

Benefits:

- Livelihood generation in Kerala and rest of India
- Promotion of green living
- Providing support and training to start-ups

Status

- Started the Construction of new building at Kothamangalam for Livelihood business Incubation centre, Kothamangalam
- E-tender procedure for procuring machineries is started
- Initial procedure started for constructing Livelihood business Incubation centre, Kozhikode

	Incremental turnover- Rs in Lakhs								
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Nil	25	25	25	75	75	150	150	200	200

- **High density bamboo plantation project**

One of the major reason for lower capacity utilization is lack of availability of Raw Bamboo. KSBC is doing HIGH. DENSITY BAMBOO PLANTATION in 588 hectors of land with the support of NBM in next 4 years.

Benefits

- 2.35 Lakh plants will be cultivated over 4 years
- To resolve the unavailability of raw material
- Maximum capacity utilization of Bamboo ply board factory

Status

- Already made MOU with
- Aligarh University – 300 Acres
- Aaralam Farm – 200 Acres
- Discussions with Universities, Govt. Colleges etc. in progress.

- **Bamboo Handy Craft and Office Stationery**

We are awarded as an accredited agency for selling bamboo office stationery items by LSGD, Government of Kerala. Therefore, we are planning to support the traditional bamboo and rattan weavers of Kerala by resourcing their bamboo products by assuring quality and maintaining healthy relation with them and providing a source of income, holding the policy of Government of Kerala .

Initially we are planning to make a database and cluster of traditional bamboo craft to attract talented people in this sector .

Scope of this Project

- Employment generation
- Replacement of single use plastic products
- International market valued products
- Bamboo products can absorb electromagnetic radiation
- It has a great cost benefit

Current Status About this Project

- We have already started manufacturing in a small scale to meet the local demands.
- Already done initial stage marketing activities about this project.
- Start formation of clusters to meet demand.

	Incremental turnover- Rs in Lakhs								
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Nil	150	210	240	240	240	240	240	240	240

- **Bamboo Bazaars.**

KSBC setting up 5 Bamboo Bazaars at different tourism destinations in the State. NBM has approved all the five bamboo bazaars as sales outlet of bamboo products. Out of the 5, one has already inaugurated and started functioning at Kumarakam. The bazaar is obtaining very good tourist attraction and has obtained excellent appreciation from different stake holders.

Scope of the project

- The products of the corporation are very easily available to the public
- Help to increase brand image of the corporation also best source of regular income
- Able to provide regular income of traditional craft man and traditional workers.

Status

- Already inaugurated and started functioning at Kumarakam

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- Other three Bazaars are under construction at major tourist destinations namely Munnar, Thekkady, Mananthavady.
- Further, KSBC is planning to have one Bazar at all major tourism destinations in Kerala.

	Incremental turnover- Rs in Lakhs								
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
50	100	100	100	150	150	300	300	400	400

- **Bamboo Furniture manufacturing process**

The global bamboo furniture market size was valued at USD 10.09 billion in 2018 and is expected to expand at a CAGR of 5.2% from 2019 to 2025. The growth is primarily attributed to rising investments in infrastructure developments coupled with the use of sustainable raw materials for furniture. Bamboo absorbs 40% more carbon dioxide and releases 35% more oxygen than trees thereby improves the air quality. Awareness regarding the advantages of using this material for sustainability is anticipated to drive the growth. Corporation has two factory (Angamaly and Nellalam) factory and skilled workers. These can be used to set up a bamboo furniture manufacturing unit also sale to our own Bamboo Bazar and other privet dealers.

Scope of the project

- The market is majorly driven by the rise in residential application. Along with offering aesthetic appeal to interiors, bamboo is gaining significant acceptance as a wood substitute due to its mechanical strength, durability, and easy availability.

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- Apart from housing units, bamboo is also used in commercial places such as hotels, offices, and recreational areas. Companies focus on crafting environmentally friendly furniture using bamboo as the major raw material.

Segments Covered

Bamboo furniture is very demanded product its cover nationally or internationally.

Type of product.

- Chairs & Tables
- Stools
- Beds
- Others

Current Status about this project

- Primary building is approved by Manathavadi sanctioned by Machinery purchase
- Already manufacturing furniture in Nellalam Factory Kozhikkodu.

Project Cost Details Summery

1. SHORT TERM PLANS (2021-23)

NBM SUBSIDY APPROVED PROJECTS	Rs. IN LAKHS		
	PROJECT COST	SUBSIDY	OUTHER SOURCE
BAMBOO MATS AND ALLIED PRODUCTS - CMWC ADDITION	120	60	60
BAMBOO FURNITURE	25	12.5	12.5
BAMBOO INCENSE STICK,	25	12.5	12.5
BAMBOO INCUBATION CENTRES	200	200	-
COMMON FACILITY CENTRES	25	12.5	12.5
BAMBOO BAZAARS	60	60	-
BAMBOO CULTIVATION	580	580	-
TOTAL - NBM SUBSIDY PROJECT	1035	937.5	97.5
WAITING FOR FINANCIAL SUPPORT			
BAMBOO HUTS / ECO CONSTRUCTIONS	50		
BAMBOO CRUSH BOARD AND BAMBOO PLY UPGRADATION	1,300		
BAMBOO OFFICE STATIONARY	250		-
BAMBOO CRUSH BOARD - TILE AND LUMBER	1,000		
PREFABRICATED INTERLOCKING ECO CONSTRUCTION	150		
TOTAL - OTHER PROJECTS	2750		
TOTAL SHORT TERM PROJECTS UNDER CONSIDERATION	3,675.40		

MASTERPLAN – BAMBOO CORPORATION

- **MIDTERM PLANS (2023-26)**

PROJECTS	PROJECT COST Rs. in Lakhs
BAMBOO MATS AND ALLIED PRODUCTS	60
BAMBOO HUTS / ECO CONSTRUCTIONS	50
BAMBOO HANDICRAFTS	20
BAMBOO CLUSTERS	20
BAMBOO INCUBATION CENTRES	100
COMMON FACILITY CENTRES	50
BAMBOO FOOD PRODUCTS	50
BAMBOO BAZAARS	30
BAMBOO CULTIVATION	118
TOTAL MEDIUM TERM PROJECTS UNDER CONSIDERATION	498

- **LONG-TERM PLANS (2021-31)**

PROJECTS	PROJECT COST Rs. in Lakhs
BAMBOO MATS AND ALLIED PRODUCTS	200
BAMBOO CLUSTERS	100
BAMBOO INCUBATION CENTRES	200
COMMON FACILITY CENTRES	100
BAMBOO FOOD PRODUCTS	400
BAMBOO BAZAARS	60
TOTAL LONG TERM PROJECTS UNDER CONSIDERATION	1060

INCREMENTAL TURNOVER

- **LAST FINANCIAL YEAR (2ND YEAR) OF SHORT TERM PLAN - 1,115.00 Lakhs**
- **LAST FINANCIAL YEAR (5TH YEAR) OF MID TERM PLAN - 4,118.00 Lakhs**
- **LAST FINANCIAL YEAR (10TH YEAR) OF LONG TERM PLAN - 5,444.25 Lakhs**

INCREMENTAL EMPLOYMENT

- **LAST FINANCIAL YEAR (2ND YEAR) OF SHORT TERM PLAN - 1,600**
- **LAST FINANCIAL YEAR (5TH YEAR) OF MID TERM PLAN - 8,200**
- **LAST FINANCIAL YEAR (10TH YEAR) OF LONG TERM PLAN - 16,725**

.2 ACTIVITY BASED MASTER PLAN

- A summary of projects / activities proposed as detailed in the previous chapter based on the Corporation’s Vision and Mission are summarised in the following Chart.

ACTIVITY BASED MASTER PLAN

KERALA STATE BAMBOO CORPORATION - BUSINESS MASTER PLAN																					
X	NAME OF PRODUCT / PROJECT	PARTICULARS	ACTIVITY MASTER																		
			SHORT TERM		MEDIUM TERM			LONG TERM													
			YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8	YEAR 9	YEAR 10									
2	BAMBOO MATS AND ALLIED PRODUCTS	CWC - Addition																			
4	BAMBOO HUTS / ECO CONSTRUCTIONS	Client Location																			
5	BAMBOO HANDICRAFTS	Home made																			
6	BAMBOO CURTAINS	Feeder unit Palakkad Capacity Expansion																			
7	BAMBOO FURNITURE	HTBF																			
8	BAMBOO INCENSE STICK,	Different locations																			
9	BAMBOO CRUSH BOARD AND BAMBOO PLY UPGRADAT	BBF																			
10	BAMBOO CRUSH BOARD - TILE AND LUMBER	HTBF																			
11	PREFABRICATED INTERLOCKING ECO CONSTRUCTION	HTBF																			
12	BAMBOO OFFICE STATIONARY	Home made																			
13	BAMBOO CLUSTERS	Different locations																			
14	BAMBOO INCUBATION CENTRES	Different locations																			
15	COMMON FACILITY CENTRES	Different locations																			
16	BAMBOO FOOD PRODUCTS	Different locations																			
17	BAMBOO BAZAARS	Different locations																			
18	BAMBOO CULTIVATION	Different locations																			

- Based on the proposed activities the yearly Capital Outlay estimated for net 10 years is summarised hereunder.

KERALA STATE BAMBOO CORPORATION - MASTER PLAN BASED CAPITAL OUTLAY ESTIMATE																					
X	NAME OF PRODUCT / PROJECT	PARTICULARS	VALUE IN RS LAKHS																		
			SHORT TERM		MEDIUM TERM			LONG TERM													
			YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8	YEAR 9	YEAR 10									
1	BAMBOO MATS AND ALLIED PRODUCTS	CWC - Addition		60	60		60				60										
2	BAMBOO HUTS / ECO CONSTRUCTIONS	Client Location			50			50													
3	BAMBOO HANDICRAFTS	Home made				20															
4	BAMBOO FURNITURE	HTBF			25																
5	BAMBOO INCENSE STICK,	Different locations			25																
6	BAMBOO CRUSH BOARD AND BAMBOO PLY UPGRADAT	BBF	650	650																	
7	BAMBOO CRUSH BOARD - TILE AND LUMBER	HTBF			500	500															
8	PREFABRICATED INTERLOCKING ECO CONSTRUCTION	HTBF			150																
9	BAMBOO OFFICE STATIONARY	Home made	25	25																	
10	BAMBOO CLUSTERS	Different locations					10		10										10		
11	BAMBOO INCUBATION CENTRES	Different locations	100	100				100			100								100		
12	COMMON FACILITY CENTRES	Different locations			25			50						50							
13	BAMBOO FOOD PRODUCTS	Different locations						50			50										
14	BAMBOO BAZAARS	Different locations	15	45				30					30								
15	BAMBOO CULTIVATION	Different locations	147	147	88.2	88.2	117.6														
TOTAL CAPITAL OUTLAY			1,904.00	1,571.40	197.60	240.00	60.00	150.00	140.00	110.00	-	-	-	-	-	-	-	-	-	-	-
SUBSIDY AVAILABLE			354.00	273.90	142.60	85.00	-	25.00	85.00	-	-	-	-	-	-	-	-	-	-	-	-
ADDITIONAL CAPITAL REQUIREMENT			1,550.00	1,297.50	55.00	155.00	60.00	125.00	55.00	110.00	-	-	-	-	-	-	-	-	-	-	-

MASTERPLAN – BAMBOO CORPORATION

Projected incremental turnover

KERALA STATE BAMBOO CORPORATION - MASTER PLAN BASED INCREMENTAL TURNOVER														
X	NAME OF PRODUCT / PROJECT	PARTICULARS	INCREMENTAL TURNOVER - RS IN LAKHS											
			SHORT TERM		MEDIUM TERM			LONG TERM						
			YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8	YEAR 9	YEAR 10		
1	BAMBOO MATS AND ALLIED PRODUCTS	CWC - Addition												
2	BAMBOO HUTS / ECO CONSTRUCTIONS	Client Location			100	150	150	187.5	187.5	187.5	187.5	187.5	187.5	187.5
3	BAMBOO HANDICRAFTS	Home made				25	30	37.5	37.5	37.5	37.5	37.5	37.5	37.5
4	BAMBOO FURNITURE	HTBF			100	150	150	187.5	187.5	187.5	187.5	187.5	187.5	187.5
5	BAMBOO INCENSE STICK,	Different locations			50	75	75	93.75	93.75	93.75	93.75	93.75	93.75	93.75
6	BAMBOO CRUSH BOARD AND BAMBOO PLY UPGRADAT	BBF	336	840	1008	1260	1260	1260	1260	1260	1260	1260	1260	1260
7	BAMBOO CRUSH BOARD - TILE AND LUMBER	HTBF			655.2	1092	1638	1638	1638	1638	1638	1638	1638	1638
8	PREFABRICATED INTERLOCKING ECO CONSTRUCTION	HTBF												
9	BAMBOO OFFICE STATIONARY	Home made		150	210	240	240	240	240	240	240	240	240	240
10	BAMBOO CLUSTERS	Different locations				200	200	400	400	400	600	600	600	600
11	BAMBOO INCUBATION CENTRES	Different locations		25	25	25	75	75	150	150	200	200	200	200
12	COMMON FACILITY CENTRES	Different locations				50	50	50	50	150	200	200	200	200
13	BAMBOO FOOD PRODUCTS	Different locations					100	200	300	400	400	400	400	400
14	BAMBOO BAZAARS	Different locations	50	100	100	100	150	150	300	300	400	400	400	400
15	BAMBOO CULTIVATION	Different locations												
TOTAL INCREMENTAL TURNOVER			386.00	1,115.00	2,248.20	3,367.00	4,118.00	4,519.25	4,844.25	5,044.25	5,444.25	5,444.25	5,444.25	5,444.25

FINANCIAL STATUS

Particular	2016 - 2017	2017 - 2108	2018 - 2019	2019 - 2020	2020 - 2021
Turnover (in cr)	12.04	13.72	10.22	8.21	4.48
Operating Profit/Loss (in cr)	-5.35	-4.82	-6.72	-6.98	-7.74
Net Profit/Loss (in cr)	-9.33	-9.78	-11.74	-12.06	-12.59*
Govt.loan	4.96	3.00	5.50	3.30	5.80

PRESENT NET WORTH – (103.5 cr) - NEGATIVE

- Gov. loan interest – 4.6 Cr
- Reed Distribution Loss – 2.5 Cr
- Incentives – 1.5 Cr
- Government Declared Minimum wages DA – 2.5 Cr

CHAPTER 4 - **KEY SUPPORTS REQUIRED**

4.1 KEY SUPPORTS REQUIRED

- Following are the supports required from the Government for smooth and effective implementation of Master Plan projects.
 - Conversion of Government Loans and accrued interest to Equity – This will enable the Corporations Net-worth scenario much better and can approach financial institutions for assistance for different financially viable Master Plan Projects
 - Government may provide yearly revenue grant for paying the yearly bonus to workers, since it is paid based on the direction of Government for the Traditional Worker Welfare. Distribution of bamboo to workers at subsidised rate may also be provided by the Government.