

TECHNO ECONOMIC FEASIBILITY REPORT

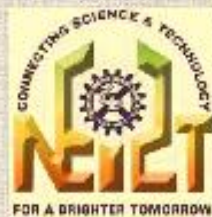
ANUPAM – A PNEUMATIC LOOM

Submitted to

COIR BOARD

Ministry of MSME

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TECHNO ECONOMIC FEASIBILITY REPORT

ANUPAM – A PNEUMATIC LOOM – A VERSATILE COIR AUTOMATIC LOOM FOR WEAVING ALL TYPES OF MATS AND MATTINGS

SUMMARY

Anupam Loom is capable of weaving different kinds of coir products like rod mat, rod inlaid mat, carnatic mat, creel mat, fibre mat, different types of two shaft and 3 shaft coir matting, carpets and geotextiles. In comparison to wooden coir handloom, the operation of Anupam Loom is no longer manually operated. The pneumatic cylinders are connected to the pedal for the up and down movement of the heddles. Anupam loom is a versatile loom to produce all types of mats, matting and geotextiles.

The Anupam Loom under North East Indian conditions is very much technically feasible and economically viable as has been worked out in the feasibility report. However, it is also found that big industries with higher capacity of production with multiple Anupam Loom will not be feasible because of limitation of raw materials as compared to South Indian States. The Anupam loom will be economically feasible in the major coconut producing districts in Assam, which are – Barpeta, Nagaon, Sonitpur, Golaghat, Kamrup & Nalbari. **In Assam at least 20 unit of Anupam Loom and in Tripura at least 8 Anupam Loom unit could be established.**

Plant Capacity :

The production basis for a single ANUPAM LOOM would be as follows :

Working hour per day	: 8 hours
Production capacity	: 16 sq.m. per day
Working Days in a year	: 300 days
Capacity utilization	: 75%, 80%, 85% during first, second & third year & 90% from fourth year onwards.
Annual Production	: 4800 sq.m.

The major highlight of the feasibility report :

1. The Capital requirement	: Rs.11.25 lakh
2. Promoter contribution	: Rs.2.25 lakh
3. Annual Sales (Turnover)	: Rs.24.00 lakh
4. Annual Operating expenses (fixed + variable)	: Rs.12.62 lakh
5. Annual Gross profit (pre-tax)	: Rs.11.38 lakh
6. Annual Gross profit Ratio	: 47.44%
7. Break Even Point	: 19.09%
8. Rate of return on investment	: 47.70%
9. Number of person employed	: 3 persons per day

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11. INTRODUCTION

11.1 General

The coconut palm indeed is a traditional plantation crop grown in India over the past 3000 years with longest mythological and historical record. In spite of the great antiquity attached to coconut crop in the country, organized efforts to develop the crop were made only about a century back and actual systematic efforts for development of coconut palm as a commercial crop begun in 1940s.

Coir is a unique natural fibre with diverse applications of great economic importance extracted from husks of Coconut. India is the largest coir producer in the world accounting for more than 80 per cent of the total world production of coir fibre. The coir sector in India is very diverse and involves households, co-operatives, NGOs, manufacturers and exporters.

The husk yields fibres, which is converted into coir and coir products viz., coil carpets, coir geo-textile, coir composite, coir safety belts, coir boards, coir asbestos and coir pith. Coir pith a secondary by product obtained during defibering process is used as soil conditioner and mending all types of soils. The spongy nature of pith helps in disintegration of clay soil and allows free drainage. Its sponginess helps to retain water and oxygen and also prevents loss of vital nutrients from soil.

Coir fibres measure up to 35 cm in length with a diameter of 12-25 microns. A coconut harvest occurs once in 45 days. From 1000 coconuts it would be possible to extract 10 kgs of coir. Among vegetable fibres, coir has one of the highest concentrations of lignin, making it stronger but less flexible than cotton and unsuitable for dyeing. The tensile strength of coir is low compared to abaca, but it has good resistance to microbial action and salt water damage and needs no chemical treatment.

There are two types of coir - the more commonly used brown fibre, which is obtained from mature coconuts, and finer white fibre, which is extracted from immature green coconuts after soaking for up to 10 months. Mature coir fibres contain more lignin, a complex woody chemical, and less cellulose than fibres such as flax or cotton.

Indian coir industry is an important cottage industry contributing significantly to the economy of the major coconut growing States and Union Territories, *i.e.*, Kerala, Tamil Nadu, Andhra Pradesh, Karnataka, Maharashtra, Goa, Orissa, Assam, Andaman

& Nicobar, Lakshadweep, Pondicherry, etc. Coconut husk is the basic raw material for coir products. Around 50 per cent of the available coir husk is used to produce coir products. Hence, there is scope for growth of coir industry.

There is a huge potential for using coconut husk to set up coir units to produce coir fibre, yarn and other value-added products including coir mattresses. Production of coir *bhoovastra* and coir pith in the North Eastern region could also help in the speedy development of the rural sector. It will be a great achievement for these States if they succeeded in capturing at least 5 per cent each of the Rs. 1,300-crore domestic market for rubberised coir mattresses.

11.2 Brief of the technologies

Central Coir Research Institute, Kalavoor the research center of Coir Board has successfully developed a versatile pneumatic loom called Anupam Loom. It is capable of weaving different kinds of coir products like rod mat, rod inlaid mat, carnatic mat, creel mat, fibre mat, different types of two shaft and 3 shaft coir matting, carpets and geotextiles. The operation of wooden coir hand loom requires a load of 45 kg for movement of the treadles, which is applied manually by workers. In Anupam loom, the treadles are replaced by pedals, which are no longer manually operated. The pneumatic cylinders are connected to the pedal for the up and down movement of the heddles. A second pedal is provided for causing the movement of the sley. Therefore, beating is not manual as in wooden handlooms. This is more advantageous for a women worker who has no difficulty in operating the Anupam loom. Anupam loom is a versatile loom to produce all types of mats, matting and geotextiles whereas separate wooden loom is required for each product. The additional advantage is that the exhaust air can be used for stenciling of coir mats/matting.

The technology has been already transferred to 5 parties for manufacturing the Anupam loom. The Anupam loom for purchase will be available with the following :

- 1) National Coir Research Management Institute, Thiruvananthapuram
- 2) Karnataka state Coir Development Corporation, Bengaluru
- 3) Monarck Engineers, Kochi
- 4) Allepey Coir Cluster Development Society, Alleppey
- 5) Suniti Computers & Telecom, Tripura

11.3 About the North Eastern Region

North Eastern region of India comprising the eight states of Assam, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura is endowed with vast natural resources and has enormous potential of development. The economic structure of north-east India is similar to the general economic structure of India as a whole. But because of its topography as well as social and political conditions it has a relatively backward economy.

The climatic condition in the region varies from temperate to sub-tropical and tropical. The agro-climatic conditions of the region, varied soil types and abundant

rainfall are favourable for cultivation of horticultural crops especially plantation crops. Coconut is one of the most popular crop grown for a long time especially in Assam state and in recent times in others N.E. states. The area and production which were 11,000 hectares and 60 million nuts, respectively, during 1985–86, have now increased to 40,000 hectares and about 178 million nuts, in the North Eastern Region. The cultivation which was confined to Assam, Tripura and to some extent in Manipur, has now spread to states like Nagaland, Mizoram, Arunachal Pradesh and Meghalaya due to efforts made by Coconut Development Board.

The state of Assam is having 20710 ha area under Coconut & with a total production of 1756.13 lakhs of nuts every year. In the State, farmers of Nagaon, Nalbari, Kamrup (R), Morigaon districts and the Bajali sub-division in Barpeta district are the major producers of coconut. Farmers in some areas of Lakhimpur and Dhemaji districts also produce the crop. Lion's share of the coconut produced in the State is consumed by its own people, while a portion is exported to the neighbouring states of Manipur, Mizoram, Meghalaya and West Bengal. Some portions are also exported to Bihar and Jharkhand.

Taking advantage of the sufficient number of coconut production, there is great scope to set up Coir based industries in the states of Assam & Tripura in this North East Region of India. The prospect of the coir industry is very high as Assam produces a total of 176 million coconuts every year. The state produces 8 thousand 480 nuts per hectare per year against the national average of 8 thousand 303. According to experts, 80 tones of fiber could be extracted from 1 million coconuts. Hence, Assam can produce 17 thousand 561 metric tones of fiber per year. Traditional items like durable ropes and twines, mats & matting along with technology based products including Carpets are being produced, using coir.

Therefore in North East India there is a high demand and potentiality of coir mat/matting producing industry.

11.4 Aim of the feasibility study

The development of coir industry has all along been in areas where there is a concentration of coconut trees and availability of coconut husk. Historically, the coir industry started and flourished in Kerala which has a long coast line, lakes, lagoons and backwaters providing natural conditions required for retting. However, with the expansion of coconut cultivation, coir industry has picked up in the States of Tamil Nadu, Karnataka, Andhra Pradesh, Orissa, West Bengal, Assam, Tripura, Pondicherry and the Union Territories of Lakshadweep and Andaman & Nicobar Islands through the efforts of Coir Board. The coir fibre industry is particularly located in Southern states of India, mainly the coastal region of Kerala State, produces 60% of the total world supply of white coir fibre. There is scope for development of coir industry in the coconut growing North Eastern States of India. Hence, the present study was undertaken to find out the feasibility of establishing Coir Industries in North Eastern States of India with respect to availability of raw materials (coconut husks), operational cost etc.

The main aims of the techno-economic feasibility study for a developed technology are –

- Technical evaluation of the know-how/technology developed by an R&D institution.
- To broadly specify the plant and machinery and other facilities required.
- Assessment of demand of the product to be produced.
- The likely investment required.
- Financial analysis of the proposed technology/venture to broadly determine whether the project is economically viable.
- Commercial analysis of the project to evolve sound marketing plan and organizational structure for the proposed venture.
- To make projected financial analysis for submission to the financial institutions and bank seeking long term and short term borrowings respectively.

12. DEMAND, PRODUCTION AND SUPPLY

12.1 Demand of the product

The world-wide demand of coir products have increased tremendously. The major portion of demand is primarily met by India & Srilanka. Although Srilanka is gaining on the global coir product export share, India, who has witnessed rapid growth in coir product export since the early 1990s, still holds 80% of the global coir product market. India produces many different coir products (mats, matting, geotextiles, rugs, carpet, rubberized coir), and export them to more than 43 countries around the world. The global coir product market seems to be promising, with exports of variety of different products to many different countries. Besides, the export market, India itself is a huge consumer of coir products. Therefore, the utilization of coir husks (fiber) of North East India is the need of time for socio-economic development of this region.

12.2 Production & Supply

Assam produces 1756.13 lakh of coconut per year. It is estimated that 80 tones of fiber could be extracted from 1 million coconuts. Hence, Assam can produce 14 thousand 80 metric tones of coir fiber per year.

However, at present there is no Anupam loom or no commercial coir mat/matting producing unit in the North Eastern states. Hence, considering the enormous scope of supplying coir mats/matting from this part of the country, a few industries with Anupam loom for producing coir mats and matting should be established.

13. PLANT LOCATION AND INFRASTRUCTURAL FACILITIES

13.1 Plant Location

For the selection of a suitable location for setting up of Anupam Loom for production of Coir mats & matting, following prerequisites are to be considered.

- (i) Availability of infrastructural facilities viz. raw materials and transport.

- (ii) Locally available raw materials (Coir fibre/coir yarn) utilization.
- (iii) Communication and transport facilities.
- (iv) Availability of necessary technical personnel, skilled & unskilled manpower.

The source of coir fibre is the Coconut plant. It is observed from the survey, collection of data from various sources that Coconut is mostly grown in Assam (20710 ha) and Tripura (5900 ha) amongst the North Eastern States of India. Therefore, any entrepreneur wish to set up Coir Industry should be in Assam or in Tripura.

Assam & Tripura together produces 1890.55 lakhs of nuts per year. The Major coconut producing districts in Assam are – **Barpeta, Nagaon, Sonitpur, Golaghat, Kamrup & Nalbari**. The Anupam loom plant for producing coir mats and mattings to be established in these district of Assam along with the fibre extraction machine. In Tripura the recommended area for Anupam loom plant is **Agartala**, where coir fibres & yarns from all four districts can be collected for making coir mats and matting.

Keeping in mind the above factors **it is recommended that in Assam at least 20 unit of Anupam Loom and in Tripura at least 8 Anupam Loom unit could be established.**

13.2 Infrastructural Facilities

Infrastructural facilities required for installation of Anupam Loom are a building of 8m × 5m and one Anupam Loom. The land requirement for construction of building/loom house is suggested to have his/her own and attached with residential house. As the Anupam loom occupies less space, the 8m × 5m house will be sufficient enough for the installation of loom and storing raw materials & coir yarn & finished product.

13.3 Plant Layout

There will not be any specific plant for setting up of Anupam Loom. It is to be purchased from Coir Board authorized dealer. The loom is to be installed in the proposed loom house (8m × 5m) attached to residential house of the entrepreneur.

14. MANUFACTURING PROCESS

4.1. General :

The technology of Anupam Loom is a versatile loom to produce all types of mats, matting and geotextiles. The Anupam Loom is very simple and very easy to operate with higher output of superior quality, lesser cost and suitable for women.

4.2. Manufacturing Process :

The coconut fibre extracted from the husk of the coconut is twisted into yarn. The yarn is then woven into matting using automatic and semi-automatic power looms.

The main process steps are :

- (a) Purchase/Fabrication and setting up of Anupam Loom
- (b) Collection and storage of coir yarn
- (c) Dyeing of coir yarn as and when required
- (d) Weaving of different types of mats & matting in Anupam Loom
- (e) Marketing of finished product

Anupam Loom Technology has already been transferred to 5 parties and they are the authorized manufacturer of the Anupam Loom. Therefore, no manufacturing processes have been involved & interested entrepreneurs have to purchase/take the technology from CCRI, Kalavoor or authorized parties & get trained for operation.

4.3. Quality Control Analysis :

Anupam Loom can be used for production of various types of mats, matting, geotextile etc. and quality of each product differs. Therefore, specific quality control analysis cannot be done.

4.4. Pollution and abatement :

The proposed plant for production of Coir mat & matting does not produce harmful effluents. Therefore, no environmental pollution will arise from the proposed industry.

15. ORGANIZATION AND MANAGEMENT

15.1 Functional areas envisaged

The operation and management of Anupam Loom is very easy and a simple organizational structure is recommended the following functional areas :

- (i) Production (Weaving)
- (ii) Administration, sales/purchase and accounts &
- (iii) Quality Control.

5.2 Functional responsibilities

The recommended that only three persons are needed to execute the above functional areas with following responsibilities :

- (i) **Production** : A person may be directly involved in the activities related to the operation (weaver) using Anupam Loom. A labour will also be required to collect & continuous supply of raw materials (coir yarn), dyeing of coir yarns, cleaning of loom, packing of finished product etc.
- (ii) **Administration, Sales/Purchase and accounts** : Another third person (may be the owner also) will responsible for purchase of coir yarn, marketing of coir mats/matting, calculating operational cost, fixing of prices for sales & purchase and maintaining accounts. Formulation of a workable & profitable program for purchase of raw materials & sales of coir mats/matting will look after by the proposed Supervisor.

- (iii) **Quality Control** : Both the weaver & supervisor have to be well trained before starting the operation and should know about the operational functions of the loom with varied quality of raw materials for maintaining the quality of different finished products.

16. PROJECT PHASING AND ACTIVITY SCHEDULE

16.1 Project phasing

A poorly designed traditional planning and control methods fail to cope up with the changing realities of modern business. Now the management have started using more effective planning and control techniques when a complex set of activities are involved. However, as the operation & function of Anupam Loom is very simple no such critical planning is required.

A time span of 15 weeks time is envisaged to complete the project implementation i.e. training, purchase of Anupam Loom, market survey & collection of raw materials.

16.2 Activity Schedule

The detail scheduling of each activity and effective project control systems are essential to completion of the project according to the project implementation schedule. The activity schedule for producing geotextiles through Anugraha looms involves the following primary activities:

- (i) Purchase & Installation of Anupam Loom
- (ii) Engagement of Manpower like Supervisor, weaver & labour
- (iii) Training
- (iv) Purchase/collection of raw materials
- (v) Weaving/production of Coir mats/matting
- (vi) Storing & marketing of product

17. CAPITAL REQUIREMENT AND COSTS

17.1 Fixed capital

For the purpose of techno-economic study fixed costs are taken as those which are required before the commencement of commercial production. This includes fixed assets towards land and buildings, plant & machinery, miscellaneous fixed assets, know-how and engineering/training fees, capitalized and pre-operative expenses etc. The fixed investment for purchase & operation of Anupam Loom is estimated as Rs.11.25 lakh. To cover the expenditure during project implementation period of 15 weeks, the establishment salaries, travelling expenses, postage and telephones, printing & stationeries expenses are considered under the pre-operative head. In this case, the Pre-operative cost is calculated as Rs.0.10 lakh & Margin Money for Working Capital is estimated at Rs.1.15 lakh (**Table-IV**). The detail cost break of individual components is presented in **Table I & Figure I**.

17.2 Working capital

Working Capital provided for the inventory of new materials & utilities, salaries and wages, stock of finished goods, bills receivable & other items. Considerable care is exercised in estimating the working capital since it is a non-depreciable capital on which a return must be earned. The details of working capital (Cost of production) have been calculated as Rs.12.62 lakh and shown in **Table-II, Table- III & Figure-II.**

17.3 Scheme of finance

The proposed project *i.e.* Anupam is to be managed by private entrepreneurs, requirement of funds are proposed to be drawn through a bankable project, capital subsidy from Coir Board, Govt. of India under suitable scheme. **Table-V** presents the Bank Loan along with loan repayment schedule for five years.

18. OPERATING REQUIREMENT AND COSTS

This is deals with the operating costs viz. fixed and variable costs after commencement of production. The breakdown of the production cost is given in **Table II.**

18.1 Variable costs

The variable costs which are directly related to the quantum of production, include raw materials, utilities, packing costs, maintenance cost etc. The total variable cost is presented in **Table-II.**

18.2 Fixed costs

The salary and wages of all the personnel to be employed is calculated as Rs.2.25 lakh per year and shown in **Table-III.**

19. FINANCIAL ANALYSIS

The primary objective of the financial analysis is to determine the suggested program and policies that form the very basis of the proposed venture would yield a reasonable return on investment. The assessment is presented in the following format.

- (i) Fixation of price of Coir Mats/Matting
- (ii) Profitability Analysis
- (iii) Cash Flow Analysis
- (iv) Balance sheet presentation
- (v) Appraisal of the proposed venture

19.1 Fixation of product price

Demand of coir mats and matting is well established in the country. From the available information the current price of coir mat and matting (with colourful dye & design) in NE states is varies from Rs.500-600/- per square meter. However, for the purpose of feasibility study and financial analysis of the proposed project the minimum price of Rs.500/- per square meter has been considered.

19.2 Profitability analysis

From the recommended selling price and generated cost data the profitability has been worked out. While estimating profitability, sales and administrative expenses, financial expenses *i.e.* interest payable to financial institutions and banks have been duly considered. Considering the geographical locations & Socio-economic conditions in NE states, it is calculated that only 75% of the capacity of Anupam loom is utilized in first year, 80% in second year, 85% in third year and 90% from fourth year onwards. The details of profitability analysis are presented in **Table-VI**. In short it can be seen that the proposed Anupam Loom of an entrepreneur can generate the Gross Operating Profit and Net Profits for ten production years as per the following table:

Years	Gross Operating Profit (Rs. in lakh)	Net Profit (Rs. in lakh)
I year	7.867	7.857
II Year	7.867	7.857
III Year	7.867	7.857
IV Year	7.867	7.857
V Year	7.867	7.857
VI Year	7.867	7.857
VII Year	7.867	7.857
VIII Year	7.867	7.857
IX Year	7.867	7.857
X Year	7.867	7.857

19.3 Cash flow analysis

The data presented in **Table VII** is very critical for the purpose of financial analysis. The data highlight the quantum of cash flow from the proposed Anupam Loom for the ten productive years. This would in turn bring the debt paying power of the proposed entrepreneur. For the purpose of financial analysis, the repayment of loan (Rs.9.00 lakh), commences from the first year of production. It is expected to be cleared by the end of fifth year in 5 equal installments with interest. **Table-V** shows repayment schedule of loans and the interest payable to the financial institution at the rate of 12%. It is observed from the Cash Flow Analysis that an amount of Rs.94.956 lakh cash also has been accumulated for any expansion or diversification of business utilizing coir fibre during a period of ten years after clearing all the loans by fifth year.

19.4 Balance Sheet

The projected balance sheet for the ten productive years showing the assets and liabilities of the proposed venture (Anupam Loom) has been shown in **Table-VIII**.

19.5 Appraisal

Setting up of industries in NE states owing to its varied socio-cultural differences, geographical unevenness & other socio-economic condition is sometimes become complex. To overcome such risks it is very much essential to judge a project by various means after working out a detail techno-economic feasibility report. Most of the projects are financed from multiple sources, internal funds, loans, grants etc. The

loan and associated interest and other charges will be repaid principally from the operating cash flow which the capital project is expected subsequently to generate. Thus the risk are shared by both the parties *i.e.* lender & financial institution. There are some reliable means of judging a project and they are duly considered here.

19.6 Break Even Point :

The Break Even Point analysis is primarily intended to indicate the proposed plant operating level at which accounting sales covers the accounting costs and the unit run at no loss basis. Any increase in production from break event level will definitely yield profit whereas it will run at loss if the production level is below the break even. The secondary objective is to examine the relationship between profit and quantum of production. **Table-IX** represented the detail Break Even Point Analysis and **Figure-III** represented the BEP graphically. In this particular Anupam loom in NE States, the break even point occurs at **19.09%** production level.

20. CONCLUSION AND RECOMMENDATION

India accounts for more than two-thirds of the world production of coir and coir products. It is an important cottage industry contributing significantly to the economy of the major coconut growing States and Union Territories, *i.e.*, Kerala, Tamilnadu, Andhra Pradesh, Karnataka, Maharashtra, Goa, Orissa, Assam, Andaman & Nicobar, Lakshadweep, Pondicherry, etc.

However, despite the huge potential to grow up this industry in NE region, especially in Assam, due to lack of awareness, scattered nature of coconut plantations, the growth of the coir industry is negligible or very poor. The state of Assam is having 20710 ha area under Coconut & with a total production of 1756.13 lakhs of nuts every year. Assam can produce 17 thousand 561 metric tonnes of fiber per year. Due to lack of infrastructure facility, lack of awareness & poor economic condition the full utilization of the coconut husk has not been achieved.

The Anupam Loom under North East Indian conditions is very much technically feasible and economically viable as has been worked out in the feasibility report. However, it is also found that big industries with higher capacity of production with multiple Anupam Loom will not be feasible because of limitation of raw materials as compared to South Indian States. The Anupam loom will be economically feasible in the major coconut producing districts in Assam, which are – Barpeta, Nagaon, Sonitpur, Golaghat, Kamrup & Nalbari. **In Assam at least 20 unit of Anupam Loom and in Tripura at least 8 Anupam Loom unit could be established.**

Therefore, it is recommended that interested entrepreneurs may come forward to take up the technology (Anupam loom) for self employment and socio-economic development of this region. Cooperation is also required from different sectors to provide necessary facilities *i.e.* financial, technical etc. to help the interested entrepreneurs for speedy & successful implementation of the project.

TECHNO ECONOMIC FEASIBILITY STUDY

Title of the Project : **ANUPAM LOOM - A PNEUMATIC LOOM – A VERSATILE COIR AUTOMATIC LOOM FOR WEAVING ALL TYPES OF MATS AND MATTINGS**

Basis of calculation :

Number of Working Days = 300 days
Debt Equity Ratio = 4 : 1

Plant Capacity

Raw Material (Coir Yarn) processing = 40 Kg per day
Product (Coir Mat) = 16 sq.M per day

TABLE- I

PROJECT CAPITAL COST

Sl. NO.	PARTICULARS	CAPACITY	UNIT	QTY	COST(Rs)
A	BUILDING (8M x 5M)	40	cu.M	1	320000.00
B	MACHINERY				680000.00
a)	Machinery 1 metre Anupam loom	1	Metre	1	
	Bobbin Winding				
	Cops Winding & Compressor				
	Freight Charge of the Machine				
b)	Electricals				
C	PRE-OPERATIVE EXPENSES				10000.00
D	MARGIN MONEY FOR WORKING CAPITAL				115000.00
	GRAND TOTAL				1125000.00

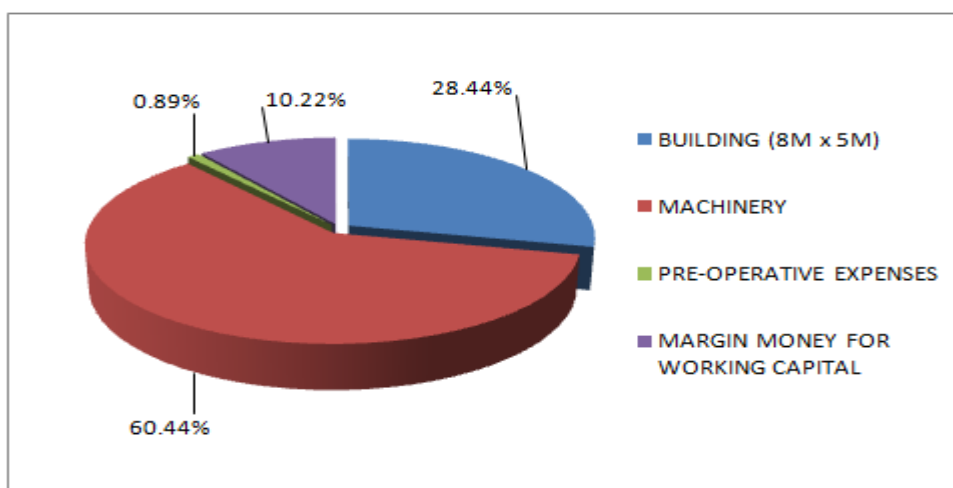


Figure-I : Diagrammatic Representation of Project Capital Cost

TABLE - II

COST OF PRODUCTION

Sl. No.	Item	Requirement per Day		Price (Rs)		Amount per Annum	
1	Raw Material Cost						
	Coir Yarn	40.0	Kg	52.00	per Kg	Rs.	624000.00
	Consumables (dye etc.)	Lumsum				Rs.	96000.00
	Raw Material Cost					Rs.	720000.00
2	Manpower Cost					Rs.	225000.00
3	Power Charges	20	unit	5.60	per unit		33600.00
4	Maintenance & Repair	2%	of Machinery			Rs.	13600.00
5	Depreciation	10%	of Machinery			Rs.	68000.00
		5%	of Building			Rs.	16000.00
	Depreciation Cost					Rs.	84000.00
6	Interest on Bank Loan	12%	of Bank Loan			Rs.	108000.00
7	Miscellaneous Expenditure	4%	of Raw Material			Rs.	28800.00
8	Marketing Cost	4%	of (1 to 7)			Rs.	48520.00
TOTAL COST OF PRODUCTION						Rs.	1261520.00

SALES REALIZATION

Sl. No.	Item	Quantity		Selling Price (Rs)		Amount per Annum	
1	Coir Mats	16	sq.M	500.00	per sq.M	Rs.	2400000.00
TOTAL SALES REALIZATION						Rs.	2400000.00

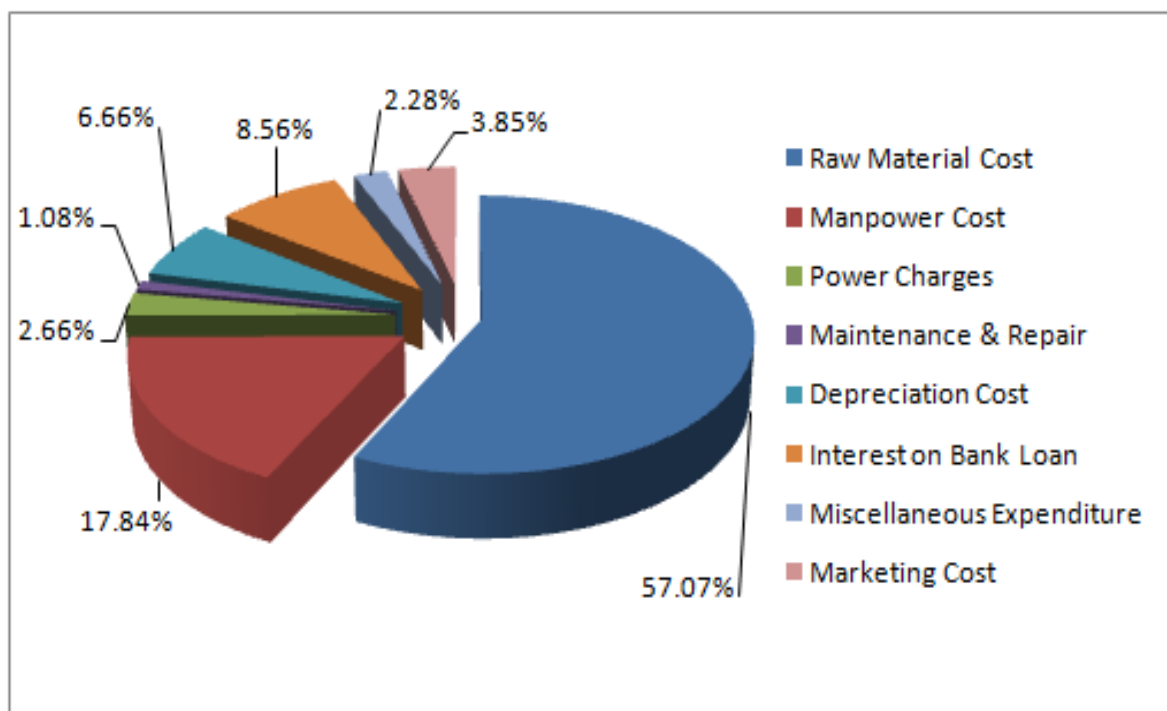


Figure-II : Diagrammatic Representation of Working Capital

TABLE - III

COST OF MANPOWER

Sl. No.	Type	Quantity	Wage/ Monthly Salary in Rs.	No. of Days or month		Amount in Rupees
1	Supervisor	1	5000.00	12	Months	60000.00
2	Weaver	1	300.00	300	Days	90000.00
3	Labour	1	250.00	300	Days	75000.00
TOTAL YEARLY COST						225000.00

TABLE - IV**MARGIN MONEY FOR WORKING CAPITAL**

Sl. No.	Particulars	No. of Months		Amount in Rupees
1	Raw Materials	1	Month	60000.00
2	Manpower Cost	1	Month	18750.00
3	Power Charges	1	Month	2800.00
4	Maintenance & Repair	1	Month	1133.33
5	Depreciation Cost	1	Month	7000.00
6	Interest on Bank Loan	2	Month	18000.00
7	Miscellaneous Expenditure	1	Month	2400.00
8	Marketing Cost	1	Month	4043.33
TOTAL				114127.00
SAY				115000.00

TABLE - V**BANK LOAN**

Year	Loan Amount at the Beginning of the Year	Loan Repayment at the End of the Year	Outstanding Balance at the end of the Year	Interest (12%)
1st	900000.00	180000.00	720000.00	108000.00
2nd	720000.00	180000.00	540000.00	86400.00
3rd	540000.00	180000.00	360000.00	64800.00
4th	360000.00	180000.00	180000.00	43200.00
5th	180000.00	180000.00	0.00	21600.00

TABLE - VI**PROFITABILITY ANALYSIS**

(Rs. Lakhs)

Description	1st year	2nd year	3rd year	4th year	5th year	6th year	7th year	8th year	9th year	10th year
CAPACITY UTILIZATION	75%	80%	85%	90%	90%	90%	90%	90%	90%	90%
Total Turnover	18.000	19.200	20.400	21.600	21.600	21.600	21.600	21.600	21.600	21.600
Less: cost of production	10.133	10.629	11.126	11.622	11.622	11.622	11.622	11.622	11.622	11.622
Gross Operating Profit	7.867	8.571	9.274	9.978	9.978	9.978	9.978	9.978	9.978	9.978
Less: pre-operative expenses written off	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Net Profit	7.857	8.561	9.264	9.968	9.968	9.968	9.968	9.968	9.968	9.968
Add back :-										
- depreciation	0.840	0.840	0.840	0.840	0.840	0.840	0.840	0.840	0.840	0.840
- expenses written off	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
TOTAL CASH ACCRUALS	8.707	9.411	10.114	10.818	10.818	10.818	10.818	10.818	10.818	10.818

TABLE - VII**CASH FLOW STATEMENT**

(Rs. Lakhs)

Description	Procurement Stage	1st year	2nd year	3rd year	4th year	5th year	6th year	7th year	8th year	9th year	10th year
CAPACITY UTILIZATION		75%	80%	85%	90%	90%	90%	90%	90%	90%	90%
A. Source of Fund											
Owner's Equity	2.250										
Gross Operating Profit		7.867	8.571	9.274	9.978	9.978	9.978	9.978	9.978	9.978	9.978
Bank Interest		1.080	0.864	0.648	0.432	0.216					
Profit after Depreciation but before Interest		8.947	9.435	9.922	10.410	10.194	9.978	9.978	9.978	9.978	9.978
Depreciation		0.840	0.840	0.840	0.840	0.840	0.840	0.840	0.840	0.840	0.840
Bank Loan	9.000										
Total of A	11.250	9.787	10.275	10.762	11.250	11.034	10.818	10.818	10.818	10.818	10.818
B. Application of Fund											
Project Expenditure	11.250										
Repayment of Bank Loan		1.800	1.800	1.800	1.800	1.800					
Interest on Bank Loan			1.080	0.864	0.648	0.432	0.216				
Total of B	11.250	1.800	2.880	2.664	2.448	2.232	0.216				
Opening Balance of Cash			7.987	15.382	23.480	32.282	41.083	51.685	62.503	73.321	84.138
Surplus/Deficit during the year		7.987	7.395	8.098	8.802	8.802	10.602	10.818	10.818	10.818	10.818
Cumulative surplus		7.987	15.382	23.480	32.282	41.083	51.685	62.503	73.321	84.138	94.956

TABLE - VIII**PROJECTED BALANCE SHEET**

(Rs. Lakhs)

Description	Procurement Stage	1st year	2nd year	3rd year	4th year	5th year	6th year	7th year	8th year	9th year	10th year
LIABILITIES											
Equity Capital	2.250	2.250	2.250	2.250	2.250	2.250	2.250	2.250	2.250	2.250	2.250
Reserve or Surplus		7.867	16.438	25.712	35.690	45.667	55.645	65.623	75.601	85.578	95.556
Bank Loan	9.000	7.200	5.400	3.600	1.800						
Interest Payable		1.080	0.864	0.648	0.432	0.216					
Total	11.250	18.397	24.952	32.210	40.172	48.133	57.895	67.873	77.851	87.828	97.806
ASSETS											
Fixed Assets	10.000	9.160	8.320	7.480	6.640	5.800	4.960	4.120	3.280	2.440	1.600
Current Assets	1.250	1.250	1.250	1.250	1.250	1.250	1.250	1.250	1.250	1.250	1.250
Cash or Bank Balance		7.987	15.382	23.480	32.282	41.083	51.685	62.503	73.321	84.138	94.956
Total	11.250	18.397	24.952	32.210	40.172	48.133	57.895	67.873	77.851	87.828	97.806

TABLE - IX

BREAK-EVEN ANALYSIS

Sl. No.	Particulars	Amount in Rupees
A	FIXED COST	
1	Manpower Cost	60000.00
2	Interest on Bank Loan	108000.00
3	Power Charge	1680.00
4	Depreciation	84000.00
5	Maintenance & Repair	3400.00
6	Miscellaneous Expenditure	11520.00
	TOTAL OF (A)	268600.00
B	VARIABLE COST	
1	Raw Material Cost	720000.00
2	Manpower Cost	165000.00
3	Power Charge	31920.00
4	Maintenance & Repair	10200.00
5	Miscellaneous Expenditure	17280.00
6	Marketing Cost	48520.00
	TOTAL OF (B)	992920.00
C	TOTAL COST (A + B)	1261520.00
D	SALES REALIZATION (TURNOVER)	2400000.00
E	GROSS PROFIT	1138480.00
F	BREAK - EVEN POINT	19.09%

BREAK-EVEN ANALYSIS

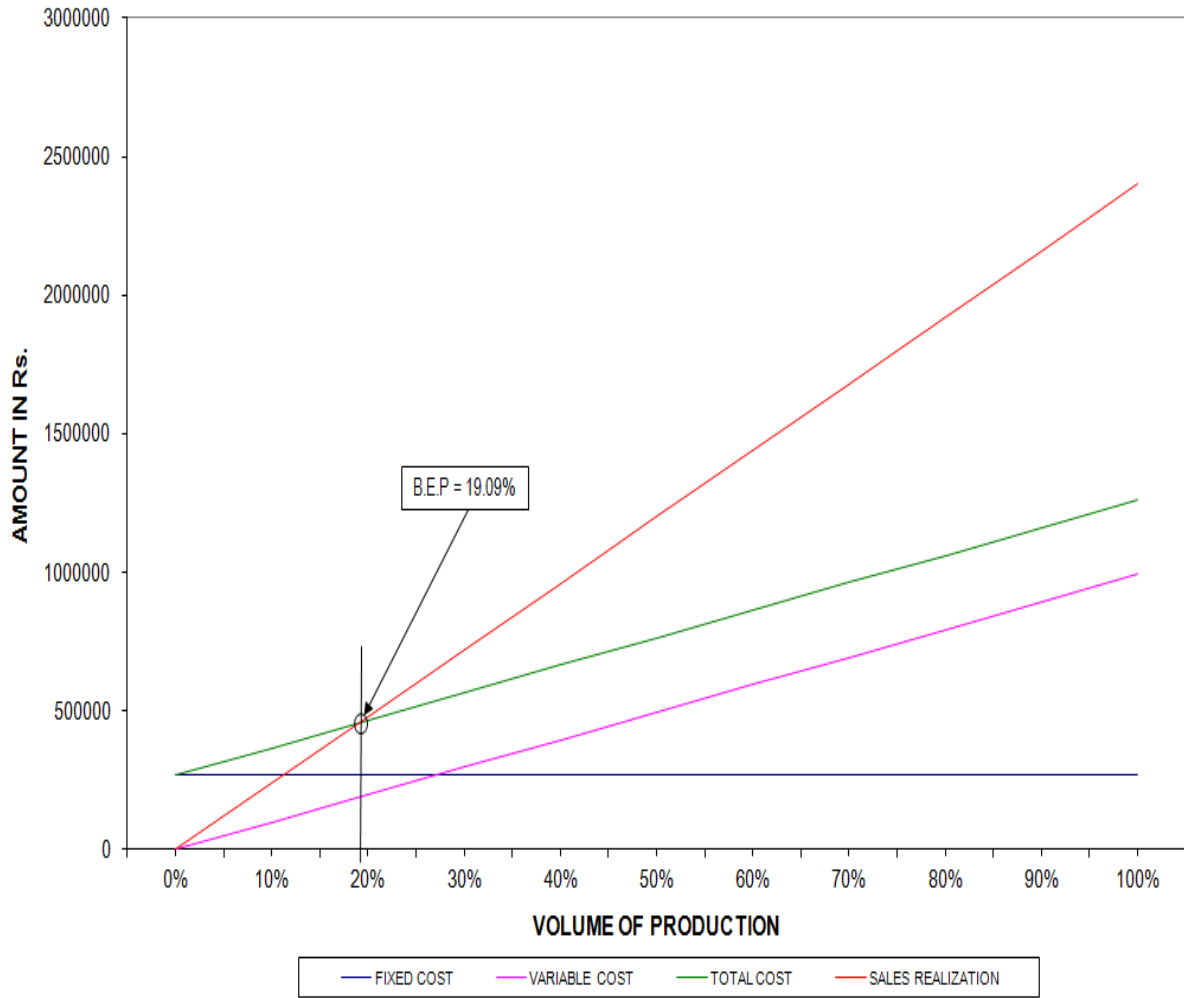


Figure-III : Graphical representation of Break Even Point Analysis