

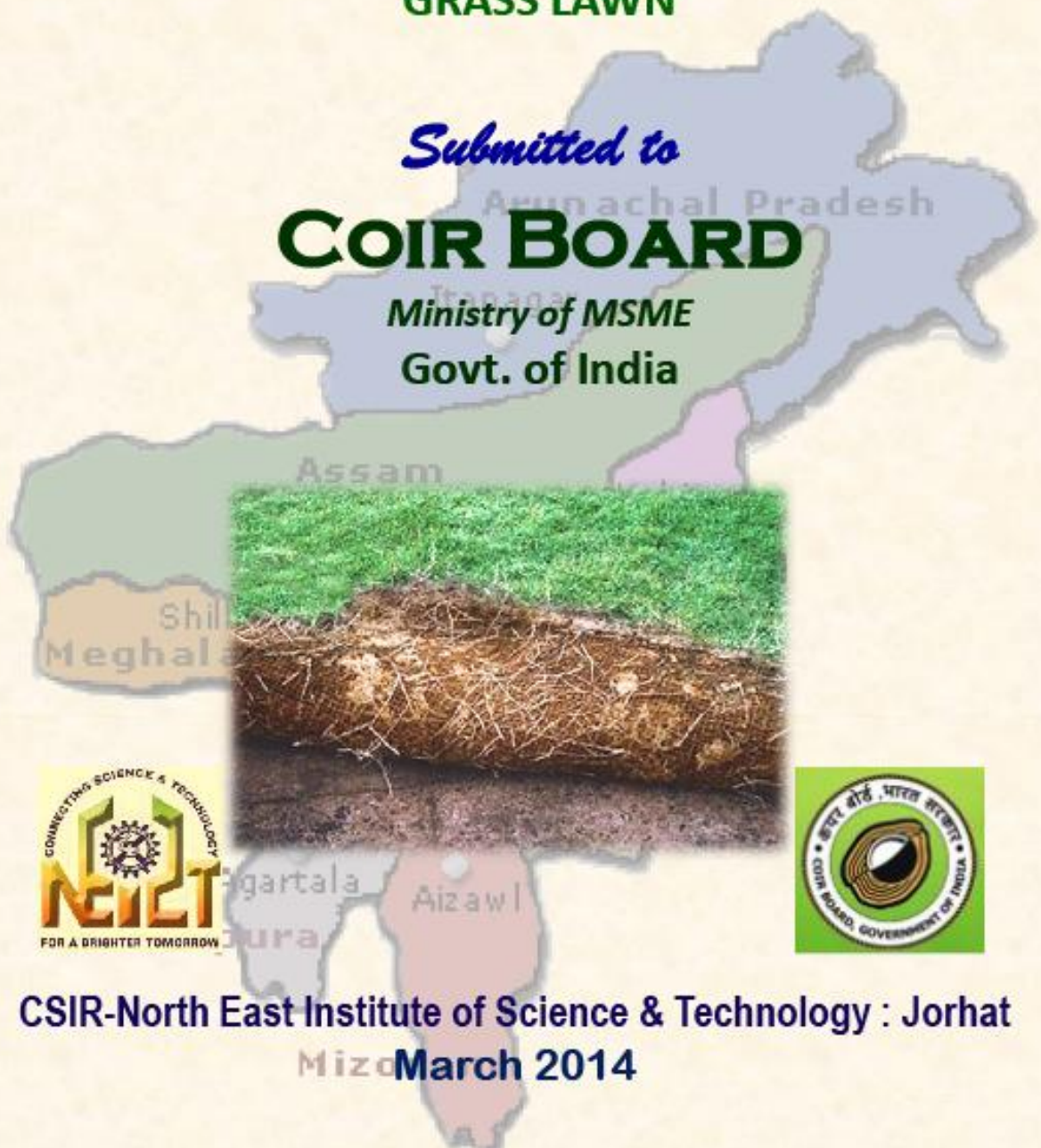
# TECHNO ECONOMIC FEASIBILITY REPORT

## COCOLAWN™ – A READYMADE NATURAL GRASS LAWN

*Submitted to*

**COIR BOARD**

Ministry of MSME  
Govt. of India



CSIR-North East Institute of Science & Technology : Jorhat

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# TECHNO ECONOMIC FEASIBILITY REPORT

## COCOLAWN™ – A READYMADE NATURAL GRASS LAWN

### SUMMARY

COCOLAWN™ is a product from Coir Board which is in high demand. COCOLAWN comprises of coir netting as a support material. Grass slips are planted on the bed of coir pith. The ready to use COCOLAWN is made available in the form of a blanket, which can be shifted from one place to another and can be rolled up for transportation. It can be even placed over cement floors. The COCOLAWN™ has a great demand considering its versatility of uses and speedy urbanization in the country.

The COCOLAWN™ production unit under North East Indian conditions is very much technically feasible and economically viable as has been worked out in the feasibility report. The COCOLAWN™ production unit will be economically feasible in the state of Assam & Tripura.

#### **Plant Capacity :**

The production basis for a COCOLAWN Production Unit would be as follows :

Working hour per day	: 8 hours
Production capacity	: 2000 sq.m. per year
Working Days in a year	: 300 days
Capacity utilization	: 100%
Annual Production	: 2000 sq.m.

#### **The major highlight of the feasibility report :**

1. The Capital requirement	: Rs.4.55 lakh
2. Promoter contribution	: Rs.0.911 lakh
3. Annual Sales (Turnover)	: Rs.5.00 lakh
4. Annual Operating expenses (fixed + variable)	: Rs.2.94 lakh
5. Annual Gross profit (pre-tax)	: Rs.2.06 lakh
6. Annual Gross profit Ratio	: 41.19%
7. Break Even Point	: 21.41%
8. Rate of return on investment	: 27.48%
9. Number of person employed	: 160 mandays/year

# **TECHNO ECONOMIC FEASIBILITY REPORT**

## **COCOLAWN™ – A READYMADE NATURAL GRASS LAWN**

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# TECHNO ECONOMIC FEASIBILITY REPORT

## COCOLAWN™ – A READYMADE NATURAL GRASS LAWN

### 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 dust and coir pith are secondary by-product obtained during extraction of coir fibre from coconut husk. It is purely a natural organic product. This natural, unique, spongy cellulose organic plant growing media is useable in garden, horticulture nurseries. It can be 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. Central Coir Research Institute (CCRI), Kalavoor has developed a know-how “COCOLAWN™” for constructing a ready to use lawn by using coir pith, coir geotextiles etc. It is a natural ecofriendly lawn and a better substitute of synthetic lawn presently available in market. It has vast potential in tourist resort, hotels and playgrounds and even rooftop plantation, lawn etc.

#### 11.2 Brief of the technologies

Central Coir Research Institute, Kalavoor the research center of Coir Board has successfully developed a process know how viz. COCOLAWN™ using coir, replacing soil. It is very important considering the growing concern for the protection of environment and the growing demand for natural lawns for various applications. COCOLAWN™ comprises of coir netting as a support material. A single or double layers of a non-woven coir fabric (Coir needled felt) is provided on the said netting. A layer of coir pith is provided on the non-woven layers. Grass slips are planted on the bed of coir pith and C-POM is sprinkled there on to form a layer on the said bed. Water is sprinkled as per requirement. Over a period of 3 months a lush green readymade lawn is established. The ready to use COCOLAWN™ is made available in

the form of a blanket, which can be shifted from one place to another and can be rolled up for transportation. The COCOLAWN™ is ready and easy to use eco-friendly alternatives for various applications.

The principle involved in this invention is to adopt an eco-friendly method for faster development of readymade lawns using natural coir products, instead of using synthetic lawns, which are costly, non environment friendly and post disposal problems.

This invention is first of its kind to use 100% natural coir materials including the fertilizer (C-POM) for faster preparation of readymade, transportable lawns. This readymade lawn can be applied on any arid surface or even concrete floor, which need not contribute to the sustenance of grass.

### **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. On the other hand, along with the production of coir fibre, considerable amount of coir pith will also be available as by-product, which can be converted to value added product like C-POM and can be used for production of COCOLAWN™.

#### **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**

COCOLAWN™ is a product from Coir Board which is in high demand. COCOLAWN comprises of coir netting as a support material. Grass slips are planted on the bed of coir pith. The ready to use COCOLAWN is made available in the form of a blanket, which can be shifted from one place to another and can be rolled up for transportation. It can be even placed over cement floors. The COCOLAWN™ has a

great demand considering its versatility of uses and speedy urbanization in the country.

## **12.2 Production & Supply**

Assam produces 1756.13 lakh of coconut per year. It is estimated that 80 tonnes of fiber could be extracted from 1 million coconuts. Hence, Assam can produce 14 thousand 80 metric tonnes of coir fiber per year. Coir pith is normally the waste materials produced during the time of extraction of fibre. This coir pith after bioconversion has excellent properties for use as a growth medium for all types of plants. Hence, this coir pith along with coir geotextile can be used to produce COCOLAWN™. In North Eastern States at present nobody has taken the technology or producing the COCOLAWN™ despite its huge demand. Hence, to cater the local needs of this region of the country tremendous scope for establishing COCOLAWN™ production units in Assam & Tripura.

## **13. PLANT LOCATION AND INFRASTRUCTURAL FACILITIES**

### **13.1 Plant Location**

For the selection of a suitable location for setting up of COCOLAWN™ production unit, following prerequisites are to be considered.

- (i) Availability of infrastructural facilities viz. raw materials and transport.
- (ii) Locally available raw materials (coir pith, Pithplus & coir geotextile/coir net) utilization.
- (iii) Communication and transport facilities.
- (iv) Availability of necessary technical personnel, skilled & unskilled manpower.

The location of the COCOLAWN™ producing units can be selected in any parts of Assam & Tripura. However, considering the expected demand of COCOLAWN™ in urban/city area, the units should be in and around towns and cities, to reduce the transportation cost.

### **13.2 Infrastructural Facilities**

Infrastructural facilities required for COCOLAWN™ producing units are a land of 1333 sq.m., a small office cum store building of size 3m × 3.6m, a few garden tools like lawn mower, sprinkler, garden shears, rubber tubes etc. It is also observed that many numbers of modern nurseries are coming up now-a-days near sub-urban areas who produces tub plants, flower/fruit plant seedlings for selling. The demand of such commercial nurseries is growing high. Therefore, it is suggested that, such type of existing nursery owner can produce COCOLAWN™ also with the same infrastructure facilities.



### **13.3 Plant Layout**

There will not be any specific plant for setting up of COCOLAWN™. The process knowhow should be taken from the Coir Board.

## **14. MANUFACTURING PROCESS**

### **4.1. General :**

The process for producing COCOLAWN™ requires soil-less medium. It requires non-woven layers of netting which can be laid on any arid surface or even concrete floor to act as a support for the blanket without contributing to the sustenance of grass. The non-woven layers impart thickness or bulk properties to the lawn. Another function of the non-woven or layers is to allow the grass roots to form a bush and get entangled in the non-woven material.

### **4.2. Manufacturing Process :**

A layer of coir pith is provided on the non-woven layers, which adds to the bulk properties of the lawn and forms a support or bed for the grass. The lawn grass is planted on the layer of bed of coir pith and Coir Pith Organic Manure (C-POM) is sprinkled thereon to form a layer on said bed. Initially, C-POM is required to sustain the grass by providing nutrients like nitrogen, phosphorous and potassium and other micro-nutrients essential for the growth of grass. However, as the bed and the non-woven layers are bio-degradable in nature, nutrients are released subsequently and absorbed for further growth and sustenance of grass. Water should be sprinkled as per requirement. Over a period of 3 months a lush green readymade lawn is established and 3-4 batches of COCOLAWN™ can be produced in a year. However, in this particular feasibility study, only two batches of COCOLAWN™ are considered leaving the excessive rainy days & dry months that prevails in this part of the country.

### **4.3. Quality Control Analysis :**

The COCOLAWN™ is ready and easy to use eco-friendly alternatives for various applications. The quality depends upon the quality & growth of the lawn grass planted. Uniformly covered blankets of lawn grass, with lush green colour fetches good price.

### **4.4. Pollution and abatement :**

The proposed COCOLAWN™ production unit does not produce harmful effluents. Therefore, no environmental pollution will arise from the proposed venture.

## **15. ORGANIZATION AND MANAGEMENT**

### **15.1 Functional areas envisaged**

The operation and management of COCOLAWN™ production unit is very easy and a simple organizational structure is recommended the following functional areas :

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

## 5.2 Functional responsibilities

The recommended that only one supervisor (suggested supervisor is the owner/entrepreneur) and 160 mandays of labour to be engaged needed to execute the above functional areas with following responsibilities :

- (i) **Production** : 80 mandays of labour will be sufficient for one batch of production of COCOLAWN™.
- (ii) **Administration, Sales/Purchase and accounts** : the Supervisor (may be the owner/entrepreneur) will responsible for purchase of raw materials (non-woven nettings, coir pith, Pithplus. Lawngrass slips etc.), marketing of COCOLAWN™, 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 COCOLAWN™ will look after by the proposed Supervisor.
- (iii) **Quality Control** : Both the labourer & supervisor have to be well trained before starting the operation and should know about the detail know-how/process of production of COCOLAWN™ with varied weather conditions.

## 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 process know-how for production of COCOLAWN™ is very simple no such critical planning is required. However, although four batches of production is possible, but in case of NE region, two batches are to be planned considering the weather conditions avoiding dry & heavy rainy months.

A time span of 15 weeks time is envisaged to complete the project implementation *i.e.* training, purchase of raw materials, market survey & pre-operative activities.

### 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 COCOLAWN involves the following primary activities:

- (i) Selection of suitable land with water facility
- (ii) Purchase machineries & tools
- (iii) Engagement of Manpower
- (iv) Training
- (v) Purchase/collection of raw materials

- (vi) Planting of seedlings of lawn grass
- (vii) Regular watering & monitoring
- (viii) 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 production of COCOLAWN™ is estimated as Rs.4.55 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.0.05 lakh & Margin Money for Working Capital is estimated at Rs.1.26 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.2.94 lakh and shown in **Table-II, Table- III & Figure-II**.

### 17.3 Scheme of finance

The proposed project *i.e.* COCOLAWN™ 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 COCOLAWN™ is in increasing trend with the course of urbanization in the country. From the available information the current price of COCOLAWN™ 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 assumed that two batches of COCOLAWN™ would be produced. The details of profitability analysis are presented in **Table-VI**. In short it can be seen that the proposed COCOLAWN™ production unit 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	2.060	2.055
II Year	2.060	2.055
III Year	2.060	2.055
IV Year	2.060	2.055
V Year	2.060	2.055
VI Year	2.060	2.055
VII Year	2.060	2.055
VIII Year	2.060	2.055
IX Year	2.060	2.055
X Year	2.060	2.055

### 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 COCOLAWN™ production unit 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.3.6432 lakh), commences from the first year of production. It is expected to be cleared by the end of fifth year in 5 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.17.686 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 (COCOLAWN™ production unit) has been shown in **Table-VIII**.

#### **19.5 Appraisal**

Setting up of any types 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 COCOLAWN™ production unit in NE States, the break even point occurs at **21.41%** 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 tones 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 COCOLAWN<sup>TM</sup> production unit under North East Indian conditions is very much technically feasible and economically viable as has been worked out in the feasibility report. The COCOLAWN<sup>TM</sup> production unit will be economically feasible in the state of Assam & Tripura.

Therefore, it is recommended that interested entrepreneurs may come forward to take up the technology (COCOLAWN<sup>TM</sup> production unit) 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 : **COCOLAWN™ - A READYMADE SOIL LESS INSTANT LAWN FROM COIR**

**Basis of calculation :**

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

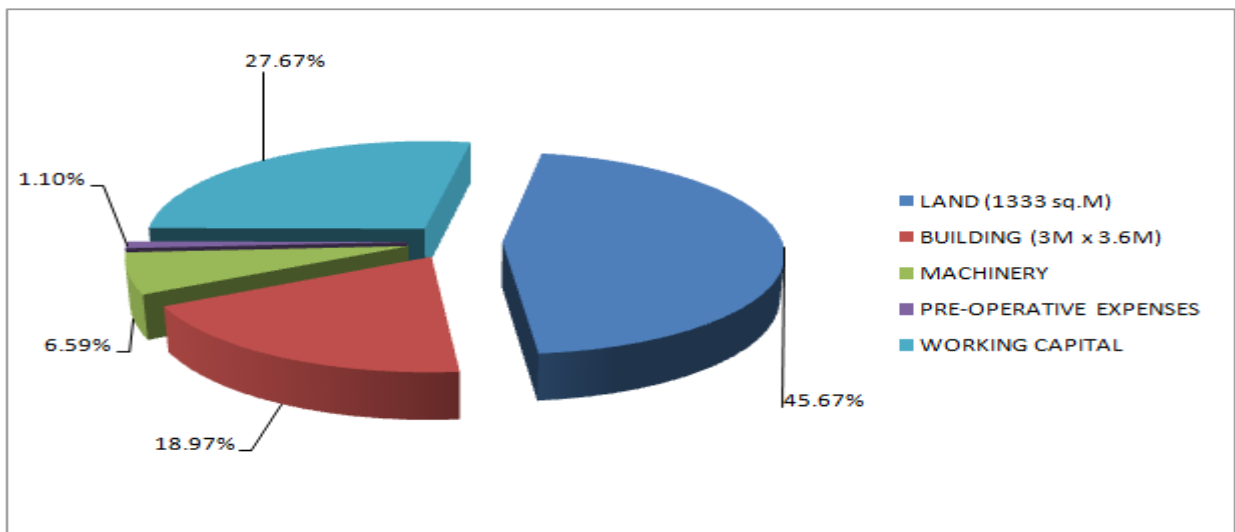
**Plant Capacity**

Product = 2000 sq.M per annum

**TABLE- I**

**PROJECT CAPITAL COST**

Sl. NO.	PARTICULARS	CAPACITY	UNIT	QTY	COST(Rs)
A	LAND (1333 sq.M)				208000.00
A	BUILDING (3M x 3.6M)	10.8	cu.M	1	86400.00
B	<b>MACHINERY</b>				30000.00
a)	Cost of machinery & tools (Lawn Mower, Sprinkler, Garden shears, rubber tubes etc.)				
C	<b>PRE-OPERATIVE EXPENSES</b>				5000.00
D	<b>WORKING CAPITAL</b>				126000.00
<b>GRAND TOTAL</b>					<b>455400.00</b>



**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	Lumpsum		180000.00	
	Coir geo textile				
	Coir needled felt				
	Coir pith				
	Coir pith organic manure				
	Raw Material Cost			Rs.	180000.00
2	Manpower Cost	160 mandays per annum	250.00 per day	Rs.	40000.00
3	Power Charges	3000	per annum	Rs.	3000.00
4	Maintenance & Repair	5%	of Machinery	Rs.	1500.00
5	Depreciation	10%	of Machinery	Rs.	3000.00
		5%	of Building	Rs.	4320.00
	Depreciation Cost			Rs.	7320.00
6	Interest on Bank Loan	12%	of Bank Loan	Rs.	43700.00
7	Miscellaneous Expenditure	4%	of Raw material Cost	Rs.	7200.00
8	Marketing Cost	4%	of (1 to 7)	Rs.	11308.80
<b>TOTAL COST OF PRODUCTION</b>				Rs.	<b>294028.80</b>

**SALES REALIZATION**

Sl. No.	Item	Quantity	Selling Price (Rs)	Amount per Annum
1	Cocolawn	2000 sq.M	250.00 per sq.M	Rs. 500000.00
<b>TOTAL SALES REALIZATION</b>				Rs. <b>500000.00</b>



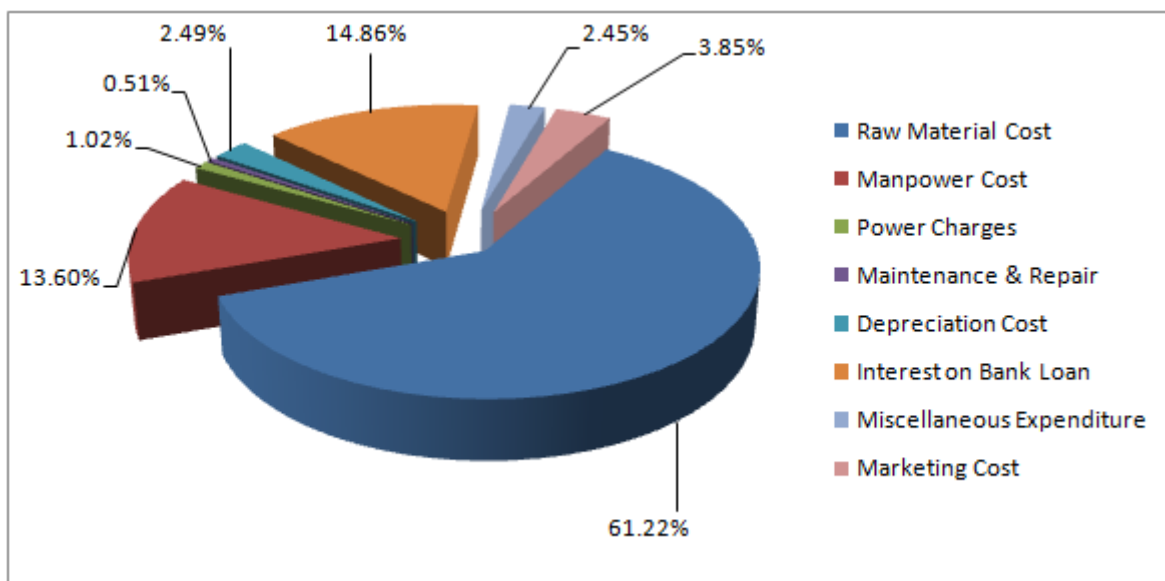


Figure-II : Diagrammatic Representation of Working Capital

**TABLE - III**

**COST OF MANPOWER**

Sl. No.	Type	Quantity	Wage/ Monthly Salary in Rs.	No. of Days or month	Amount in Rupees
1	Labour	1	250.00	160 Days	40000.00
Total Yearly Cost					40000.00

**TABLE - IV**

**WORKING CAPITAL**

Sl. No.	Particulars	No. of Months	Amount in Rupees
1	Raw Materials	1 batch (i.e. 3-4 Months)	90000.00
2	Manpower Cost	1 batch (i.e. 3-4 Months)	20000.00
3	Power Charges	6 Months	1500.00
4	Maintenance & Repair	1 Month	125.00
5	Depreciation Cost	1 Month	610.00
6	Interest on Bank Loan	2 Month	7283.33
7	Miscellaneous Expenditure	1 Month	600.00
8	Marketing Cost	1 batch (i.e. 3-4 Months)	5654.40
<b>TOTAL</b>			<b>125773.00</b>
<b>SAY</b>			<b>126000.00</b>

## 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	364320.00	72864.00	291456.00	43700.00
2nd	291456.00	72864.00	218592.00	35000.00
3rd	218592.00	72864.00	145728.00	26200.00
4th	145728.00	72864.00	72864.00	17500.00
5th	72864.00	72864.00	0.00	8700.00

**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
<b>CAPACITY UTILIZATION</b>	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Total Turnover	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000
Less: cost of production	2.940	2.940	2.940	2.940	2.940	2.940	2.940	2.940	2.940	2.940
<b>Gross Operating Profit</b>	<b>2.060</b>	<b>2.060</b>	<b>2.060</b>	<b>2.060</b>	<b>2.060</b>	<b>2.060</b>	<b>2.060</b>	<b>2.060</b>	<b>2.060</b>	<b>2.060</b>
Less: pre-operative expenses written off	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
<b>Net Profit</b>	<b>2.055</b>	<b>2.055</b>	<b>2.055</b>	<b>2.055</b>	<b>2.055</b>	<b>2.055</b>	<b>2.055</b>	<b>2.055</b>	<b>2.055</b>	<b>2.055</b>
Add back :-										
- depreciation	0.073	0.073	0.073	0.073	0.073	0.073	0.073	0.073	0.073	0.073
- expenses written off	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
<b>TOTAL CASH ACCRUALS</b>	<b>2.133</b>	<b>2.133</b>	<b>2.133</b>	<b>2.133</b>	<b>2.133</b>	<b>2.133</b>	<b>2.133</b>	<b>2.133</b>	<b>2.133</b>	<b>2.133</b>

**TABLE - VII**

**CASH FLOW STATEMENT**

(Rs. Lakhs)

Description	Pre-operative Stage	1st year	2nd year	3rd year	4th year	5th year	6th year	7th year	8th year	9th year	10th year
<b>CAPACITY UTILIZATION</b>		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
<b>A. Source of Fund</b>											
Owner's Equity	0.911										
Gross Operating Profit		2.060	2.060	2.060	2.060	2.060	2.060	2.060	2.060	2.060	2.060
Bank Interest		0.437	0.350	0.262	0.175	0.087					
Profit after Depreciation but before Interest		2.497	2.410	2.322	2.235	2.147	2.060	2.060	2.060	2.060	2.060
Depreciation		0.073	0.073	0.073	0.073	0.073	0.073	0.073	0.073	0.073	0.073
Bank Loan	3.643										
<b>Total of A</b>	<b>4.554</b>	<b>2.570</b>	<b>2.483</b>	<b>2.395</b>	<b>2.308</b>	<b>2.220</b>	<b>2.133</b>	<b>2.133</b>	<b>2.133</b>	<b>2.133</b>	<b>2.133</b>
<b>B. Application of Fund</b>											
Project Expenditure	4.554										
Repayment of Bank Loan		0.729	0.729	0.729	0.729	0.729					
Interest on Bank Loan			0.437	0.350	0.262	0.175	0.087				
<b>Total of B</b>	<b>4.554</b>	<b>0.729</b>	<b>1.166</b>	<b>1.079</b>	<b>0.991</b>	<b>0.904</b>	<b>0.087</b>				
Opening Balance of Cash			1.841	3.159	4.475	5.792	7.108	9.154	11.287	13.420	15.553
Surplus/Deficit during the year		1.841	1.317	1.316	1.317	1.316	2.046	2.133	2.133	2.133	2.133
<b>Cumulative surplus</b>		<b>1.841</b>	<b>3.159</b>	<b>4.475</b>	<b>5.792</b>	<b>7.108</b>	<b>9.154</b>	<b>11.287</b>	<b>13.420</b>	<b>15.553</b>	<b>17.686</b>

**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
<b>LIABILITIES</b>											
Equity Capital	0.911	0.911	0.911	0.911	0.911	0.911	0.911	0.911	0.911	0.911	0.911
Reserve or Surplus		2.060	4.119	6.179	8.239	10.299	12.358	14.418	16.478	18.537	20.597
Bank Loan	3.643	2.915	2.186	1.457	0.729						
Interest Payable		0.437	0.350	0.262	0.175	0.087					
<b>Total</b>	<b>4.554</b>	<b>6.322</b>	<b>7.566</b>	<b>8.809</b>	<b>10.053</b>	<b>11.296</b>	<b>13.269</b>	<b>15.329</b>	<b>17.388</b>	<b>19.448</b>	<b>21.508</b>
<b>ASSETS</b>											
Fixed Assets	3.244	3.171	3.098	3.024	2.951	2.878	2.805	2.732	2.658	2.585	2.512
Current Assets	1.310	1.310	1.310	1.310	1.310	1.310	1.310	1.310	1.310	1.310	1.310
Cash or Bank Balance		1.841	3.159	4.475	5.792	7.108	9.154	11.287	13.420	15.553	17.686
<b>Total</b>	<b>4.554</b>	<b>6.322</b>	<b>7.566</b>	<b>8.809</b>	<b>10.053</b>	<b>11.296</b>	<b>13.269</b>	<b>15.329</b>	<b>17.388</b>	<b>19.448</b>	<b>21.508</b>

## TABLE - IX

### BREAK-EVEN ANALYSIS

Sl. No.	Particulars	Amount in Rupees
<b>A</b>	<b>FIXED COST</b>	
1	Interest on Bank Loan	43700.00
2	Power Charge	900.00
3	Depreciation	7320.00
4	Maintenance & Repair	600.00
5	Miscellaneous Expenditure	3600.00
	<b>TOTAL OF (A)</b>	<b>56120.00</b>
<b>B</b>	<b>VARIABLE COST</b>	
1	Raw Material Cost	180000.00
2	Manpower Cost	40000.00
3	Power Charge	2100.00
4	Maintenance & Repair	900.00
5	Miscellaneous Expenditure	3600.00
6	Marketing Cost	11308.80
	<b>TOTAL OF (B)</b>	<b>237908.80</b>
<b>C</b>	<b>TOTAL COST (A + B)</b>	294028.80
<b>D</b>	<b>SALES REALIZATION (TURNOVER)</b>	500000.00
<b>E</b>	<b>GROSS PROFIT</b>	205971.20
<b>F</b>	<b>BREAK - EVEN POINT</b>	<b>21.41%</b>

### BREAK-EVEN ANALYSIS

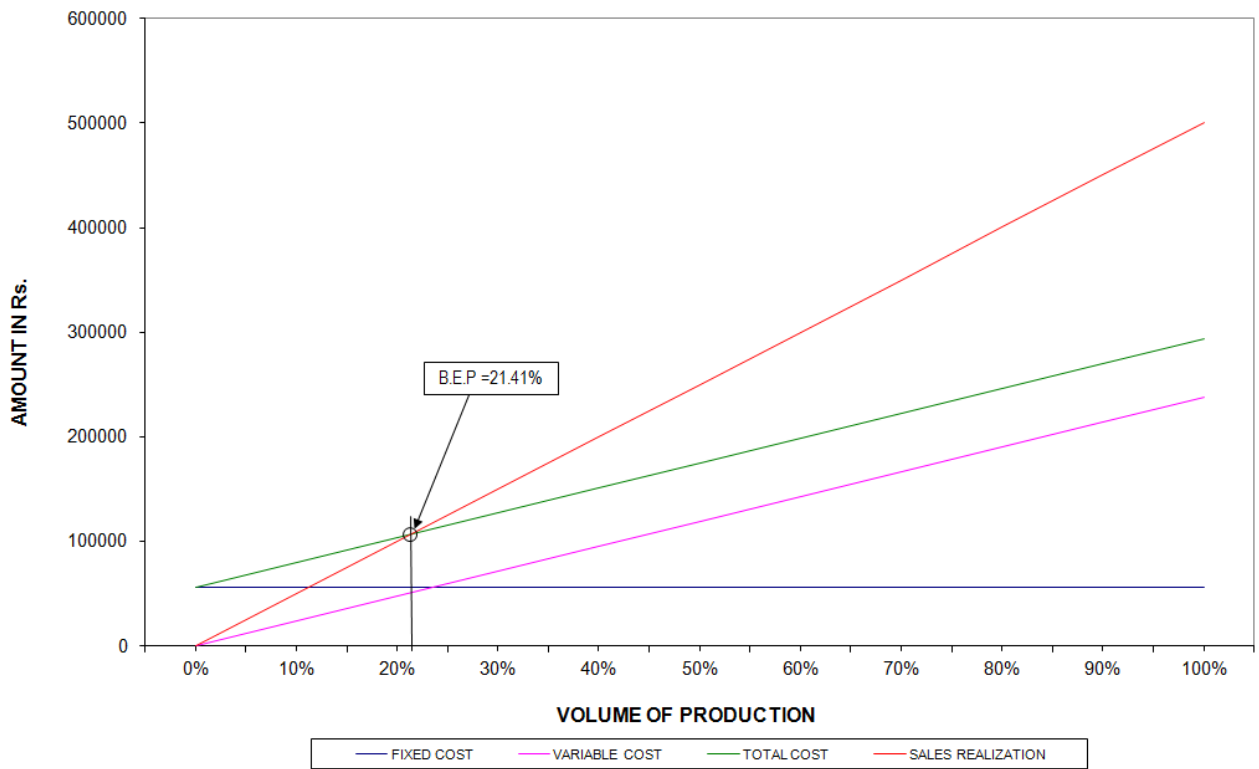


Figure-III : Graphical representation of Break Even Point Analysis