

DPR ON MANUFACTURING OF PALM LEAF PLATE

XYZ Cooperative Society Limited in ABC District, Assam



Detailed Project Report (DPR)

Manufacturing of palm leaf plate by XYZ Unit

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1. Abbreviations

SWOT: Strength, Weakness, Opportunities and Threats

DSCR: Debt Service Coverage Ratio

GDP: Gross Domestic Product

IRR : Internal rate of Return

NCDC: National Cooperative Development Corporation

PACS: Primary Agricultural Cooperative Society

WC : Working Capital

ALPMP: Areca-nut Leaf Plate Manufacturing Project

PIME: Plan, Implementation, Monitoring and Evaluation Marketing

CSISAC: Central Sector Integrated Scheme on Agricultural Cooperation

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2. Executive Summary

The project report is regarding setting up a palm leaf plate factory of 29000 pieces /month from the sheath of Areca Palm Nut Tree for XYZ Society in ABC district, of Assam. The Farming of Areca Nut Palm is not something new in Assam. This project involves the leaves and sheath of palm trees which are considered as waste product of product will provide opportunity to process these sheaths and leaves in scientific way, market the produce on larger economy of scale to generate revenue and a sustainable livelihood and employment opportunity to the members of the cooperative society and provide fresh and quality pork to the consumers. Cost of Raw material is not required as this project will start by those societies which are already doing cultivation of Areca Palm Tree.

The project is designed to cater substitute of plastic as plastic is non biodegradable. Despite this project will save the environment from the pollution which occurs due to usage of plastic, this project will provide ample opportunity in those months which are not suitable for agriculture of Areca Nut Palm tree. Inputs required for the project are easily and locally available and there is very good demand for these plates in national market as well as local market. Climatic Conditions in Assam is also very conducive for cultivation of Areca Nut Palm Tree which is a boon for manufacturing of Palm Plates. Assam largely an agrarian economy largely associated with community for livelihood.

Total project cost estimated is to be Rs.6.52 lakh, which does not include the cost of the land as society owns its own land. The project cost will be met by the society contribution of Rs. 1.63 lakhs/- (10%) and financial assistance of Rs. 4.89 lakhs (90%) from NCDC under Central Sector Integrated Scheme of Agricultural Cooperation (CSISAC based on certain realistic assumptions the future cash flow of the project has been also worked out).

The Internal Rate of Return (**IRR**) worked out to be healthy **32 %** signifying that the Project will be able to generate the revenue to cover all the costs incurred in project. Also average Debt Service Coverage Ratio (**DSCR**) is worked out to be **1.95** which signifies that project will be able to generate significant revenue to easily repay its debt/ loan.

The project is thus very important for the Cooperative Society to generate revenue and provide gainful employment to the members of the society and also beneficial for the environment as it will save the environment from the pollution. The project is technically feasible and financially viable.

3. Introduction

In the northeastern state of Assam, agriculture is the prime sector in its economy which provides employment to 69 per cent of its total work force. In Assam, agriculture is primarily subsistence. People are not able to generate sufficient income out of agriculture. However, the Indian Government observes that poverty in Assam is principally from underperformance of the agriculture sector and lack of alternative employment avenues. Therefore the manufacturing of palm leaf plate from Areca Palm Tree provides an alternative to those which involves in areca nut farming/cultivation as well as to those which has interest in its manufacturing of Leaf Plate.

The farming of Areca Palm Tree is very common in southern areas of India. Three States alone i.e. Karnataka, Kerala and Assam holds total production around 88% of whole country. In Karnataka, its production is around 457.56 kilo Tones, in Kerala its production is around 100.02 Kilo tones and Assam its production is around 89 kilo ton. Areca Palm Tree is a tropical crop. Conditions required for its cultivation are as follows:

- a) Good rainfall
- b) Temp range is 14° C and 36° C.
- c) Adverse affect below temp 10°C and 40 °C.

Advantages of palm leaf plate:

- a) Extra Income to areca nut farmers
- b) Made from the leaves and sheath of palm trees which are considered as waste product of product. Therefore no cost incurred on its raw material.
- c) Alternative of plastic plates which are non biodegradable
- d) Save the environment from the pollution as plastic is non biodegradable.
- e) Eco Friendly
- f) Plates can be used as fertilizers as these are biodegradable

Development of a suitable technology has been one of the biggest achievements of Areca-nut Leaf Plate Manufacturing Project (ALPMP). The technology developed for and employed in the project has negated the issues of production challenges that occurred due to humid weather conditions, and low quality and fungus prone products. A major attraction of this initiative is the innovative and environment friendly product, which is also available in multiple sizes and in smart designs. In order to expand the scope of the project and to

ensure smooth operation of the units, the project invested extensively in training and workshops for the entrepreneurs. The most distinguished achievement of the project lies in its ability to develop entrepreneurial spirit among the rural unemployed youth, by providing them a dignified livelihood generation activity. It is providing a subsidiary occupation along with farming, ensuring year long employment for the rural population since agriculture is a seasonal activity in the state.

4. The Project

4.1 A Brief about the XYZ Assam State Cooperative Society:

1. Registered under Assam State Cooperative Society Act, since 2008.
2. It is already well established cooperative society has 30 members already working for the Fruits and other side products.
3. Society has already its own land for the cultivation of Areca Palm Tree.
4. As society is already set up .Therefore there is no need to incur cost on raw material that is required for this society.
5. The society is presently in profit and wants to generate alternate sources of revenue for its members as well as want to help in the economy of the country by providing alternative source of income and employment.
6. Therefore that society will start the business for making of Areca Palm Tree which is biodegradable product and eco- friendly.

The society has its own land for the proposed project. A copy of the land which is also proposed to be kept as security for availing loan. The members of the society are primarily engaged in agriculture of Areca Nut Palm trees

The society presently sales nut called supari from its cultivation feed to its member as well as non member through its retail outlet at society office. The society office is also used as store room to keep raw material and machines.

4.2 The Proposal

This proposal involves the setting up of Areca Palm Plate factory of 29000 pieces /month i.e. annually 348000 plates with the increase of 5000 plate each year.

1. Raw material will be provided by the society that is already running.
2. Our products are manufactured from fallen dry sheaths of Betel nut trees. The areca sheath when dried will fall from the tree and it is collected from the farms fresh and used for making products. These sheaths are available in plenty in the South

India region. The usage of these leaves was started from our ancestors. We are only making them into attractive shapes to meet the different customer requirements.

3. There is huge demand of fresh Palm plate in all over country.

4.3 Statutory Clearance requirement:

The clearance has already been taken from electricity board in respect of electricity connection and from local authority in respect of expansion of project.

4.4 Manufacturing Process:



One unit consists of 2 Hydraulic Machine based heat-press machines replaceable dies of different sizes, and one gas based dryer. Store rooms (office rooms) are used for the purpose of stocking up raw materials and finished products. There is also a requirement for water tanks in order to clean up the sheaths prior to initiating the production process.

4.5 Project Cost and Financing:

(in Rs)

Fixed Costs

- Land : Own land
- Building :68000/-
- Machinery :286000/-
- Misc Expense :7000/-

Recurring Expense:

- Raw material : No cost
- Labour wages :240000/-
- Utilities and contingencies that includes
- electricity, transport charges :Rs. 51600/-
- Total :Rs 652000/-
- NCDC Finance (75%) :Rs.489000/-
- Society Contribution (25%) :Rs 163000/-

4.6 Schedule of disbursement of funds under the project:

- a) 1st release upto 25% of loan shall be made after:
 - Completion and acceptance of legal documents.
 - Payment of processing and legal fees etc
 - After completion of clearance from pollution control department in respect of installation of machine.
 - b) 2nd release i.e. of 75 % of loan shall be made after
 - Development and set up of land.
 - Placement of order for plant and machinery.
- **Total project cost estimated is to be Rs.6.52 lakh**, which does not include the cost of the land as society owns its own land. The project cost will be met by the society contribution of Rs. 1.63 lakhs/- (10%) and financial assistance of Rs. 4.89 lakhs (90%) from NCDC under Central Sector Integrated Scheme of Agricultural Cooperation (CSISAC based on certain realistic assumptions the future cash flow of the project has been also worked out).
 - A total of 3 members (1 is manager in all these 3 members). We will recruited trained staff who will compatible with all purposes i.e. all these people are compatible with machines, raw material.

4.7 Marketing:

The product has a supply constraint in the market and the demand is very high. The market is expected to have a sustained higher growth for the coming years. The Govt. policies, changing trend and sustainable development concept will increase the importance of the product and its marketability.

4.8 Vision & Mission Statement

4.8.1 Mission: To provide different sizes of processed and good quality fibre plates as a substitute of plastic which is bio degradable product at reasonable prices.

4.8.2 Vision: To establish itself in a good condition financially, creating employment opportunities for our people and save the environment from the pollution by increasing the production of fibre plate by which customers will stop the use of plastic plates.

4.9 Objectives/Goals/Purpose of the Project is to:

- i. Increase the revenue of the cooperative society
- ii. Extra Income to areca nut farmers
- iii. Made from the leaves and sheath of palm trees which are considered as waste product of product. Therefore no cost incurred on its raw material
- iv. Alternative of plastic plates which are non biodegradable
- v. Provide gainful employment to its members.
- vi. Cater the need of the growing demand of substitute of plastic plates
- vii. Provide assured quality pork to consumers at a very competitive price
- viii. Save the environment from the pollution as plastic is non biodegradable.
- ix. Plates can be used as fertilizers as these are biodegradable.

4.10 Implementation plan/Schedule/Timeline

The project is scheduled to be commenced from January 2019 as per the implementation schedule mentioned below:

Sl. No.	Particulars	Commencement (Month and year)	Completion (Month & year)
1	Land Acquisition	Owned	
2	Land Development	15.01.2019	15.02.2019
3	Plant set up	15.01.2019	15.02.2019
4	Training to staffs and Management	15.02.2019	15.04.2019
5	Water and Sanitation	01.04.2019	15.04.2019
6	Electricity		10.04.2019
7	Procurement of testing equipments		20.04.2019
9	Manufacturing of fiber plates	01.05.2019	The first batch will be ready for market by 01.06.2019.

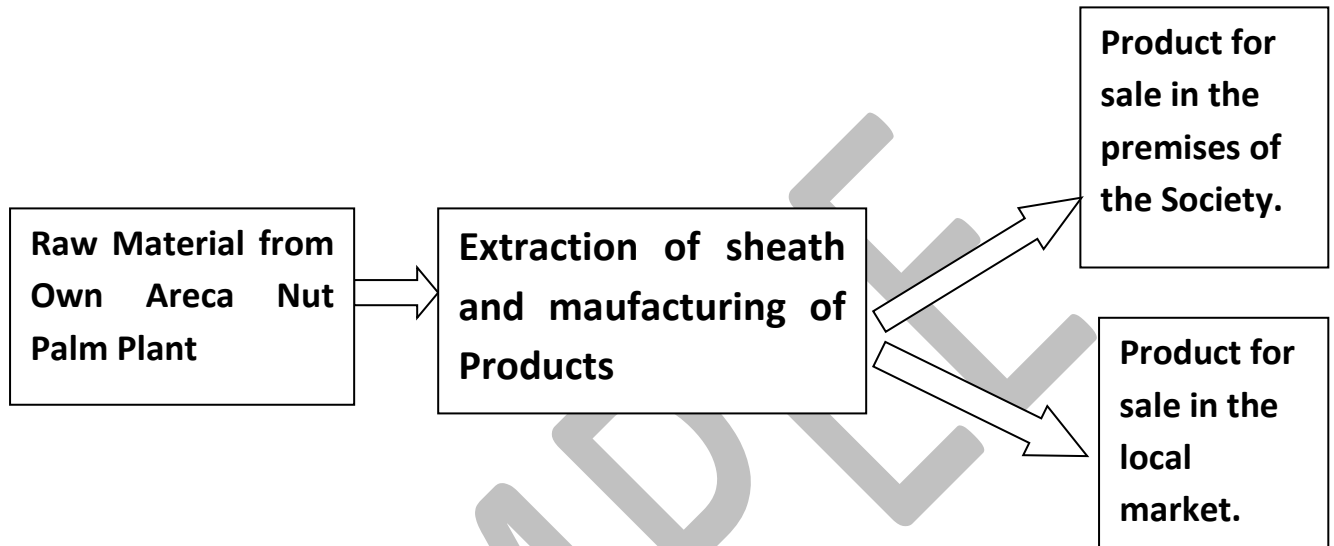
4.11 Nature and type of security/ aspects to be kept in view:

The society has its own land which is available to mortgage against the proposed term loan.

The valuation of land has already been done by SGH compay registered under State Government. The market value of land is Rs.50 lakh.

5. Business Model and Strategies

The key stake holders identified for this project are the beneficiary cooperative society and its members.



6. Strengths, Weakness, Opportunities and Threats(SWOT)

Strengths	Weakness
<ul style="list-style-type: none"> • Shifting of people from plastic products to bio degradable products. • Market readily available for product. • Support from all state as well as from Central Government for production of substitute of plastic and will save the environment from pollution. • Can produce good quality of fiber plates as raw material used for its production is considered as waste for existing plant • Plates can be used as fertilizers after use. 	<ul style="list-style-type: none"> • No experience in making these fiber plates. • Small working capital available and new product in market so cannot grow high price fiber plates in a short span of time. • Own transport facility not available • Low margin as manufacturers cannot sell directly in market.
Opportunities	Threats
<ul style="list-style-type: none"> • India looking for the substitute of plastic. • Good profit margin in fish export • Good market for these biodegradable fibre plates. • Support from Central and State Government 	<ul style="list-style-type: none"> • No favorable temperature for the cultivation of areca nut palm tree. • Low cost and low quality of plastic plates.

7. Project Feasibility Analysis

7.1 Economic Feasibility:

- a) Extra Income to areca nut farmers
- b) Alternative of plastic plates which are non biodegradable.
- c) Save the environment from the pollution as plastic is non biodegradable.
- d) Eco Friendly.
- e) Plates can be used as fertilizers as these are biodegradable.
- f) The product has a supply constraint in the market and the demand is very high. The market is expected to have a sustained higher growth for the coming years .

7.2 Organisational Feasibility:

- The Organisation has sufficient infrastructure for this project like land as they are already doing the cultivation of Areca palm tree.
- Organisation has 30 members who are already working for the other projects and their revenue is around 15.00 lakhs per annum. Therefore project seems to be viable.
- Organisation has recruited staff of 3 trained members for this project that is sufficient for the proper working of this proposal.
- As the recruited staff is already trained. Therefore in future they will be treated as a master trainer for the future staff trainer.

7.3 Financial Feasibility:

- **Total project cost estimated is to be Rs.6.52 lakh**, which does not include the cost of the land as project members have their own land.
- Total Fixed Capital-Rs.3.61 lakh

After observing its profit and financing sheet through annexure project seems to be viable.

7.4 Technical Feasibility:

- As there will be no shortage of raw material as it is easily available from the owner of this project. Therefore from this point it is viable.
- Machine for processing of Palm tree sheaths are easily available. Therefore from this point it is also viable.

- The product has a supply constraint in the market and the demand is very high. The market is expected to have a sustained higher growth for the coming years. The Govt. policies, changing trend and sustainable development concept will increase the importance of the product and its marketability.
- Therefore it is technical feasible and we can run this project.

8. Plan, Implementation, Monitoring and Evaluation Marketing(PIME)

LAND & BUILDING

The unit will be set up in a owned land of the society which will be used for the cultivation of areca palm tree, for setting of water tank and its office area is used for storage. The power, Communication facility etc. are available. Hence without doubt one can say that the site selected is very suitable for these types of units.

PLANT & MACHINERY

The plant & machinery are enlisted in the economics of the project. They include sewing machines, embroidery machines, furniture, cutting table etc. The selected machinery can be made available from authorized suppliers of these items. Machine spare parts and maintenance will be available on demand. Each machine has 3 dies of different sizes, which can be easily interchanged and attached to any machine. The parts of the machine are also flexible and can be easily replaced or repaired. A dryer was developed recently in order to support the production processed during even in the rainy season. The basic units have a capacity to process 1,74,000 pieces of areca-nut sheaths per annum.



Storing facility: The sheaths need to be sun dried and stored before production. The sheaths can be stored for 9-12 months in a room with concrete posts, sand floor, bamboo based wall and platforms for keeping the raw materials. TPMPL also has good storing facility for finished products. After proper packaging, those can be stored for more than 6 months.

Cleaning of sheaths: Just before starting the production process, the sheaths are carefully cleaned in the water tanks and dried while taking care to retain their moisture content. A specially designed bio gas based dryer is used for this purpose during rainy seasons.

Raw Material

The raw materials needed include sheath of areca palm tree of different sizes. They are easily available and care will be taken on the quality of the same.

Staff Labour:

The unit will be operated in one shift. The staff and labors needed for the unit will be selected from locally and all those employees are trained.

Other Expenses:

The probable other experiences are considered in the economics of the project. They include water, electricity charges, communication, maintenance, postage & stationery etc.

Power:

The total connected load required for running the unit is estimated as 3 H.P. only-single phase.

Marketing:

The marketing of any product is the decision making factor of the existence of the unit and on considering that the promoter has taken all the possible ways for marketing such as direct sales and personal contacts etc. In fact the promoter had made a wide network of marketing for the last one year and is capable for the forthcoming years also. The marketing area is concentrated in whole sale dealers in ABC district of Assam. Proper feedback will be taken from the wholesale dealer which they will take from the market and from customers which will be beneficial for the improvement of Palm Plates.

Campaign will be organized from time to time for the concept of biodegradable and as substitute of Plastic plates.

Mode of Finance:

The promoter expects financial assistance from leading. This unit will be financed under NCDC.

Project Cost and Financing: Total project cost has been estimated to be Rs. 6.52 lakhs. Detailed breakup is given below:

S.No.	Particulars	Quantity	Price/unit
1	Machine(including dryer)	1	250000
2	Water Tank, Pump Set and Plumbing works	L	25000
3	Building		50000
(a)	Machine Room		18000
(b)	Storage Room		0
4	Other equipment and material		8000
5	Misc Furniture and fixture		3000
	Preliminary and pre-operative expenses		5000
(a)	Electricity Connection		2000
	Total Fixed capital		361000

Working Capital (In Rs.):

S. No.		Salary /Month(Rs)		Salary/An num
1	Proprietor cum Manager	8000	8000	96000
2	Skilled labour	6000	12000	144000
	Total		20000	240000

Utilities and contingencies			
		Per Month	Per annum
1	Power charges	1000	12000
2	Travel exp / Transport	500	6000
3	Repairs and Maintenance	800	9600
4	Insurance	400	4800
5	Telephone charges	300	3600
6	Stationary and postage	600	7200
7	Miscellaneous expenses	400	4800
8	Water Charges	300	3600
	Sub Total	4300	51600

The society will seek financial assistance from NCDC under its CSISAC. The project financing will be as under:

SN	Particulars	% share in project cost	Rs.
A	NCDC's Assistance		
a	Loan	75.00%	489000
B	Society Contribution	25.00%	163000
	TOTAL	100%	652000

Project Viability

Based on certain realistic assumptions the future cash flow of the project has been also worked out. The Internal Rate of Return (**IRR**) worked out to be healthy 32 % signifying that the Project will be able to generate the revenue to cover all the costs incurred in project. Also average Debt Service Coverage Ratio (**DSCR**) is worked out to be **1.95** which signifies that project will be able to generate significant revenue to easily repay its debt/ loan. Hence, the project is financially viable.

9. Risk Assessment and Risk Management

Every project has some inherent risks and mitigating them is key to the success of the project. Risks have been identified for this project and they have been categorized in four major categories as below :

- i. **Production Risk:** Raw material i.e. Sheaths must be kept in proper storage after proper drying of it in order to save it from fungus prone diseases .
- ii. **Market Risk:** Despite having good present and future market for if proper forward linkages are not made, the Society will not be able to sell its produce and thus may incur loss. For this, the possible buyers have been identified and contacted. They will be asked to place demand well in advance so that society would be able to deliver required quantity in right time. We will ask for feedback from the customers for improving product quality.
- iii. **Managerial Risk:** Society's management and staff have experience in making of palm leaf plate as well as in operating machines. They are also good at maintaining books and accounts of the society.

10. Conclusion

The project of manufacturing of Palm leaf plate units proposed to be set up by the XYZ cooperative society is a technically feasible and financially viable project. A part from the listed objectives of the project there are many other benefits such as people of the region will be motivated to take up this activity as their alternative source of the income as well as save the environment. The project is , therefore, recommended for investment and implementation.

11. ASSUMPTIONS

- a. Starting capacity of the plant is 348000 plates per year.
- b. It has assumed that production of plant will increase by 5000 plates per year.
- c. Starting cost of each plate is Rs1.4. In succeeding years the rate of each plate will be revised.
- d. Cost of raw material ie sheaths of Areca Nut Palm tree is zero as raw material will provide by already established plant.
- e. For availing loan for this project, society has proposed to mortgage its land.
- f. No subsidy has been considered and whole 90% contributed by NCDC has been considered as loan.
- g. Already recruited trainer will be considered as master trainer who will give further trainings to future recruitment for the proper functioning of the plant.
- h. No cost has been incurred for the purchase of land as society has already its own land.
- i. There will not be any major increase in the rate of raw material and any major changes in prices will be compensated with corresponding change in product
- j. Interest rate on term loan has been taken as 10%.
- k. No subsidy has been considered and whole 90% contributed by NCDC has been considered as loan.

12. List of Annexure:

Annexure	Content
Annexure I	Repayment Schedule
Annexure II	Depreciation Schedule for Palm Leaf Plate Unit
Annexure III	Financial Analysis

SAMPLE

Annexure 1

S. No.	Loan Outstanding	Repayment Schedule		Total Installment
		Principal	Interest@10%	
1	489000	0	48900	48900
2	489000	122250	48900	171150
3	366750	122250	36675	158925
4	244500	122250	24450	146700
5	122250	122250	12225	134475
Total		489000	171150	660150

SAMPLE

Annexure II

Depreciation Schedule for Palm Leaf Plate Unit

Year	Building & Furniture Fixture		Machinery & Equipments etc		Total Depreciation	Value at the end of the year
	Value at the beginning of the year	10%	Value at the beginning of the year	15%		
1	68000	6800	286000	42900	49700	304300
2	61200	6120	243100	36465	42585	261715
3	55080	5508	206635	30995	36503	225212
4	49572	4957	175640	26346	31303	193909
5	44615	4462	149294	22394	26856	167053
Salvage value	40153		126900		0	167053
Total Salvage value	167053					

Annexure III
Financial Analysis

(In Rs.)

	Particulars	Yr - 0	Yr - 1	Yr - 2	Yr - 3	Yr - 4	Yr - 5
	Capacity (in numbers)		348000	353000	358000	363000	368000
A.	Income						
i.	By Sale of Plates(Rs)		487200	564800	572800	617100	662400
	Total Income(Rs)		487200	564800	572800	617100	662400
B	Expenditure						
i.	Cost of Sheath of Areca nut palm tree		0	0	0	0	0
iii.	Utilities and Other Charges(Including electricity, water, transport etc)		51600	51600	51600	51600	51600
vi.	Wages		240000	240000	240000	240000	240000
vii	Depreciation		49700	42585	36503	31303	26856
viii	Interest on Working Capital Loan		0	0	0	0	0
ix	Interest on Term Loan		48900	48900	36675	24450	12225
	Total Expenditure		390200	383085	364778	347353	330681
C	Profit before tax		97000	181715	208022	269747	331719
D	Income tax 30%		29100	54515	62407	80924	99516
E	Profit after interest, tax & depreciation		67900	127200	145615	188823	232203
F	Term Loan Repayment		0	122250	122250	122250	122250
	Salvage Value						167053
H	Cash flow for IRR	652000	195600	273200	281200	325500	370800
I	IRR		32.00%				
J	DSCR		3.40	1.28	1.38	1.67	2.02
K	Average DSCR		1.95				