



Detailed Project Report ***on*** ***Crop residue-based products (Bio Brick)***

Under MKUY

Name of the Entrepreneur/Entity:

Address:



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1. Project Summary

1	Name of the Enterprise (as per the Illustrative List of Enterprises)	Product out of crop residue
2	Sector (as per the Illustrative List of Enterprises)	Agriculture
3	Project Capacity ¹	8000 Bio bricks/Day
4	Project location (Village/Ward, Gram Pranchayat/Municipality, Block, District)	
5	Key components of the project (Example: Dairy, Vermicomposting, Biogas, Apiary, Solar Lighting)	Bio bricks based out of crop residue
6	Products/Output from the project	Bio Bricks
7	Total Project Cost	Rs. 1,31,07,600
8	Fixed Capital Cost	Rs. 1,26,49,600
9	Working/Recurring capital	Rs. 4,58,000
10	Bank Finance/ Self Finance	Bank
11	Bank Loan Amount	Rs. 1,17,51,040
12	Promoter Contribution (min 10% in case of bank loan)	Rs. 13,56,560
13	Bank details: Name of the Bank, Branch, IFSC Code	
14	Assumed Interest Rate of Interest	11%
15	Subsidy Eligibility (40%, 50%)	
16	Repayment Terms (Tenure, Moratorium, Frequency, Mode of Repayment: equal principal/equal instalment)	Monthly equated instalments for 7 years
17	Key Financial Indicators:	
	1. Average Annual Net Profit	Rs. 50,00,672
	2. Debt Service Coverage Ratio (DSCR)	2.42
	3. Internal Rate of Return	38.84%
	Break Even Year	2 Years and 6 Months
18	Estimated employment to be generated (nos.)	6

Note: The price quoted in the DPR is indicative. Final CIS will be calculated as per the Rate in MKUY guideline.

¹ Capacity can be in terms of area or quantity



2. Project Profile

2.1 Entrepreneur/Entity Profile

1	Name of the Entrepreneur/Entity	
2	Legal status (Individual/ Group/ FPO/ FPC/ Proprietorship/ Partnership firm/ Company/ Cooperative/ Federation/ Society/ Trust)	
3	Name of Representative ² in Ease of entity	
4	Gender (Male/ Female/ Third Gender/ Not Applicable)	
5	Date of Birth of Individual/Representative of Entity	
6	Date of Incorporation/Registration of Entity	
7	Category opted for (Women/ ST/ SC/ Differently Abled/ Third gender/ Agri & Allied Graduate)	
8	Educational Qualification of Individual/Representative of Entity	
9	Passport size photograph of the Individual/ Representative of entity	
10	Local Address for Correspondence of the Individual/ Representative of entity	
11	Registered Address of Entity	
12	Main Office/Branch Address of Entity	
13	Phone no. of Individual/Representative of Entity	
14	Email Id of Individual/Representative of Entity	
15	AADHAR No. of Individual/Representative	
16	PAN of Individual/Representative of Entity, if available	
	Farmer Id of Individual, if available	
17	Registration No./ CIN of the Entity ³	
20	PAN/TAN of Entity	
21	GSTIN of Entity, if available	
22	Details of experience and exposure relevant to the proposed enterprise/project (family business, work experience, e- learning/certificate courses, trainings undertaken etc.)	

² Representative should be authorized by the board/governing body of the entity.

³ Registration document:

Groups (SHG/PG/ FPO: , Proprietorship firm: Registration Certificate under Shops & Establishment Act,
Partnership firm: Registration Certificate from IGR of state, Company (Pvt. Ltd., Public Ltd., LLP, OPC, FPC):
Certification of Incorporation, Cooperative/ Federation: Certificate of Registration from Registrar of
Cooperative Societies, Society/Trust: Darpan Unique Id



2.2. Project Consultant Details

DPR prepared by:

Please provide further details of the consultant:





2.3. Concept and Scope of the Project

Background

Bio-bricks refer to sustainable building materials produced using organic waste, specifically crop residues like rice husks, wheat straw, and sugarcane bagasse. These bricks offer an environmentally-friendly alternative to traditional clay or cement bricks. The process involves collecting crop residues, drying, grinding, mixing with a binder, molding into brick shapes, and allowing them to cure. The utilization of agricultural waste not only provides a constructive use for what might otherwise be discarded but also aids in reducing the environmental impact of traditional brick manufacturing.

Market Potential

Growing Demand for Sustainable Solutions: As global awareness of environmental issues increases, there's a growing demand for eco-friendly products and solutions. Bio-bricks, being sustainable alternatives to traditional bricks, are well-positioned to meet this demand.

Waste Management Opportunities: In regions with substantial agricultural output, there's a constant challenge of managing crop residues. By turning these residues into bio-bricks, businesses can tap into a readily available resource, turning a challenge into an opportunity.

Cost-Efficiency: Given that crop residues are often considered waste, sourcing them can be more cost-effective than traditional raw materials. This can result in competitive pricing for bio-bricks, making them appealing to cost-conscious consumers.

Diversification: The technology and processes used for bio-brick production can be diversified to produce other sustainable construction materials, broadening the market reach.

Innovative Marketing: The unique selling proposition of bio-bricks as an eco-friendly, innovative solution can be a strong marketing point, appealing to environmentally-conscious consumers and businesses.

Partnerships: Collaborations with agricultural sectors, environmental organizations, and research institutions can further boost the market potential by ensuring a steady supply of raw materials, enhancing product quality, and increasing credibility.

Bio-Brick Production Sequence

1. Collection of Crop Residues
2. Drying of Collected Residues
3. Shredding and Grinding Residues
4. Mixing Residues with Additives
5. Molding Mixture into Brick Shape
6. Compacting Bricks to Desired Density
7. Packaging Finished Bricks



3. Techno-Commercial Assumptions

Sl. No.	Parameter	Value	Unit
1	Increase in Rate of Product	5	%
2	Increase in Utility Rate/consumption	5	%
3	Collection from Debtors (First Year)	15	Days
4	Collection from Debtors	15	Days
5	Payable to Creditors	5	Days
6	Drawing By Promoter	10	%
7	Increase in Staff Salary	5	%
8	Rate of Interest on TL	11	%
9	Rate of Interest on WC	9	%
10	Loan Repayment (in year)	7	Years
11	Raw Material in Stock (on sales)	90	Days
12	Finished Goods in stock (on sales)	30	Days
13	Promoter's Contribution (Term Loan)	10	%
14	Promoter's Contribution (Working Capital)	20	%
15	Working Capital Requirement	30	Days
17	Working Capital Utilization	100	%
18	No of working Days	300	Days

4. Financial Details

4.1. Project Fixed Capital

Sl. No.	Particulars	Unit	Qty.	Cost per unit (Rs)	Total (Rs)
A	Land				
1	Land Development	Sq. ft	8000	0.70	5,600
2	Fencing (Barbed wire/Green Fencing)	ft	400	60	24,000
	Sub Total				29,600
B	Civil Construction				
1	Shed	Sq. ft	4000	350.00	14,00,000
2	Storeroom	Sq. ft	3000	350.00	10,50,000
3	Office	Sq. ft	200	350.00	70,000
4	Labour shed	Sq. ft	200	350.00	70,000
	Sub Total				25,90,000
C	Water Supply				
1	Water Supply with tank, pump, and pipeline				2,00,000.00
D	Electrification				
1	Electrical Installation (with transformer and DG Unit as required)				4,00,000.00

E	Plant & Machinery				
Sl. No.	Particulars	Specification	Qty.	Unit Price (Rs)	Total (Rs)
1	Automated Shredder/Chopper	1000 kg/hr	1	5,00,000	5,00,000



2	Grinding Mill with Cyclone Separator	1000 kg/hr	1	8,00,000	8,00,000
3	Automated Mixing and Dosing System	1500 kg/hr	1	11,00,000	11,00,000
4	Conveyor Belt System		1	20,00,000	20,00,000
5	Brick Molding Machine	2000 bricks/hour	1	25,00,000	25,00,000
6	Hydraulic Press	2000 bricks/hour	1	15,00,000	15,00,000
7	Mechanical Dryers/Ovens	2000 bricks/hour	1	10,00,000	10,00,000
	Total				94,00,000
F	Miscellaneous Expenditure				
Sl. No.	Particulars	Specification	Qty	Unit Price	Total
1	Insurance premium of assets				30,000
2	DPR Cost				
3	Other misc. exp				
	Total Misc. Exp				30,000

4.2. Project Variable Expenses

Details of Recurring Expenditure						
Details of raw material						
Sl. No.	Items	Unit	Rate/Unit (in Rs)	Qty/day	Qty/annum	Total (Rs)
1	Crop Residue	Ton	600	7.5	2250	13,50,000
2	Binding Agent	Ton	2000	2.5	750	15,00,000
3	Additives/Plasticizers	Ton	5000	0.5	150	7,50,000
4	Reinforcing Agents	Ton	2500	0.4	120	3,00,000
5	Fillers (e.g., sand)	Ton	500	1.0	300	1,50,000
6	Stabilizers (e.g., lime)	Ton	2000	0.4	120	2,40,000
7	Colorants	Ton	7000	0.1	30	2,10,000
	Total				3,720	45,00,000

Details of salary and other benefits				
Sl. No.	Type of workers	No. of Worker	Salary Per Month/head (Rs)	Total Salary per annum (Rs)
1	Manager	1	15,000	180000
2	Skilled Labour	1	10,000	1,20,000
3	Semi Skilled Labour	4	8,000	3,84,000
	Grand Total	6		6,84,000

4.2. Details of Sales

Details of Income						
Sl. No.	Type of products	Unit	Rate/Unit (Rs)	Quantity/day	Quantity/annum	Total (Rs)
1	Bio Bricks	piece	6	8000	2400000	14400000
	Total				24,00,000	1,44,00,000



4.3. Project Balance Sheet

Liabilities	I	II	III	IV	V	VI	VII
Opening Capital	-	30,72,974	32,86,204	37,80,782	44,85,647	50,58,589	56,26,440
Add: Introduced	13,56,560						
Add: Profit	34,33,414	35,00,230	42,76,578	51,90,865	56,31,941	61,94,852	67,76,823
Less: Drawing	17,17,000	32,87,000	37,82,000	44,86,000	50,59,000	56,27,000	62,02,000
Closing Capital	30,72,974	32,86,204	37,80,782	44,85,647	50,58,589	56,26,440	62,01,263
Term Loan from Bank	1,02,41,251	89,65,550	75,42,226	59,54,197	41,82,403	22,05,580	-
Current Liabilities							
Cash Credit from Bank	3,66,400	3,66,400	3,66,400	3,66,400	3,66,400	3,66,400	3,66,400
Sundry Creditors	52,500	63,000	70,300	78,167	82,083	86,200	90,517
Expenses Payable	1,05,700	1,14,800	1,22,500	1,30,800	1,37,300	1,44,200	1,51,500
Current Provisions	12,03,606	12,32,242	15,64,962	19,56,799	21,45,832	23,87,079	26,36,496
Total Current Liabilities	17,28,206	17,76,442	21,24,162	25,32,166	27,31,615	29,83,879	32,44,912
Total Liabilities	1,50,42,431	1,40,28,195	1,34,47,170	1,29,72,010	1,19,72,607	1,08,15,899	94,46,175
Assets							
Fixed Assets	1,26,19,600	1,26,19,600	1,26,19,600	1,26,19,600	1,26,19,600	1,26,19,600	1,26,19,600
Less Depreciation	17,49,000	30,01,200	42,89,265	53,95,420	63,45,821	71,62,814	78,65,496
Net Fixed Assets	1,08,70,600	96,18,400	83,30,335	72,24,180	62,73,779	54,56,786	47,54,104
Current Assets							
Sundry Debtors	5,04,000	6,04,800	6,74,800	7,50,200	7,87,800	8,27,200	8,68,600
Inventories	19,53,000	21,42,000	24,75,000	27,56,500	29,77,900	31,27,100	32,83,600
Cash and Bank Balance	1,00,800	1,21,000	1,35,000	1,50,100	1,57,600	1,65,500	1,73,800
Other Current Assets	16,14,031	15,41,995	18,32,035	20,91,030	17,75,528	12,39,313	3,66,071
Total Current Assets	41,71,831	44,09,795	51,16,835	57,47,830	56,98,828	53,59,113	46,92,071
Total Assets	1,50,42,431	1,40,28,195	1,34,47,170	1,29,72,010	1,19,72,607	1,08,15,899	94,46,175



4.4. Calculation of Depreciation

Rates of Depreciation		10%	15%	Total depreciation for the year
Year	1	2,79,000.00	14,70,000	17,49,000
	2	2,51,100.00	12,49,500	15,00,600
	3	2,25,990.00	10,62,075	12,88,065
	4	2,03,391.00	9,02,764	11,06,155
	5	1,83,051.90	7,67,349	9,50,401
	6	1,64,746.71	6,52,247	8,16,994
	7	1,48,272.04	5,54,410	7,02,682

4.5. Projected P&L

Description	Year ending March 31st						
	I	II	III	IV	V	VI	VII
Capacity Utilisation	70	80	85	90	90	95	95
Revenue							
Sales	1,00,80,000	1,20,96,000	1,34,95,000	1,50,04,000	1,57,55,000	1,65,43,000	1,73,71,000
Opening Stock of Finished Goods	-	(10,08,000)	(12,09,600)	(13,49,500)	(15,00,400)	(15,75,500)	(16,54,300)
Closing Stock of Finished Goods	10,08,000	12,09,600	13,49,500	15,00,400	15,75,500	16,54,300	17,37,100
Total Income (A)	1,10,88,000	1,22,97,600	1,36,34,900	1,51,54,900	1,58,30,100	1,66,21,800	1,74,53,800
Expenditure							
Opening stock of Raw Material	-	9,45,000	11,34,000	12,65,400	14,07,000	14,77,500	15,51,600
Purchase (Net) of Material	31,50,000	37,80,000	42,18,000	46,90,000	49,25,000	51,72,000	54,31,000
Closing Stock of Raw material	9,45,000	11,34,000	12,65,400	14,07,000	14,77,500	15,51,600	16,29,300
Raw Material Consumption	22,05,000	35,91,000	40,86,600	45,48,400	48,54,500	50,97,900	53,53,300
Repair & Maintenance- Machinery (@5% of Cost)	2,51,800	2,64,400	2,77,700	2,91,600	3,06,200	3,21,600	3,37,700
Electricity expense	2,01,600	2,42,000	2,69,900	3,00,100	3,15,100	3,30,900	3,49,100
Insurance cost	30,000	31,500	33,100	34,800	36,600	38,500	40,500
Administrative salaries and wages	6,84,000	7,18,200	7,54,200	7,92,000	8,31,600	8,73,200	9,16,900
Other Misc. Expenses [@1% of sales]	1,00,800	1,20,960	1,34,950	1,50,040	1,57,550	1,65,430	1,73,710
Total Cost	34,73,200	49,68,060	55,56,450	61,16,940	65,01,550	68,27,530	71,71,210



Profit Before Depreciation, Interest and Tax	76,14,800	73,29,540	80,78,450	90,37,960	93,28,550	97,94,270	1,02,82,590
Depreciation	17,49,000	15,00,600	12,88,065	11,06,155	9,50,401	8,16,994	7,02,682
Profit Before Interest and Tax	58,65,800	58,28,940	67,90,385	79,31,805	83,78,149	89,77,276	95,79,908
Interest on Term Loan	11,95,804	10,63,492	9,15,870	7,51,164	5,67,399	3,62,370	1,33,614
Interest on Working Capital Loan	32,976	32,976	32,976	32,976	32,976	32,976	32,976
Total Interest Paid	12,28,780	10,96,468	9,48,846	7,84,140	6,00,375	3,95,346	1,66,590
Profit Before Tax	46,37,020	47,32,472	58,41,539	71,47,665	77,77,773	85,81,931	94,13,318
Income Tax	12,03,606	12,32,242	15,64,962	19,56,799	21,45,832	23,87,079	26,36,496
Profit after Tax	34,33,414	35,00,230	42,76,578	51,90,865	56,31,941	61,94,852	67,76,823

4.6. Projected Cash Flow

Period Ending	I	II	III	IV	V	VI	VII
Cash & Bank Balance at Beginning	-	1,00,800	3,69,400	3,83,400	3,98,500	4,06,000	4,13,900
Cash Inflow during the Period	1,71,51,871	51,21,101	59,12,363	67,05,025	70,97,294	78,00,324	86,13,780
Cash Outflow during the Period	1,70,51,071	48,52,501	58,98,363	66,89,925	70,89,794	77,92,424	86,05,480
Closing Cash & Bank Balance	1,00,800	3,69,400	3,83,400	3,98,500	4,06,000	4,13,900	4,22,200

4.7. Projected Loan Repayment

Year	Interest	EMI	Principal
1	11,95,803.99	23,39,193.30	11,43,389.31
2	10,63,492.31	23,39,193.30	12,75,700.99
3	9,15,869.67	23,39,193.30	14,23,323.62
4	7,51,164.32	23,39,193.30	15,88,028.97
5	5,67,399.46	23,39,193.30	17,71,793.84
6	3,62,369.54	23,39,193.30	19,76,823.76
7	1,33,613.79	23,39,193.30	22,05,579.51
Total	49,89,713.08	1,63,74,353.08	1,13,84,640.00



4.8. Calculation of DSCR, IRR and BEP

Calculation of DSCR							
Year	I	II	III	IV	V	VI	VII
Net Sales	1,00,80,000	1,20,96,000	1,34,95,000	1,50,04,000	1,57,55,000	1,65,43,000	1,73,71,000
Net Profit	34,33,414	35,00,230	42,76,578	51,90,865	56,31,941	61,94,852	67,76,823
Interest Paid	12,28,780	10,96,468	9,48,846	7,84,140	6,00,375	3,95,346	1,66,590
Cash Accruals (a)	46,62,194	45,96,698	52,25,423	59,75,006	62,32,317	65,90,197	69,43,413
Principal	11,43,389	12,75,701	14,23,324	15,88,029	17,71,794	19,76,824	22,05,580
Interest	12,28,780	10,96,468	9,48,846	7,84,140	6,00,375	3,95,346	1,66,590
Total (b)	23,72,169	23,72,169	23,72,169	23,72,169	23,72,169	23,72,169	23,72,169
DSCR	1.97	1.94	2.20	2.52	2.63	2.78	2.93
Average DSCR	2.42						

Calculation of Break-Even Point (BEP)							
Sales	1,10,88,000	1,22,97,600	1,36,34,900	1,51,54,900	1,58,30,100	1,66,21,800	1,74,53,800
Variable Cost	23,05,800	37,11,960	42,21,550	46,98,440	50,12,050	52,63,330	55,27,010
Contribution	87,82,200	85,85,640	94,13,350	1,04,56,460	1,08,18,050	1,13,58,470	1,19,26,790
Fixed Cost	41,45,180	38,53,168	35,71,811	33,08,795	30,40,277	27,76,539	25,13,472
BEP Sales	52,33,513	55,19,067	51,73,640	47,95,548	44,48,850	40,63,142	36,78,243
Average BEP sales	47,01,715						

Calculation of Internal Rate of Return (IRR)				
SI. No.	Year	PAT	Depreciation	Cash Accrual
	Cash outflow at beginning			-1,31,07,600
1	31-03-2023	34,33,414	17,49,000	51,82,414
2	31-03-2024	35,00,230	15,00,600	50,00,830
3	31-03-2025	42,76,578	12,88,065	55,64,643
4	31-03-2026	51,90,865	11,06,155	62,97,020
5	31-03-2027	56,31,941	9,50,401	65,82,343
6	31-03-2028	61,94,852	8,16,994	70,11,845
7	31-03-2029	67,76,823	7,02,682	74,79,505
IRR	38.84%			
Payback Period	2 Years 6 Months			



4.9. Summary of Project Cost

Sl. No.	Name of Assets	Amount (INR)
1	Land Development	29,600
2	Civil Construction	25,90,000
3	Irrigation/Water Supply	2,00,000
4	Electrification	4,00,000
5	Plant & Machinery	94,00,000
6	Livestock	-
7	Insurance	30,000
8	DPR Cost	-
9	Other Miscellaneous Exp.	-
	Total Fixed Cost	1,26,49,600
	Recurring	4,58,000
	Cost of Project	1,31,07,600