DETAILED PROJECT REPORT

FORMAT

FOR

SMALL-LEVEL MAKHANA PROCESSING UNIT

[Small-Level Enterprise (200-500 kg Raw Makhana Seed per Day)]

FARMER PRODUCER ORGANISATION (FPO)

Submitted To

NATIONAL MAKHANA BOARD

Submitted By

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(To Be Completed by the Applicant)

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1. Details of The Applicant

S. No.	Particulars	Details
i.	Name of the FPO/FPC	
ii.	Legal Status	☐ FPO ☐ FPC/Producer Company ☐ Other Farmer Institution
iii.	Registration/Incorporation No./CIN	
iv.	Date of Registration/Incorporation	
v.	Name of the Registering Authority	
vi.	GST No., if applicable	
vii.	PAN No. of the FPO/FPC	
viii.	Address of the Registered Office	
ix.	Address of the Proposed Project Site	
x.	District	
xi.	State	
xii.	PIN Code	
xiii.	Total Number of Farmer Members	
xiv.	Number of Makhana-Growing Members	
xv.	Name and Designation of the Authorised Signatory	

1.1 Details of the Directors/Board Members and Chief Executive/Authorised Representative, as Applicable

S. No.	Name	Designation	Mobile No.	Email ID	Relevant Experience
1					
2					
3					

1.2 Membership and Share Capital Details

S. No.	Particulars	Details
i.	Total Number of Farmer Members	
ii.	Number of Makhana-Growing Members	
iii.	Number of Villages/Blocks Covered	
iv.	Paid-Up Share Capital (₹ lakh), if applicable	
v.	Member Contribution Proposed for the Project (₹ lakh)	
vi.	Estimated Makhana Supply from Members (MT/year)	

2. Land Details

S. No.	Particulars	Details
1	Land Area (sq. ft./acre)	
2	Status of Legal Title and Possession	
3	If Leased, Period of Lease (years)	
4	Coordinates of Location	

S. No.	Particulars	Details
5	Details of Change in Land Use (CLU), if Applicable	
6	Connectivity to Roads: State Highway/National Highway (km)	
7	Water Availability (litres/day or KLD)	
8	Availability of Power (kW/kVA)	

3. Background of the Project

3.1 Makhana Production Scenario in India and Bihar

Makhana (Gorgon Nut/Fox Nut), known for its high economic and nutritional value, is primarily cultivated in the waterlogged ecosystems of Bihar. The state leads India's Makhana production, contributing 85-90% of the total output. Key Makhana-producing districts include Madhubani, Darbhanga, Sitamarhi, Saharsa, Katihar, Purnea, Supaul, Kishanganj and Araria. Makhana has a rich history in India, deeply intertwined with cultural, religious, and agricultural traditions. It has been cultivated and consumed in India for centuries, particularly in the eastern states of Bihar, Assam, West Bengal, and Manipur. The Mithila region of Bihar is considered the hub of makhana production, accounting for nearly 90% of India's total output.

Field-based cultivation, improved varieties, value-added products, start-ups and Farmer Producer Organisations (FPOs) have widened the scope of the Makhana value chain. The National Makhana Board and related development initiatives further support processing, branding and market development.

3.2 Objectives of Establishing a Small-Level Makhana Processing Enterprise

- To establish a commercially viable small-level Makhana processing enterprise using modern processing technology.
- To produce hygienic, quality-assured and market-ready Makhana products.
- To enhance value addition and improve returns to farmer members through efficient processing, grading and packaging.
- To strengthen market linkages and create income and employment opportunities for FPO/FPC members.

4. Procurement of Raw Materials (Makhana Seeds)

4.1 Month-Wise Procurement Plan

S. No.	Month	Location: District/Block
1	January	
2	February	
3	March	
4	April	
5	May	
6	June	
7	July	
8	August	
9	September	
10	October	
11	November	
12	December	

4.2 Sources of Procurement (Directly from Farmers/Local Markets)

4.3 Arrangement of Transportation for Procurement

4.4 Raw Material Storage Plan for the Proposed Project

4.5 Popped Makhana Storage Plan for the Proposed Project

5. Processing of Makhana

5.1 Processing Flow Diagram

At the proposed Makhana Processing Unit, the following standard processing steps shall be followed to ensure systematic processing and production of quality finished products:

Harvesting and Cleaning -> Drying and Storage of Seeds -> Size Grading -> Pre-Heating -> Tempering -> Roasting and Popping -> Polishing -> Grading -> Seasoning -> Packaging

S. No.	Process	Brief Description
1	Harvesting and Cleaning	Seeds are collected and washed to remove mud and foreign matter.
2	Drying and Storage	Seeds are dried in sunlight or a hot-air dryer and stored temporarily.
3	Size Grading	Seeds are graded by size for uniform heating and processing.
4	Pre-Heating	Graded seeds are heated with continuous stirring to reduce moisture.
5	Tempering	Pre-heated seeds are stored for 48-72 hours to loosen the kernels.
6	Roasting and Popping	Tempered seeds are roasted and popped to produce Makhana Lawa.
7	Polishing	Popped Makhana is polished to improve whiteness and appearance.
8	Grading	Finished Makhana is graded according to size and quality.
9	Seasoning	Spices, salt and permitted flavours are added, where required.
10	Packaging	Finished Makhana is packed in suitable food-grade packaging.

5.2 Value Addition of Makhana

The proposed unit shall undertake value addition through the production of Instant Makhana Kheer. Makhana also offers scope for flavoured Makhana, Makhana flour, snack mixes and traditional sweets. Value addition will diversify the product range, enhance convenience and improve marketability, branding and revenue potential.

6. Marketing Strategy for Processed Makhana

The proposed enterprise has strong market potential within the local district and across Bihar. Popped Makhana, flavoured Makhana and Instant Makhana Kheer will be sold in consumer-friendly packs through retailers, distributors, supermarkets and institutional buyers. Sales will initially focus on nearby markets and subsequently expand across India through distribution partners and e-commerce channels.

6.1 Product Branding Strategy

As an entrepreneur, I will develop a distinct brand highlighting the quality, hygiene and Bihar origin of my Makhana products. I will participate in district-, state- and national-level Makhana fairs, exhibitions and buyer-seller meets. I will also promote the brand through social media, digital advertising, e-commerce platforms, retail displays and product sampling.

7. Marketing Channels

7.1 Available Marketing Channels

S. No.	Name and Location of Market	Distance from District Headquarters (km)	Commodities Handled Makhana and value-added products
1			
2			
3			

7.2 Sales of Processed Products

S. No.	Makhana and Value-Added Product	Market	Export	B2B	B2C	E-Commerce
1						

S. No.	Makhana and Value-Added Product	Market	Export	B2B	B2C	E-Commerce
2						
3						
4						

8. SWOC Analysis

As an FPO/FPC, we have assessed the key internal and external factors that may influence the establishment and successful operation of the proposed Makhana processing unit for the benefit of our farmer members, as summarized below.

Strengths	Weaknesses
• Easy local availability of Makhana from major producing areas. • Availability of skilled workers and experienced traditional processors. • Established local trading and procurement network for Makhana. • Good potential for processing, packaging and value-added products.	• Seasonal availability and variation in raw-material quality. • Limited production capacity and working capital during the initial stage. • Dependence on skilled manpower for efficient roasting and popping. • Limited market reach and consumer recognition for a new brand.
Opportunities	**Challenges**
• Growing consumer demand for packaged and ready-to-eat Makhana. • Opportunity to sell through retail stores, supermarkets and e-commerce platforms. • Scope for value-added products such as flavoured Makhana and instant Makhana kheer. • Potential to expand the market across Bihar and other states.	• Fluctuation in raw Makhana prices may affect production costs and margins. • Competition from established Makhana processors and branded products. • Maintaining consistent product quality, hygiene and shelf life. • Developing reliable marketing, distribution and retail networks.

9. Detailed Timeline

Detailed timeline for construction of the proposed project and commencement of operations:

S. No.	Activity	Start Date	Completion Date
1	Land Development		
2	Building		
3	Project Layout		
4	Plant and Machinery		
5	Erection and Commissioning		
6	Trial Run		
7	Commercial Production		

10. Financial Analysis

10.1 Estimated Project Cost: Small Level Makhana Processing Unit

S. No.	Name of Equipment/Component	Minimum Capacity/No.	Proposed Capacity/No.	Unit Cost (Rs.)	Remarks
1	Batch-Type Raw Makhana Seed Washer	100 kg/h; 1 No.			Quotation

S. No.	Name of Equipment/Component	Minimum Capacity/No.	Proposed Capacity/No.	Unit Cost (Rs.)	Remarks
2	Seed Grading Machine	200 kg/h; 1 No.			Quotation
3	Batch-Type Primary Roasting Machine	100 kg/h; 1 No.			Quotation
4	Final Roasting and Popping Machine	20-25 kg/h; 1 No.			Quotation
5	Popped Makhana Grader	100 kg/h; 1 No.			Quotation
6	Miscellaneous Instruments- (moisture meter, thermal sensors, sealer, bag stitching machine, etc.)	As required			Quotation
7	Makhana Flavouring and Instant Kheer Unit	20 kg/h; 1 No.			Quotation
8	Makhana Puffs Production Unit	20 kg/h; 1 No.			Quotation
9	Civil Works	2,000 sq. ft.			As per civil estimate prepared by CE

Total Fixed Cost: Rs. 39.00 lakh. Technical civil works should not exceed 25% of the total eligible project cost.

10.2 Means of Finance

S. No.	Item	Amount (Rs. lakh)	Percentage (%)
1	Term Loan from Bank/Financial Institution		
2	Unsecured Loan		
3	Own Contribution		
	Total		

10.3 Revenue Projections (Rs. Lakh)

S. No.	Item	Year 1	Year 2	Year 3	Year 4	Year 5
1	Turnover					
2	Cost of Operations					
3	Profit Before Tax					
4	Profit After Tax					
	Total					

Projected Balance Sheet and Projected Profit and Loss Statements covering the entire repayment period shall be attached.

10.4 Financial Parameters

S. No.	Item	Details/Ratio
1	Internal Rate of Return (IRR), with and without grant/subsidy	
2	Average Debt Service Coverage Ratio (DSCR)	
3	Break-Even Point (BEP)	

S. No.	Item	Details/Ratio
4	Debt-Equity Ratio	
5	Fixed Assets Coverage Ratio	

Declaration

I/We certify that the information furnished above is true and correct to the best of my/our knowledge and belief, and that no material fact has been concealed. If any information furnished in the application is found to be false or misleading, the application may be rejected at any stage and may be treated as ineligible under the applicable scheme.

Applicant	Chartered Accountant
Signature of the Applicant Date: _____ Place: _____	Signature: _____ Name: _____ UDIN: _____ Date: _____ Place: _____

Disclaimer

This DPR format is indicative and may be modified according to the nature, scope, capacity and specific requirements of the project. BHDS/NMB and the Bank/Financial Institution concerned may require additional information, documents, financial details, technical specifications or clarifications in accordance with the applicable scheme guidelines and project requirements.