BUSINESS PROPOSAL REPORT ON PLASTIC WASTE RECYCLING

Project Title: Plastic Crusher & Recycling Plant
Applicant / Company: The Federal Polytechnic Waste Recycling Hub
Location: Ilaro, Ogun State
Total Project Budget: ₦20,000,000 (Twenty Million Naira)
Funding/Support Sought: grant/loan facility
Date: October 2025
Prepared for: NASENI – for support, technology transfer, local manufacturing, and industrialization.

1. EXECUTIVE SUMMARY

Our company proposes to establish a **Plastic Crusher & Recycling Plant** that will process post-consumer plastic waste (PET bottles, HDPE containers, nylon waste etc.) into reusable flakes/granules for sale to local manufacturers and export markets. The project budget is ₦20 million. This initiative aligns with NASENI's mandate to promote science-engineering infrastructure, local value-addition, technology deployment and industrialisation in Nigeria.

Key goals:

- Create a local manufacturing/recycling facility anchored in local content and technology transfer.
- Generate employment and build skills in plastic recycling.
- Supply high-quality recycled plastics to local industries (packaging, furniture, textile fibre) thereby reducing import dependency.
- Commercial viability: With projected revenues and strong ROI, the business offers a sound investment.
- Contribution to environmental sustainability and circular economy.

2. STRATEGIC ALIGNMENT WITH NASENI

2.1 Mandate Fit

NASENI's mission is to develop "science and engineering infrastructure for home-initiated and home-sustained industrialisation."

- Deploying advanced but cost-effective crushing/washing/drying. and Pelletizing equipment for plastics.
- Emphasising local manufacturing/assembly where possible (machine parts, maintenance) and local workforce training.
- Delivering commercial products (recycled plastic flakes) that directly serve industrial value chains, not just R&D or prototype.
- Creating jobs, building local skills and transferring technology rather than just importing turn-key solutions.

2.2 Technology Transfer & Commercialisation

NASENI emphasises projects that are not just research but lead to new products/processes and their commercialisation.

Our proposition:

- We will incorporate modern plastic-crushing technology (with local maintenance capability).
- We will train technicians, operators and maintenance staff locally.
- We aim to scale to serve downstream industries and optionally export, thereby creating a commercially viable enterprise.

2.3 Local Content & Industrialisation

- We will source as much of the equipment locally (or assemble locally) as feasible, and encourage local suppliers of conveyors, sorting tables, washing units, drying systems.

- The project will promote local recycling industry, contributing to reduction of waste and import substitution of recycled plastic flakes.
- The plant will stimulate local value-chain (waste collectors, transporters, processing staff, packaging suppliers).

2.4 Job Creation and Capacity Building

- Direct employment (plant staff, operators, technicians) + indirect jobs (waste collection networks, logistics).
- Training programme for staff on operations, maintenance and quality control.
- Building a model that could be replicated or scaled, aligning with NASENI's objective of job creation and industrial infrastructure.

3. BUSINESS DESCRIPTION

3.1 Company Overview

The Federal Polytechnic Waste Recycling Hub is focused on waste-recycling and industrial raw-material supply. The recycling plant will be located around plastic waste hotspot within the campus, with proximity to waste-source, transport routes, and industrial consumers.

3.2 Project Scope

- Collection of plastic waste (domestic, dumpsites, industrial scraps).
- Sorting and pre-cleaning.
- Crushing into flakes/granules.
- Washing and drying to meet quality standards for local manufacturing use.
- Pelletizing
- Packaging and distribution of recycled material.
- Option for export of high-quality flakes or pellet if market conditions permit.

3.3 Objectives

- Commission plant within 12 months.
- Process a minimum of ~2 tons/day in year 1.
- Reach annual turnover of approximately ₦144 million by end of year 1 (based on earlier projections).
- Achieve pay-back and breakeven within first 12-18 months.
- Build workforce of staff plus indirect network of >100 waste-collectors within first year.

4. MARKET ANALYSIS

4.1 Industry Insight

Plastic waste is a major environmental challenge in Nigeria; the recycling sector is under-served. There is growing demand for recycled PET/HDPE flakes from packaging, furniture, textile fibre, export segments. The project taps into this demand and supports local industrialisation.

4.2 Target Markets

- Local plastic manufacturers (bottles, packaging films).
- Furniture manufacturers using recycled plastic.
- Textile fibre producers using recycled plastic pellets/flakes.
- Export markets (subject to quality compliance and export logistics).

4.3 Competitive Advantage

- Locally positioned plant reducing transport cost and enabling quick supply.
- Integrated process (crushing + washing + drying + pelletizing) to deliver higher-quality flakes or pellet.
- Partnerships with local waste-collection networks for reliable feedstock.
- Alignment with national policy and ability to leverage NASENI's support/endorsement for credibility.

5. TECHNICAL & OPERATIONAL PLAN

5.1 Equipment & Layout

Equipment	Estimated Cost (₦)
Plastic Crusher Machine (1000 kg/hr)	7,000,000
Washing Line & Dryer	4,000,000
Generator (60 KVA)	2,500,000
Conveyor & Sorting System	800,000
Packaging Equipment	500,000
Truck for Collection/Delivery	2,000,000
Tools, Safety Gear, Office Setup	500,000
Installation & Setup	700,000
Working Capital (raw material feedstock, utilities, wages)	2,000,000
Total	**₦20,000,000**

5.2 Process Flow

1. Waste collection and sorting → 2. Crushing → 3. Washing → 4. Drying → 5. Storage and packaging → 6. Dispatch to customers.
   Quality control will ensure flakes meet specifications acceptable to industrial users.

5.3 Location & Infrastructure

Plant will be situated in industrial zone (e.g., Ilaro, Ogun State), with power backup (generator) and accessibility to major roads, proximity to waste-source and market access.

5.4 Staffing & Training

- Managing Director
- Plant Manager

- Two Operators
- Two Technicians
- Six Waste Collectors/Sorters
- Accountant/Admin
- Security Personnel

  Training programme will be conducted to ensure competence in machine operations, safety, quality control, maintenance.

6. ORGANISATIONAL & MANAGEMENT STRUCTURE

6.1 Structure

Clear organisational chart with lines of responsibility:
– Executive → Operations Manager → Production Team → Support Services (maintenance, logistics, admin).

6.2 Employment Costs (Year 1)

Category	**Annual Cost (₦)**
Management/Admin	~5,400,000
Operators & Technicians	~6,000,000
Collectors & Labour	~4,320,000
Security	~1,440,000
Total Payroll	~₦17,160,000

Other overheads such as utilities, packaging, logistics, maintenance included in operational cost table.

7. FINANCIAL PLAN & PROJECTIONS

7.1 Capital Requirement

₦20,000,000 startup cost (as outlined).

7.2 Projected Sales & Revenue

Year	Output (tons/month)	Price/ton (₦)	Monthly Revenue (₦)	Annual Revenue (₦)
Year 1	60	200,000	12,000,000	144,000,000
Year 2	80	220,000	17,600,000	211,200,000
Year 3	100	250,000	25,000,000	300,000,000

7.3 Operating Costs (Year 1 Estimate)

Item	Cost (₦)
Salaries	17,160,000
Power & Fuel	4,500,000
Maintenance & Repairs	2,000,000
Logistics / Waste Collection	6,000,000
Packaging & Consumables	1,500,000
Rent & Utilities	1,200,000
Admin & Miscellaneous	2,000,000
Total Operating Cost	~₦34,360,000

7.4 Profit & Loss (Year 1)

Revenue: ₦144,000,000

Operating Costs: ₦34,360,000

Profit Before Tax: ~₦109,640,000

7.5 Return on Investment (ROI)

ROI Year 1 = (₦109,640,000 ÷ ₦20,000,000) × 100 ≈ **548%**
The high ROI underscores the commercial viability and attractiveness for investment and partnership with NASENI.

7.6 Pay-back and Breakeven

- Estimated breakeven volume: ~132 tons (calculated using fixed investment and per-unit margin)
- With a monthly output of ~60 tons, breakeven can be achieved within first ~3 months of full production.
- Pay-back of the initial investment is projected within the first year.

8. RISK ANALYSIS & MITIGATION

Risk	Impact	Mitigation
Power supply instability	Production interruptions	Use 60 KVA generator backup; schedule regular maintenance.
Feed-stock (waste) shortage	Reduced throughput	Establish contracts with local collectors, community programmes for waste collection.
Market price fluctuations	Margin erosion	Secure offtake agreements with local manufacturers; diversify into export markets.
Equipment breakdown/downtime	Production loss	Preventive maintenance schedule; operator training; spare parts inventory.
Regulatory changes/environment compliance	Compliance costs/delays	Early engagement with environmental agencies; waste-processing licence; adopt best practices.

9. SOCIO-ECONOMIC & INDUSTRIAL IMPACT

- Creates direct jobs (plant staff) and indirect jobs (waste collectors, logistics) supporting NASENI's job-creation mandate.
- Contributes to waste-management, circular economy, environmental sustainability, aligning with national development goals.
- Adds value locally to plastic waste, reducing import dependency for recycled materials.
- Builds local technical capability in recycling machinery operation and maintenance (technology transfer).
- Offers a replicable model for other states/regions, supporting industrialisation beyond one site.

10. FUNDING REQUEST & PROPOSAL FOR NASENI SUPPORT

We request support from NASENI in one or more of the following ways:

- Access to NASENI's technology-transfer platform or partners for locally appropriate crushing/pelletizing equipment.
- Technical assistance/advisory from NASENI's institutes in equipment optimization, training of staff, quality assurance.
- Co-funding or seed financing (grant/loan) to cover the ₦20 million budget, with agreed milestones.
- Validation or endorsement by NASENI to enhance credibility with financiers, industrial offtakers and local government.

Our proposed milestones for partnership:

1. Finalise equipment sourcing and local-content plan within 3 months.
2. Commission plant and commence production within 12 months of funding.
3. Reach output of 60 tons/month by end of first year.

4. Provide quarterly reports to NASENI on production, employment, technology transfer, and environmental metrics.
5. Seek scaling/replication plan in year 2 (with NASENI support) to extend to additional sites or upgrade capacity.

11. CONCLUSION

This proposal presents a commercially viable, socially impactful and industrially strategic project that aligns strongly with NASENI's mission of building Nigeria's science, engineering and industrial infrastructure. With a modest investment of ₦20 million, the plastic crusher/Pelletizing plant is expected to deliver strong financial returns (ROI ~548% in year one), achieve early breakeven, and contribute to local jobs, waste management and value-addition. We invite NASENI to partner with us in turning this ambition into reality.