



BUSINESS PLAN · INDIA

Mineral Processing and Beneficiation Unit

Grinding, washing and grade upgradation

MINING

AISEVAK.IN · BY ABL DIGITAL TECHNOLOGIES

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This document is confidential and prepared for planning purposes. All financial figures are illustrative model assumptions for an Indian MSME context and must be validated against live quotes, local rates and professional advice before any investment or borrowing decision.

1. Executive Summary

This plan sets out a **Mineral Processing & Beneficiation Unit** in India — a real-asset value-addition business that takes run-of-mine ore/mineral and **upgrades it by grinding, washing, screening & beneficiation** (separation/concentration) into higher-grade, saleable product. It converts low/variable-grade feedstock into upgraded mineral at a higher realisation — a capex-, process-, yield/recovery- & feedstock-driven business tied to mineral demand.

Much of India's mined mineral (iron ore fines, limestone, quartz/silica, feldspar, bauxite, chromite, etc.) requires **processing & beneficiation** — crushing/grinding to size, washing to remove impurities, and separation/concentration (gravity/magnetic/flotation) — to meet buyer specifications & command a premium. A mineral processing unit is a **real-asset value-addition business**: it invests in mills/washing/screening/separation plant, buys run-of-mine (ROM) or low-grade feedstock, and upgrades it into higher-grade concentrate/product. It is capex-, process-, yield/recovery- & feedstock-heavy: the **recovery rate & grade upgrade** are the economic core, alongside CTO/pollution (dust/tailings/water), power & feedstock supply. Revenue = **upgraded product (feedstock × recovery) × premium realisation**; economics rest on recovery, grade upgrade, feedstock cost, power & mineral demand — it is process-, recovery-, cost- & demand-driven, real-asset.

This is a capital- & process-intensive real-asset business — funded by promoter equity plus term loan & working capital. This plan models a mineral processing/beneficiation unit requiring **₹5 crore** (₹2 crore promoter + ₹3 crore term loan/WC), targeting **₹9 crore** revenue in Year 1 and **₹16 crore** by Year 3. (*Mineral processing; upgraded product × realisation, process/recovery/cost-driven, real-asset — figures illustrative.*)

2. Business Description, Vision & Legal Structure

Concept: A mineral processing & beneficiation unit - grinding/washing/screening/separating run-of-mine or low-grade mineral into higher-grade, saleable product.

Vision: To add value to India's minerals - upgrading ore into spec-grade product efficiently & cleanly.

Mission: Beneficiate mineral to buyer specification with high recovery, quality & environmental compliance.

Legal structure options

- **Private Limited / LLP** — recommended for capex, term loan, CTO, off-take contracts & liability.
- **Proprietorship/Partnership** — possible for a small unit but weak for finance/liability.

Regulatory anchor: a processing unit's key gates are **consent-to-establish/operate (CTE/CTO)** from the pollution board (dust/air, **tailings & process-water/effluent**, ZLD where required), factory/land use, electricity connection/load, hazardous/mineral handling & GST; feedstock must be royalty-paid/legally-sourced mineral. Recovery rate, grade upgrade, feedstock cost, power & mineral demand determine success; it is process-, recovery-, cost- & compliance-driven, real-asset.

3. Promoter & Ownership

Led by a promoter with mineral-processing/metallurgy, mining or plant expertise. The team includes a process/plant manager, metallurgist/process engineer, plant operators, maintenance, quality/lab, environment-compliance, sales & accounts. Recovery/grade, feedstock/power cost & CTO compliance are the differentiators. Ownership, equity & any partner are editable inputs.

4. Market Analysis — India

India's demand for spec-grade minerals is strong — steel (iron ore/limestone), cement (limestone), glass/ceramics (quartz/silica/feldspar), refractories, chemicals & foundries — and much ROM mineral needs beneficiation to meet specs. Demand is industry-/spec-driven; upgraded product commands a premium over ROM. The market rewards recovery, grade/quality, feedstock linkage, power cost & compliance; it is mineral-demand-, spec- & cost-sensitive.

Demand drivers

- **Steel/cement** (iron ore/limestone spec).
- **Glass/ceramics/refractories** (quartz/silica/feldspar spec).
- **Chemicals & foundries.**
- **ROM needs beneficiation** (spec/quality upgrade).
- **Value-add premium** over raw mineral.

Market sizing (illustrative framing)

Layer	Definition	Indicative scale
TAM	Processed/spec-grade minerals in India	Large
SAM	Target mineral & industry/region	Substantial
SOM (Yr 1-3)	Unit throughput & upgraded output	Scaling

Target segments

- Steel/cement plants.
- Glass/ceramics/refractory makers.
- Chemical/foundry industries.
- Mineral traders/exporters.

5. Competition & Competitive Advantage

Landscape: other processing units, captive beneficiation of large miners & ROM traders. The unit competes on recovery/grade, quality/consistency, feedstock linkage, power/process cost, proximity & compliance.

The business's edge

- **Recovery rate & grade upgrade.**
- **Quality/consistency** (spec adherence).
- **Feedstock linkage & cost.**
- **Power/process efficiency.**
- **Compliance** (tailings/effluent) & reliability.

6. Products & Revenue Model

Product	Model	Basis
Upgraded concentrate / spec-grade mineral	Per-tonne sale	Core value

Sized/washed grades	Per-tonne	Volume
By-product / lower grade	Per-tonne	Recovery
Job-work beneficiation	Per-tonne processing fee	Asset-light option

Revenue is **upgraded product (feedstock × recovery) × premium realisation** (plus optional job-work processing fees).
Economics = feedstock × recovery × (upgraded – ROM premium) – (feedstock + power + reagents + wages) – CTO/compliance; recovery rate, grade upgrade, feedstock cost, power & mineral demand drive it — the decisive processing levers (real-asset value-addition).

7. Go-to-Market — Sales & Off-take

- **Industry off-take** (steel/cement/glass/ceramics/chemicals).
- **Spec/quality & consistency** (buyer approval).
- **Feedstock linkage** (mine/ROM supply).
- **Job-work** for miners (asset-light add).
- **Trader/export** off-take.

Sales approach

Set up plant & CTO → secure feedstock (ROM/mine linkage) → beneficiate to spec (high recovery) → get buyer/spec approval → build off-take contracts & job-work → optimise recovery/grade/cost. Recovery/grade, feedstock/power cost & compliance build a real-asset value-addition business tied to mineral demand.

8. Operations Plan (processing, real-asset)

- **Plant:** crushers/mills (grinding), washing/scrubbing, screens/classifiers, separation (gravity/magnetic/flotation), thickener/tailings, capacity (TPH).
- **Feedstock:** ROM/low-grade mineral (mine linkage, royalty-paid), stockyard, blending.
- **Process & recovery:** grinding to liberation, washing, concentration; recovery & grade control; lab/QC.
- **Utilities & environment:** power/DG, process water, tailings/effluent (CTO/ZLD), dust control.
- **Dispatch & maintenance:** weighbridge, loading, plant upkeep/reagents/spares.

Workflow

Stage	Activity	Metric
Feed	ROM supply/blend	Feedstock grade/cost
Grind/wash	Size reduction/washing	Throughput (TPH)
Beneficiate	Separation/concentration	Recovery/grade
Dispatch	QC/weigh/load/sell	Tonnes/realisation
Comply	Tailings/effluent/dust	Compliance

9. Regulatory, Licences & Compliance (India)

- **Pollution:** CTE/CTO — dust/air, tailings/process-water/effluent (ZLD where required), ambient standards.
- **Plant:** factory/land use; electricity load; hazardous/mineral handling.
- **Feedstock:** royalty-paid/legally-sourced ROM (mine linkage/transit).
- **General:** company; GST; safety/labour; transport.

10. Organisation & Manpower Plan

Role	Yr 1	Yr 2	Yr 3
Promoter / plant manager	1	2	2
Metallurgist / process engineers	3	5	7
Plant operators & lab/QC	7	12	17
Maintenance, loaders & dispatch	6	10	14
Environment, sales & accounts	3	5	7
Total	20	34	47

11. Implementation Timeline & Milestones

Phase	Timeline	Milestone
Setup & CTO	Month 0–6	Land, plant, CTE/CTO, electricity, feedstock linkage
Commissioning	Month 6–9	Plant commissioning, recovery/grade trials, buyer approval
Ramp	Month 9–12	Throughput & sales, ₹9cr (ramp)
Grow	Year 2–3	Recovery/utilisation/off-take, ₹16cr

12. Financial Plan (Illustrative)

All figures are illustrative model assumptions for an Indian context, shown so the promoter can replace them with live rates. They are not projections of guaranteed results. Mineral processing is a real-asset value-addition business; revenue = upgraded product (feedstock × recovery) × realisation; capex (plant) & CTO are the base; feedstock, power & reagents are the main variable costs; recovery & grade upgrade are the economic core.

12.1 Project cost & means of finance

Capital requirement	₹
Processing plant (mills/washing/separation/screens)	2,60,00,000
Land, site, stockyard, tailings & weighbridge	1,00,00,000
Electricity/DG, water & environment (CTO/ZLD)	60,00,000
Working capital (feedstock + power + reagents + wages)	80,00,000

Total project cost	5,00,00,000
Promoter contribution	2,00,00,000
Term loan / WC finance	3,00,00,000

12.2 Projected Profit & Loss (3 years)

Particulars	Year 1	Year 2	Year 3
Upgraded concentrate / spec-grade sales	7,00,00,000	9,80,00,000	12,50,00,000
Sized/washed grades & by-product	1,60,00,000	2,50,00,000	3,00,00,000
Job-work processing	40,00,000	60,00,000	50,00,000
Total revenue	9,00,00,000	12,90,00,000	16,00,00,000
Feedstock (ROM + royalty)	3,80,00,000	5,40,00,000	6,60,00,000
Power, reagents & consumables	2,10,00,000	3,00,00,000	3,70,00,000
Wages, freight & overheads	1,60,00,000	2,20,00,000	2,70,00,000
Depreciation, interest & other	80,00,000	85,00,000	90,00,000
Total expenses	8,30,00,000	11,45,00,000	13,90,00,000
Net profit (before tax)	70,00,000	1,45,00,000	2,10,00,000
Net margin	7.8%	11.2%	13.1%

12.3 Unit economics & break-even

- **Feedstock × recovery × premium:** upgraded tonnes (feedstock × recovery %) × spec-grade price; the grade-upgrade premium over ROM is the value created; feedstock, power & reagents are the main variable costs.
- **Recovery is the core:** recovery rate & grade upgrade are the make-or-break — a few points of recovery move economics materially; power/process efficiency & feedstock cost/linkage follow; capex is real-asset.
- **Break-even:** at a throughput/recovery covering feedstock, power, reagents, wages & finance; margins expand with recovery, grade premium, utilisation & operating leverage.

12.4 Projected Cash Flow — Year 1 (quarterly, illustrative)

Particulars (₹)	Q1	Q2	Q3	Q4
Opening balance	80,00,000	50,00,000	46,00,000	48,00,000
Sales collections	1,40,00,000	2,10,00,000	2,50,00,000	3,00,00,000
Feedstock, power, reagents, wages & operating	1,70,00,000	2,14,00,000	2,48,00,000	2,92,00,000
Closing balance	50,00,000	46,00,000	48,00,000	56,00,000

Processing is capex- & feedstock-heavy with a commissioning/recovery-optimisation ramp; feedstock/power/reagents are the steady costs. Recovery, grade premium, feedstock/power management & a WC line manage cash; the key risks are recovery/process (economic core), feedstock supply/cost & grade, power cost, mineral-price/demand cycle & environment (tailings/effluent CTO) — met with process optimisation, feedstock linkage, efficiency & compliance.

12.5 Key Performance Indicators to Monitor

- **Process:** recovery rate; grade upgrade; throughput/utilisation; reagent/power per tonne.
- **Quality:** spec adherence; consistency; buyer approvals.
- **Cost:** feedstock cost/grade; power/reagent cost; freight.
- **Compliance & finance:** tailings/effluent/CTO; net margin; DSCR.

13. Funding Requirement & Bankability

Total ask: **₹3 crore term loan/WC** against ₹2 crore promoter contribution — for the processing plant, environment infrastructure & working capital on a real-asset base (plant is financeable collateral). Fundability rests on recovery/grade economics, feedstock linkage, off-take & mineral demand; value-add premium supports margin. Year-1 profit ₹70 lakh growing to ₹2.1 crore as recovery/utilisation scale; recovery, feedstock cost & compliance are key. DSCR supported by upgraded product × realisation; recovery, feedstock, power & demand underpin the model.

13.1 Funding utilisation

Use of funds	₹	% of total
Processing plant (mills/washing/separation/screens)	2,60,00,000	52%
Land, site, stockyard, tailings & weighbridge	1,00,00,000	20%
Electricity/DG, water & environment (CTO/ZLD)	60,00,000	12%
Working capital (feedstock + power + reagents + wages)	80,00,000	16%
Total	5,00,00,000	100%

14. Risk Analysis & Mitigation

Risk	Mitigation
Recovery / process	Metallurgist/process control, plant tuning, testing, R&D
Feedstock supply / grade / cost	Mine linkage/contracts, blending, stockyard buffer, multiple sources
Power / reagents	Energy/reagent efficiency, utilisation, sourcing
Mineral price / demand cycle	Off-take contracts, diverse buyers, quality premium
Environment (tailings/effluent) / CTO	ZLD/tailings management, CTO discipline, monitoring

15. SWOT Analysis

Strengths Value-add premium; real-asset plant; recovery/grade edge; industry off-take; job-work option; financeable plant.	Weaknesses Capex-/process-heavy; recovery-/feedstock-dependent; power/reagent-sensitive; environment (tailings) exposure; mineral-cycle-linked.
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Opportunities Beneficiation demand (spec upgrade); steel/cement/glass/ceramics; export; job-work; new minerals/grades.	Threats Mineral-price/demand cycle; feedstock/grade risk; power inflation; environmental tightening; competition/captive plants.
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16. Recommended AiSevak Tools for This Business

This mineral processing unit would use AiSevak's Mining vertical tools in operations:

- Process & costing:** recovery/grade-upgrade & feedstock × recovery × realisation, power/reagent cost/tonne & throughput tools.
- Compliance & off-take:** CTO/tailings-effluent & feedstock-linkage/off-take, royalty & GST tools (with Legal vertical).
- Practice:** Business Plan, break-even/DSCR and recovery-economics tools to model the unit.

17. Key Assumptions & Notes

- Mineral processing/beneficiation: real-asset value-addition — grinds/washes/separates ROM into higher-grade product; revenue = upgraded product (feedstock × recovery) × premium realisation.
- Feedstock × recovery × (upgraded – ROM premium) – (feedstock + power + reagents) – CTO decisive; recovery rate & grade upgrade are the economic core; feedstock cost, power & mineral demand follow; heavy capex but real-asset.
- Equity + term loan/WC (plant financeable); CTE/CTO (dust/tailings/effluent, ZLD where required), factory/land, electricity, royalty-paid ROM.
- Recovery, grade, feedstock/power cost & compliance drive economics; figures illustrative, exclude GST; mineral-cycle-linked.

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