



BUSINESS PLAN · INDIA

Gold Refining & Assaying Business

*Toll refining to 999.9 with independent assay laboratory, BIS hallmarking centre and
PGM recovery*

GEMS, JEWELLERY & PRECIOUS GOODS

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 **Gold Refining & Assaying Business** in India — refining scrap jewellery, bank returns and imported doré to **999.9 fineness** through Miller, aqua-regia and electrolytic processes, with an **independent assay laboratory**, a **BIS-recognised Assaying & Hallmarking Centre**, minting of bars and coins, and recovery of silver and platinum-group metals from the same streams.

How this plan measures revenue — read this first. A refiner handles enormous quantities of metal it does not own. **Year 1 throughput is roughly 18 tonnes of gold-equivalent worth about ₹1,260 crore — against net revenue of ₹6 crore. A ratio of about 210 to 1.** Booking that metal as turnover would produce a ₹1,260 crore "revenue" line at a 0.01% margin, which is meaningless and misleading. **This plan therefore reports on a NET basis throughout: toll refining is reported as the refining CHARGE only, since the metal belongs to the customer, and outright-purchased scrap is reported as refining margin net of metal cost.** Gross metal handled appears as an italic memo line, never as revenue. *This is the same agent-versus-principal discipline applied in the events vertical, and it matters more here than anywhere else in the library because the ratio is so extreme.* On the net basis the business reads as what it actually is: **an industrial services operation earning 20.5% by Year 3.**

Two facts define the risk, and both follow from the same thing — the metal is not yours.

First, metal loss is the P&L. Every gram lost to slag, fume, effluent or unrecovered residue is subtracted from a margin measured in fractions of a percent of throughput. **A metal loss of just 0.05% on Year 1 throughput is roughly ₹63 lakh — comparable to the entire net profit the business is trying to earn.** In this plan Year 1 loses ₹78 lakh to process shortfall, which is **32% of the entire gold toll-refining revenue.** Recovery yield, not throughput, is the operating metric.

Second, the business is trust in a number. A refiner is paid a small charge to state what a lot actually contains, and **an under-declared assay is theft from the customer while an over-declared one is theft from the refiner.** Everything the enterprise sells rests on that figure being right and being believed — which is why **the assay laboratory reports independently of the commercial team, without exception.**

And a compliance point that must be stated plainly rather than buried: refining destroys history. Melting gold erases every trace of where it came from, which makes a refinery **structurally attractive to anyone holding metal they should not have.** Source-of-goods diligence and KYC are therefore **the primary operating obligation of this business, not an administrative overlay** — and responsible-sourcing standards on conflict, illegal and artisanal-mined gold sit alongside them. **LBMA-track accreditation is what separates a refiner whose bars are accepted at par from one that sells at a discount and cannot serve banks,** and it is earned largely through exactly this diligence.

This plan models a business requiring **₹9.5 crore** (₹3.2 crore promoter + ₹3.5 crore term loan + ₹2.8 crore working-capital/metal finance), moving from **₹6 crore net revenue and a ₹5 lakh loss** in Year 1 to **₹12.75 crore net revenue and ₹2.62 crore profit** by Year 3, on throughput rising from ~18 to ~38 tonnes. *(Gold refining; net-basis toll services, loss-control driven — figures illustrative.)*

2. Business Description, Vision & Legal Structure

Concept: A gold refining and assaying business — toll refining of scrap, bank returns and doré to 999.9; outright scrap purchase and refining; an independent assay laboratory; a BIS-recognised Assaying & Hallmarking Centre; bar and coin minting; and silver and PGM recovery from process residues.

Vision: To have our assay accepted without argument and our bars accepted without discount.

Mission: Report the number the metal actually gives; account for every gram in and out; refuse metal whose origin we cannot establish; and keep the laboratory answerable to no one who sells.

Legal structure options

- **Private Limited** — required in practice: bank and bullion-dealer relationships, accreditation, environmental consents and metal-loan facilities all presume an audited company with proper governance.
- **LLP / Proprietorship** — unsuitable; neither supports accreditation or institutional counterparties.

Regulatory anchor: refining operates under **factory, environmental and hazardous-waste law with consent to operate**, and the chemistry involved — **chlorine in the Miller process, nitric and hydrochloric acid in aqua regia, and heavy-metal-bearing effluent** — makes this a genuine chemical plant, not a workshop. **BIS licensing is separate and specific for an Assaying & Hallmarking Centre**, which must operate to prescribed testing standards and HUID procedures. Refiners are **PMLA reporting entities** with KYC and record-keeping obligations, and **Section 269ST's ₹2 lakh cash cap** applies. **Imported doré runs through customs with its own duty treatment and licensing** — and because that duty differential has historically driven the economics of doré refining in India, **a plan should treat it as policy-dependent rather than permanent**. Internationally, **LBMA Responsible Gold Guidance and OECD due-diligence expectations** govern source diligence for any refiner seeking accreditation or bank customers.

3. Promoter & Ownership

Led by a promoter with metallurgy, refining, bullion-trade or precious-metals background. Three competences decide outcomes: *process metallurgy*, because recovery yield is the margin and a fraction of a percent decides the year; *assay integrity*, which is a governance discipline as much as a technical one; and *counterparty diligence*, since the refiner's licence to operate depends on never becoming the place where questionable metal is cleaned. Recovery yield, assay credibility, accreditation status & source diligence are the differentiators. Ownership, equity & any partner are editable inputs.

4. Market Analysis — India

Demand is driven by India's very large recycled-gold flow from old jewellery exchange, bank and bullion-dealer refining needs, imported doré processing, mandatory hallmarking creating steady assay demand, jewellers requiring purity certification, and growing interest in recycled-gold sourcing claims. Demand is structural and recurring. The market rewards yield, turnaround & accreditation; it is **throughput-scaled, loss-sensitive and compliance-gated**.

Demand drivers

- **Old jewellery exchange** — recycled metal is a very large share of Indian gold supply, and all of it must be refined before reuse.
- **Mandatory hallmarking with HUID** creating continuous, non-discretionary assay volume.
- **Bank and bullion-dealer requirements** for accredited-refiner bars.
- **Imported doré** processing, subject to the duty structure remaining favourable.
- **Recycled-gold sourcing claims** by brands, which require a documented, accredited refining chain.

Market sizing (illustrative framing)

Layer	Definition	Indicative scale
TAM	Indian refining & assaying throughput	Very large (tonnes)

SAM	Catchment jewellers, banks, dealers & doré importers	Regional + institutional
SOM (Yr 1-3)	Tonnes refined & assay volume	18 → 38 tonnes

Target segments

- **Jewellery manufacturers and retailers** sending exchange scrap — the base load, high frequency, relationship-driven.
- **Banks and bullion dealers** — require accreditation, but bring volume and credibility.
- **Doré importers and miners' agents** — large lots, policy-sensitive.
- **Jewellers needing hallmarking** through the AHC — a separate, per-piece, steady business.
- **Industrial and electronics scrap holders** for PGM and silver recovery.

5. Competition & Competitive Advantage

Landscape: a handful of large accredited Indian refiners, many small and informal melting operations, captive refining inside large jewellery groups, and independent hallmarking centres. **The market splits sharply between accredited refiners serving institutions and informal operators serving the trade on trust and speed — and the gap between them is compliance, not technology.**

The business's edge

- **Recovery yield** — the single largest determinant of both margin and customer economics, since the customer feels the loss too.
- **Independent, accredited assay** whose numbers are accepted without a second opinion.
- **Accreditation track** — opening bank and institutional business that informal operators cannot touch.
- **Turnaround time** — a jeweller's metal in the refinery is working capital not working, so speed is worth real money to them.
- **Documented source diligence**, increasingly a requirement of brand customers making recycled-gold claims.

6. Services & Revenue Model

Line	Model	Basis (NET)
Toll refining — gold	Charge per gram; metal not owned	~40% of net revenue
Outright-purchased scrap refining	Margin net of metal cost	Principal — metal owned
Assaying, hallmarking (AHC) & certification	Per piece / per sample	Steady, non-discretionary
Toll refining & recovery — silver & PGM	Charge per unit	Same streams, extra yield
Minting, bar & coin manufacturing	Manufacturing charge	Value addition
By-product & residue recovery	Recovered metal value	Yield economics

The two refining lines look similar and are financially opposite, which is why they are reported separately. Toll refining is pure agency: the customer's metal comes in, is refined, and goes back — the refiner never owns it, carries no price exposure, and earns only the charge. **Outright purchase is principal:** the refiner buys scrap, refines it, and sells the metal, which means it carries **gold price risk between purchase and sale, exactly as the jewellery manufacturer does.** The discipline is the same one that plan sets out: **hedge or fix the metal on purchase, because a refiner is not**

paid to hold a commodity position — its margin is the refining spread, and a price move can erase several months of it. **A refiner that lets unsold purchased metal accumulate has quietly become a bullion trader with a furnace attached.**

7. Go-to-Market — Volume, Turnaround, Trust

Winning throughput

- **Jeweller relationships** in the catchment, won on yield, turnaround and a clean assay history.
- **Accreditation progression** to open bank and institutional accounts that price on standing rather than proximity.
- **Hallmarking centre as an entry point** — jewellers who hallmark with you learn to trust your laboratory before they send you metal.
- **Transparent loss terms** published rather than negotiated case by case.

Keeping it

- **Consistent recovery** — the customer measures your yield against what they sent, every single lot.
- **Fast turnaround**, because their metal is idle capital while it is with you.
- **Assay disputes handled by re-assay and umpire procedure**, not by argument.
- **Documentation** a brand customer can rely on for recycled-gold claims.

Sales approach

Open with the hallmarking centre to build trade relationships and laboratory credibility → convert those jewellers to toll refining once they trust the numbers → build volume to justify accreditation investment → add banks and institutions as accreditation lands → take outright purchase selectively and always hedged → extend into silver and PGM recovery on the same streams. **The commercial temptation to resist is competing on refining charge.** The charge is already a few rupees a gram; **cutting it wins volume that arrives with no margin and the same metal-loss exposure**, and the right competitive answer is yield and turnaround, both of which the customer can measure and value.

8. Operations Plan (receive, assay, refine, account, return)

- **Receipt & KYC:** customer identification, **source-of-goods declaration and diligence**, sealed lot registration, gross weight under recording.
- **Sampling & assay:** homogenised melt, sampling, and determination by **fire assay (the reference method), XRF for screening and ICP for trace analysis**; result issued by the laboratory independently.
- **Refining:** **Miller chlorination to ~99.5%, aqua regia and electrolytic (Wohlwill) to 999.9**, route chosen by feed and required fineness.
- **Recovery:** silver from chloride, PGMs from residues, and gold from sweeps, slag, filters and effluent sludge.
- **Metal accounting:** **gram-level input-output reconciliation per lot, with process loss quantified and investigated, not absorbed.**
- **Casting & minting:** bars, grain and coins with serial marking.
- **Hallmarking centre:** BIS-standard testing and HUID marking as a distinct, separately-licensed operation.
- **Effluent & emissions:** scrubbers on chlorine and nitrous fumes, ETP for heavy-metal-bearing streams, hazardous-waste disposal through authorised handlers.

Refining cycle

Stage	Activity	Metric
Receive	KYC, source diligence, weigh, seal	Lots declined on source (a good number)
Assay	Melt, sample, fire assay	Assay disputes & umpire variance
Refine	Miller / aqua regia / electrolytic	Fineness achieved
Recover	Sweeps, slag, effluent, residues	Recovery yield %
Account	Input-output reconciliation per lot	Metal loss % of throughput
Return	Bars/grain to customer or market	Turnaround days

The assay laboratory's independence is the structural control of this business and deserves to be stated as a governance rule rather than a preference. An under-declared assay silently transfers the customer's metal to the refiner; an over-declared one gives away metal the refiner must then make up from its own account. Both are failures, and only one of them ever gets discovered by the customer — which is precisely why the temptation runs one way. **The laboratory must therefore report to the promoter or the board, never to the commercial function, and must have no visibility of the commercial terms of the lot it is testing.** Alongside that sits a published **re-assay and umpire procedure**: when a customer disputes a result, the answer is an agreed independent third assay, not a negotiation. A refiner that settles assay disputes commercially has told the market its numbers are negotiable, and **once that is believed, the assay is worth nothing and so is the refinery.**

9. Regulatory, Licences & Compliance (India)

- **Environmental:** consent to establish and operate, **hazardous-waste authorisation, effluent treatment for heavy-metal streams, and scrubbing of chlorine and nitrous fumes.** This is a chemical plant and is regulated as one.
- **Occupational safety:** **chlorine, nitric and hydrochloric acid, and high-temperature melting are serious hazards** requiring documented procedure, detection, PPE, emergency response and trained operators — **not workshop custom.**
- **BIS Assaying & Hallmarking Centre licence** — separate recognition, prescribed test methods, HUID procedures and periodic BIS audit.
- **PMLA:** reporting-entity obligations, KYC, and **source-of-goods diligence — the primary compliance duty here, because refining erases the metal's history and a refinery is therefore structurally attractive to those holding metal they should not have.**
- **Responsible sourcing:** **LBMA Responsible Gold Guidance and OECD due diligence** on conflict, illegal and artisanal-mined material; required for accreditation and increasingly by brand customers.
- **Customs:** doré import licensing and duty treatment — **policy-dependent, and the plan should not assume today's differential is permanent.**
- **Cash & tax:** Section 269ST ₹2 lakh cap; GST on refining charges; scrap purchase documentation.
- **Insurance:** metal in custody, in process and in transit — **including customers' metal, which is a liability the refiner holds rather than an asset it owns.**

10. Organisation & Manpower Plan

Role	Yr 1	Yr 2	Yr 3
Promoter / managing director	1	1	2
Refinery operators & process technicians	32	48	68
Assayers & laboratory (independent reporting line)	12	18	26
Metal accounting, stores & reconciliation	8	12	17
Hallmarking centre (AHC) operations	7	12	18
Security	8	11	14
Metallurgists & process engineers	6	10	15
Maintenance, utilities & ETP	6	9	13
Sales, client servicing & admin	6	10	15
Compliance, KYC & source diligence	4	7	11
Total	90	138	199

Three functions here have **independent reporting lines to the promoter: the laboratory, metal accounting, and compliance**. That is not organisational preference — in a business holding other people's metal and certifying its purity, **each of those three exists specifically to constrain the people who bring in the business**.

11. Implementation Timeline & Milestones

Phase	Timeline	Milestone
Setup	Month 0–9	Plant, ETP & scrubbers, consents, laboratory, BIS AHC licence, vault
Ramp	Month 9–12	~18 t throughput; ₹6cr net revenue, ₹5L loss; loss control being tuned
Grow	Year 2	~27 t, metal loss to 0.049%; ₹9cr net, ₹1.16cr profit; accreditation track
Scale	Year 3	~38 t; ₹12.75cr net revenue, ₹2.62cr profit, 20.5% net margin

12. Financial Plan (Illustrative)

All figures are illustrative model assumptions for an Indian context, shown so the promoter can replace them with live rates. **Revenue is stated NET throughout — toll charges only for customer-owned metal, and refining margin net of metal cost for outright purchases. Gross metal handled is a memo line, never revenue.** Throughput, recovery yield, refining charge, assay volume & power/chemical cost are the levers.

12.1 Project cost & means of finance

Capital requirement	₹
Refining plant & equipment (Miller, aqua regia, electrolytic)	3,10,00,000
Working capital (metal float, in-process metal & receivables)	2,80,00,000

Assay laboratory — XRF, fire assay & ICP instruments	95,00,000
Effluent treatment, scrubbers, fume & hazmat systems	88,00,000
Factory, vault, strong room & security systems	78,00,000
Accreditation (LBMA-track), BIS AHC licensing & systems	42,00,000
IT, ERP, metal-accounting & traceability systems	32,00,000
Legal, registrations, environmental consent & launch	25,00,000
Total project cost	9,50,00,000
Term loan	3,50,00,000
Promoter contribution	3,20,00,000
Working-capital / metal finance	2,80,00,000

12.2 Projected Profit & Loss (3 years) — NET basis

Particulars	Year 1	Year 2	Year 3
Toll refining charges — gold (metal not owned)	2,45,00,000	3,62,00,000	5,10,00,000
Refining margin on outright-purchased scrap (net of metal cost)	1,35,00,000	2,10,00,000	3,05,00,000
Assaying, hallmarking (AHC) & certification fees	88,00,000	1,25,00,000	1,72,00,000
Toll refining & recovery — silver & PGM	62,00,000	95,00,000	1,35,00,000
Minting, bar & coin manufacturing charges	45,00,000	70,00,000	98,00,000
By-product & residue recovery	25,00,000	38,00,000	55,00,000
Total NET revenue	6,00,00,000	9,00,00,000	12,75,00,000
<i>Memo — gross metal handled (NOT revenue)</i>	<i>~₹1,260 cr</i>	<i>~₹1,890 cr</i>	<i>~₹2,660 cr</i>
Salaries (metallurgists, assayers, operators, admin)	1,28,00,000	1,72,00,000	2,35,00,000
Depreciation, interest & other	1,18,00,000	1,38,00,000	1,52,00,000
Power, chemicals, consumables & utilities	92,00,000	1,32,00,000	1,82,00,000
Metal loss & process recovery shortfall	78,00,000	92,00,000	1,18,00,000
Factory, security, insurance & overheads	58,00,000	76,00,000	98,00,000
Effluent treatment, hazmat & environmental compliance	45,00,000	58,00,000	74,00,000
Selling, insured metal transit & business development	32,00,000	42,00,000	56,00,000
Assay laboratory, reagents & proficiency testing	30,00,000	42,00,000	56,00,000
Accreditation, audit, compliance & KYC systems	24,00,000	32,00,000	42,00,000
Total expenses	6,05,00,000	7,84,00,000	10,13,00,000
Net profit / (loss) before tax	(5,00,000)	1,16,00,000	2,62,00,000
Net margin on NET revenue	(0.8%)	12.9%	20.5%

Same profit as % of gross metal handled	—	0.06%	0.10%
Metal loss as % of throughput	0.062%	0.049%	0.044%
Recovery yield	99.938%	99.951%	99.956%
Throughput (tonnes gold-equivalent)	~18	~27	~38

12.3 Unit economics & break-even

- **The two margin rows together are the argument for net-basis reporting.** The same profit is **20.5% of net revenue** and **0.10% of gross metal handled**. Neither number is wrong; only one describes a business. **Any refining plan quoting hundreds of crores of "turnover" is reporting metal it does not own.**
- **Metal loss is the dominant controllable cost and behaves like nothing else in this library.** At Year 1 it is **₹78 lakh — 32% of the entire gold toll-refining revenue and far larger than the profit**. Improving recovery from 99.938% to 99.956% is worth more than any plausible increase in refining charge.
- **Operating leverage is strong:** plant, laboratory and compliance are largely fixed, so margin expands sharply with throughput — 12.9% to 20.5% on a 42% volume increase.
- **The hallmarking centre is small but disproportionately useful** — non-discretionary demand, per-piece pricing, and it builds the laboratory relationships that convert into refining volume.
- **Break-even:** reached during Year 2. **Year 1's loss is deliberate and specific: recovery yield in a new refinery is genuinely worse until the process is tuned**, and a plan claiming best-in-class yield from month one has not understood where the money leaks.

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

Particulars (₹)	Q1	Q2	Q3	Q4
Opening balance	70,00,000	44,00,000	24,00,000	9,00,000
Collections (net revenue basis)	1,32,00,000	1,42,00,000	1,50,00,000	1,58,00,000
Salaries, power, chemicals, compliance & overheads	1,58,00,000	1,62,00,000	1,65,00,000	1,45,00,000
Closing balance	44,00,000	24,00,000	9,00,000	22,00,000

Cash flow is shown on the same net basis as the P&L, and it must be, because gross metal movements would swamp the statement entirely and tell a reader nothing. The genuine cash characteristics are these. **Toll refining is cash-friendly** — the metal is the customer's, so the refiner funds only the processing period and its own working capital. **Outright purchase is the opposite:** the refiner pays for metal immediately and recovers it only on sale, which is why that line is deliberately kept smaller than the toll book. And **metal in process is a real, large, uninsured-by-default exposure** — customers' gold sits in the plant for days, and **the refiner's balance sheet does not show it as an asset but would certainly show the liability if it were lost**. The disciplines are therefore: **size insurance to metal in custody rather than to owned inventory, hedge or immediately fix every outright purchase, and keep turnaround short** — because fast turnaround is simultaneously a customer benefit, a working-capital saving and a risk reduction.

12.5 Key Performance Indicators to Monitor

- **Yield: metal loss as % of throughput;** recovery yield by process route; unaccounted variance per lot (target zero); sweeps and residue recovery.

- **Integrity: assay disputes and umpire variance;** laboratory proficiency-test results; **lots declined on source diligence — a rising number is a healthy sign, not a lost-business problem.**
- **Service:** turnaround days by lot type; fineness achieved vs. specification; AHC throughput and BIS audit findings.
- **Risk & finance:** metal in custody vs. insured limit; unhedged purchased-metal position; effluent and emission compliance results; throughput per operator.

13. Funding Requirement & Bankability

Total ask: **₹3.5 crore term loan plus ₹2.8 crore working-capital/metal finance** against ₹3.2 crore promoter contribution. Four points frame this credit, and the first is a presentation matter that materially affects how the file reads. **First, insist on the net-basis P&L.** A lender shown "₹1,260 crore turnover" against ₹9.5 crore of assets will either misjudge the business entirely or discount the whole file; **the honest statement is ₹6 crore of net revenue on ₹9.5 crore of capital, which is a normal and assessable industrial ratio.** **Second, the operating risk is concentrated in metal loss,** so recovery yield by quarter is the covenant-worthy metric — a business earning ₹2.62 crore while losing ₹1.18 crore to process shortfall has its profit and its principal risk in the same place. **Third, the plant is real security** — refining equipment, laboratory instruments and the vault — which makes this a more conventionally bankable proposition than the inventory-heavy plans elsewhere in this vertical. **Fourth, and unusually, compliance quality is a direct credit factor here:** a refiner that accepts metal without source diligence is exposed to PMLA action and to becoming the counterparty in someone else's investigation, **and that is an existential risk rather than a financial one** — so a lender should look at the KYC function's independence as closely as at the balance sheet.

13.1 Funding utilisation

Use of funds	₹	% of total
Refining plant & equipment (Miller, aqua regia, electrolytic)	3,10,00,000	32.6%
Working capital (metal float, in-process metal & receivables)	2,80,00,000	29.5%
Assay laboratory — XRF, fire assay & ICP instruments	95,00,000	10.0%
Effluent treatment, scrubbers, fume & hazmat systems	88,00,000	9.3%
Factory, vault, strong room & security systems	78,00,000	8.2%
Accreditation (LBMA-track), BIS AHC licensing & systems	42,00,000	4.4%
IT, ERP, metal-accounting & traceability systems	32,00,000	3.4%
Legal, registrations, environmental consent & launch	25,00,000	2.6%
Total	9,50,00,000	100%

14. Risk Analysis & Mitigation

Risk	Mitigation
Metal loss exceeding plan	The dominant risk — a 0.05% loss on Y1 throughput is ~₹63L, comparable to the whole net profit. Gram-level input-output reconciliation per lot; loss investigated, never absorbed; sweeps, slag, filter and effluent recovery; process tuning by route; recovery yield as the headline KPI

Assay error or disputed result	Laboratory reports to the promoter/board, never to the commercial function, and sees no commercial terms ; fire assay as reference; proficiency testing; published re-assay and umpire procedure — a refiner that settles assay disputes commercially has told the market its numbers are negotiable, and then the assay is worth nothing and so is the refinery
Questionable-origin metal entering the plant	Refining destroys history, so the refinery is structurally attractive to those holding metal they should not have. KYC and source-of-goods declaration on every lot; independent compliance function; responsible-sourcing standards applied; decline rather than process — and track declines as a health metric
Price exposure on outright-purchased scrap	Hedge or fix on purchase ; keep the purchase book smaller than the toll book; a refiner that lets unsold purchased metal accumulate has quietly become a bullion trader with a furnace attached
Chemical, chlorine & acid incident	Documented procedures, gas detection, scrubbers, PPE, emergency response, trained operators — this is a chemical plant and workshop custom is not a procedure ; insurance sized to a serious-incident scenario
Environmental non-compliance on effluent or emissions	ETP and scrubbers designed for actual load; monitoring and records; authorised hazardous-waste disposal; consent conditions tracked
Loss or theft of customer metal in custody	Insure metal in custody, not just owned inventory — it is a liability the refiner holds; dual custody, vault standards, CCTV, access control, fidelity cover
Doré duty structure changing	Treat doré economics as policy-dependent, not permanent ; keep the domestic scrap and toll base as the core; avoid capex justified solely by a duty differential
Price competition on refining charge	Compete on yield and turnaround, both measurable by the customer ; volume won by cutting a charge of a few rupees a gram arrives with no margin and the same metal-loss exposure
Accreditation delay or failure	Build compliance and traceability to standard from day one rather than retrofitting; interim growth through trade and AHC business while accreditation progresses

15. SWOT Analysis

Strengths Recurring, non-discretionary demand from recycled gold and mandatory hallmarking; toll model carries no metal ownership or price risk; strong operating leverage on fixed plant; independent laboratory is a genuine differentiator; hallmarking centre feeds refining relationships; plant is conventional bankable security.	Weaknesses Margin measured in fractions of a percent of throughput — metal loss can exceed profit; capital-intensive with a long setup; genuine chemical-plant hazard and environmental load; accreditation is slow; holds large customer metal it does not own; assay integrity is a single point of reputational failure.
Opportunities Accreditation opening bank and institutional volumes; recycled-gold sourcing claims requiring documented refining chains; PGM and silver recovery on existing streams; consolidation as informal melters lose ground to compliance requirements; minting and product manufacturing as value addition.	Threats Doré duty policy change; a PMLA or stolen-metal incident, which is existential rather than costly; environmental action; large accredited refiners competing down charges; a single publicised assay failure destroying trade confidence; gold price moves on the purchased-metal book.

16. Recommended AiSevak Tools for This Business

This gold refining business would use AiSevak's Gems vertical tools in operations:

- **Metal control: gram-level input-output reconciliation per lot**, recovery-yield and metal-loss dashboard by process route, sweeps and residue recovery register, unaccounted-variance alert.
- **Assay integrity: assay-dispute and umpire-variance log**, proficiency-test tracking, laboratory independence and blind-testing controls.
- **Compliance: KYC and source-of-goods diligence per lot, with declined-lot register**, responsible-sourcing documentation, PMLA reporting workflow.
- **Custody & risk: metal-in-custody vs. insured-limit monitor**, unhedged purchased-metal position, turnaround-days tracker.
- **Reporting: net-basis P&L with gross-metal memo line**, throughput and operating-leverage analysis, AHC volume and BIS audit tracking.

17. Key Assumptions & Notes

- Gold refining & assaying: toll refining of scrap, bank returns and doré to 999.9 via Miller/aqua-regia/electrolytic routes, outright scrap purchase and refining, an independent assay laboratory, a BIS-recognised Assaying & Hallmarking Centre, bar/coin minting, and silver & PGM recovery.
- **△ REVENUE CONVENTION — THE MOST EXTREME NET-vs-GROSS CASE IN THE LIBRARY. Y1 throughput ≈ 18 t worth ~₹1,260 CRORE against NET revenue of ₹6 CRORE — a ratio of about 210:1.** Booking metal as turnover produces a meaningless ₹1,260cr "revenue" at 0.01% margin → **this plan reports NET throughout: TOLL refining = the CHARGE only (metal belongs to the customer), outright-purchased scrap = refining margin NET of metal cost, and gross metal handled is an ITALIC MEMO LINE, never revenue.** Same agent-vs-principal discipline as the events vertical but far more extreme. **The two margin rows together are the argument: the SAME profit is 20.5% of net revenue and 0.10% of gross metal handled — neither is wrong, only one describes a business. ANY refining plan quoting hundreds of crores of "turnover" is reporting metal it does not own.**
- **METAL LOSS IS THE P&L — the defining cost, and it behaves like nothing else in this library.** Every gram lost to slag, fume, effluent or unrecovered residue is subtracted from a margin measured in fractions of a percent of throughput: **a 0.05% loss on Y1 throughput ≈ ₹63L, COMPARABLE TO THE ENTIRE NET PROFIT**, and Y1's actual ₹78L shortfall is **32% of all gold toll-refining revenue and far larger than the profit. Improving recovery from 99.938% to 99.956% is worth more than any plausible increase in refining charge.** Recovery yield, not throughput, is the operating metric; loss is investigated per lot, never absorbed.
- **THE BUSINESS IS TRUST IN A NUMBER: an UNDER-declared assay is theft from the CUSTOMER, an OVER-declared one is theft from the REFINER — and only one of those ever gets discovered by the customer, which is precisely why the temptation runs one way. → the assay laboratory reports to the promoter/board, NEVER to the commercial function, and sees no commercial terms of the lot it tests; plus a published re-assay and UMPIRE procedure, because a refiner that settles assay disputes COMMERCIALY has told the market its numbers are negotiable — and once that is believed the assay is worth nothing and so is the refinery.** Three functions report independently to the promoter — **laboratory, metal accounting and compliance — each exists specifically to constrain the people who bring in the business.**
- **REFINING DESTROYS HISTORY — MELTING ERASES EVERY TRACE OF WHERE METAL CAME FROM, WHICH MAKES A REFINERY STRUCTURALLY ATTRACTIVE TO ANYONE HOLDING METAL THEY SHOULD NOT HAVE.** So source-of-goods diligence and KYC are the **PRIMARY OPERATING OBLIGATION** of this business, not an

administrative overlay, alongside LBMA Responsible Gold Guidance / OECD standards on conflict, illegal and artisanal material. **Track LOTS DECLINED ON SOURCE as a health metric — a rising number is a good sign, not lost business.** A PMLA or stolen-metal incident here is **existential rather than costly**, which is why compliance independence is a direct CREDIT factor.

- **THE TWO REFINING LINES LOOK SIMILAR AND ARE FINANCIALLY OPPOSITE — toll is pure AGENCY** (never owns the metal, no price exposure, earns only the charge) while **outright purchase is PRINCIPAL** and carries gold price risk between purchase and sale exactly as the jewellery manufacturer does → **hedge or fix on purchase, keep the purchase book smaller than the toll book, because a refiner that lets unsold purchased metal accumulate has quietly become a BULLION TRADER WITH A FURNACE ATTACHED.**
- **ACCREDITATION IS THE DIFFERENCE BETWEEN A TOLL REFINER AND A PRICE-TAKER** — accredited bars are accepted at par and open bank/institutional business; unaccredited metal sells at a discount. Build compliance and traceability to standard from day one rather than retrofitting. **Resist competing on refining CHARGE** — it is already a few rupees a gram, so **volume won by cutting it arrives with no margin and the SAME metal-loss exposure**; compete on **YIELD and TURNAROUND, both of which the customer measures directly** (and fast turnaround is simultaneously a customer benefit, a WC saving and a risk reduction, since the customer's metal in your plant is their idle capital and your uninsured-by-default liability).
- **THIS IS A CHEMICAL PLANT AND IS REGULATED AS ONE** — chlorine (Miller), nitric/hydrochloric acid (aqua regia), high-temperature melting, heavy-metal-bearing effluent → consent to operate, hazardous-waste authorisation, ETP, fume scrubbers, gas detection, PPE, emergency response, trained operators; **workshop custom is not a procedure. Insure METAL IN CUSTODY, not just owned inventory — the balance sheet does not show customers' gold as an asset but would certainly show the liability if it were lost.** Also: **doré duty differential is POLICY-DEPENDENT, not permanent — avoid capex justified solely by it**; BIS AHC is a separately-licensed adjacent business that is small but disproportionately useful (non-discretionary demand, per-piece pricing, and it builds the laboratory relationships that convert into refining volume). Strong operating leverage: 12.9%→20.5% net margin on a 42% volume increase. ₹9.5cr, ~18→38 t throughput, NET rev 6→12.75cr, Y1 -₹5L → Y3 ₹2.62cr. **Y1 loss is deliberate and specific — recovery yield in a new refinery is genuinely worse until the process is tuned, and a plan claiming best-in-class yield from month one has not understood where the money leaks.** Figures illustrative, exclude GST.

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