

NIIR PROJECT CONSULTANCY SERVICES

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C L I E N T C A S E S T U D Y

Wooden Pencil Manufacturing Unit — Greenfield Venture

*From Investment Idea to Operational Reality:
How NPCS Delivered a Bankable Feasibility Study for M/s. CRI Limited*

P R O J E C T A T A G L A N C E

Client: M/s. CRI Limited, Kolkata, West Bengal **Industry:** Large-Scale Manufacturing
Services by NPCS: Techno-Economic Feasibility Study | DPR | Financial Modelling | Strategic
Advisory

Prepared by:

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About NPCS — Asia's Premier Industrial Consultancy

Niir Project Consultancy Services (NPCS) is one of Asia's most trusted industrial knowledge and advisory platforms. For over four decades, NPCS has helped entrepreneurs, MSMEs, startups and institutional investors convert business ideas into profitable, bankable ventures. The firm's multidisciplinary team combines deep sector expertise in manufacturing, chemicals, food processing, pharmaceuticals, textiles, agro-industries and infrastructure with rigorous analytical frameworks drawn from global project consulting practice.

NPCS is part of Asia's leading industrial knowledge ecosystem, with thousands of project profiles and global consulting expertise spanning over 50 countries.

Core Service Lines

- Detailed Project Reports (DPR)
- Techno-Economic Feasibility Studies
- Market Research & Demand Analysis
- Engineering & Technology Advisory
- Financial Modelling & Viability Analysis
- Implementation Planning & Roadmaps
- MSME & Startup Advisory
- Export & Import Substitution Strategy

Our Track Record

30,000+

Detailed Project Reports Published

50+

Countries Served Globally

30+

Years of Industrial Expertise

2,50,000+

Industrial Projects Delivered

15+

Industry Sectors Covered

98%

Client Satisfaction Rate

Client Overview

Client Name	M/s. CRI Limited
Registered Location	Kolkata, West Bengal, India
Industry Sector	Large-Scale Manufacturing Investment
Project	Greenfield Wooden Pencil Manufacturing Unit

Services by NPCS	Techno-Economic Feasibility Study, Market & Resource Assessment, Project Cost Estimation, Financial Viability Analysis, Implementation Planning, Strategic Advisory
Implementation Status	Client reviewed NPCS recommendations and initiated implementation

M/s. CRI Limited is an established business group in Kolkata, West Bengal, with diversified interests and a track record of sound capital allocation. Seeking to expand its manufacturing footprint, the company approached NPCS to identify a new industrial venture that would deliver sustainable returns, moderate capital exposure and alignment with emerging consumer trends. After a systematic screening of multiple sectors, NPCS recommended wooden pencil manufacturing — a decision backed by comprehensive market intelligence, technical feasibility and financial modelling.

Client's Investment Objectives

- Long-term profitability and operationally resilient business model
- Moderate capital requirements with attractive and early payback
- Alignment with local resource availability to minimise supply-chain risk
- Access to institutional demand channels and export markets
- Alignment with growing consumer preference for eco-friendly products

Problem Statement & Challenges

Before engaging NPCS, M/s. CRI Limited faced a set of interconnected challenges that are common to investors entering a new manufacturing sector:

Market Intelligence Gaps

- No structured data on addressable demand for wooden pencils at domestic institutional or export level
- Limited visibility on competitive landscape and pricing norms in India's organised and unorganised stationery manufacturing segment
- Uncertainty around import substitution opportunity and government procurement volumes

Technical & Supply-Chain Uncertainty

- Unfamiliarity with the multi-step pencil manufacturing process — from wood slat preparation to lacquering and packaging
- Lack of clarity on machinery specifications, capacity planning and quality standards (IS 13729)
- Unclear raw-material sourcing strategy for pencil-grade wood slats and natural graphite

Financial & Investment Risk

- No reliable estimate of capital expenditure, operating costs or working-capital cycle
- No independent validation of projected revenues, margins, IRR or debt-serviceability
- Absence of a bankable project report to approach financial institutions for term-loan financing

Regulatory & Compliance Complexity

- Unfamiliarity with statutory approvals: industrial licence, State Pollution Control Board clearance, factory registration and BIS certification
- Uncertainty on MSME incentives and West Bengal government schemes applicable to a new manufacturing unit

NPCS Consulting Approach & Methodology

NPCS deployed its proven five-phase consulting framework, combining sector research, on-ground resource mapping, engineering analysis, financial modelling and strategic planning to deliver a comprehensive and actionable feasibility study.

Phase	Activity	Key Deliverable
01 Opportunity Identification	Systematic screening of 10+ manufacturing sectors against client's investment criteria	Sector shortlist with rationale
02 Market Analysis	Demand forecasting, competitor mapping, pricing analysis, export potential assessment	Market sizing & demand report

03 Technical Feasibility	Process flow design, machinery selection, capacity planning, quality standard review	Technical blueprint & BoM
04 Financial Modelling	CapEx/OpEx estimation, revenue projection, cash-flow model, IRR, DSCR & BEP	Full financial model & DPR
05 Implementation Strategy	Phased timeline, regulatory roadmap, marketing plan, export advisory	Implementation workplan

Scope of Services Delivered

Technical Services

- Detailed manufacturing process documentation
- Machinery specification and vendor shortlisting
- Plant layout and utilities planning
- Raw-material supply chain mapping
- Quality standard (IS 13729) compliance framework
- Capacity utilisation modelling

Market Research

- Global and Indian market sizing
- Demand-driver and growth-trend analysis
- Competitor intelligence and pricing benchmarks
- Export market and buyer mapping
- Sustainability and eco-friendly stationery trends

Financial & Commercial Services

- Project cost estimation (CapEx & OpEx)
- Working capital assessment
- Revenue and margin modelling
- Break-even and IRR computation
- DSCR and bank-financing advisory
- MSME government scheme identification

Implementation Advisory

- Phase-wise project timeline and milestones
- Regulatory approval roadmap
- Branding, packaging and marketing strategy
- Distribution channel and institutional buyer engagement
- Export documentation and compliance guidance

Market Opportunity & Demand Outlook

NPCS's market research confirmed that wooden pencils represent a structurally resilient and growing product category, supported by expanding educational enrolment, institutional procurement programmes and a global shift toward sustainable stationery alternatives.

Market Indicator	Data Point
Global Pencils Market Value (2024)	US\$ 2.8 Billion
Global Pencils Market Projection (2034)	US\$ 3.7 Billion (CAGR: 2.5%)
India Pencils Market Value (2025)	US\$ 599.4 Million
India Market CAGR (2025–2031)	3.3%
Global Literacy Drive Procurement	5 Billion+ Pencils Distributed Annually by Governments
Eco-Friendly Stationery Adoption	~68% of School Districts in Developed Nations Mandate Sustainable Stationery
India Wood Slat Supply Concentration	Wakhoo Village, Kashmir: 70%+ of India's Pencil Wood Supply

Key Demand Drivers

- Rising school and college enrolment across India and developing economies
- Government literacy programmes distributing stationery at scale
- Consumer and institutional preference shifting toward eco-friendly, biodegradable writing instruments
- Growth of artist, sketching and hobbyist communities driving specialty graphite pencil demand
- Rising disposable incomes enabling premium stationery purchases

Technical Insights — Manufacturing Process

The wooden pencil manufacturing process is a well-established sequence of value-adding steps, each requiring specific machinery, material inputs and quality controls. NPCS mapped the complete process to guide plant design, machinery procurement and operational planning for M/s. CRI Limited.

Step	Process Stage	Key Input / Activity
01	Wood Slat Procurement	Poplar or cedar slats sourced from Wakhoo, Kashmir; import from Southeast Asia as backup
02	Slat Conditioning	Kiln-drying and wax treatment to optimise moisture content and strength
03	Grooving / Slotting	CNC slotting machines cut precision grooves for graphite lead insertion
04	Graphite Lead Preparation	Graphite-clay mixture extruded, cut and fired in kilns to produce leads (HB to 10B grades)

05	Lead Insertion & Gluing	Leads placed in grooves; matching slot glued over and pressed under hydraulic pressure
06	Shaping & Milling	Bonded blanks shaped into hexagonal or round profiles on automated milling machines
07	Lacquering & Painting	Multiple coats of lacquer applied in spray chambers; colour and brand printing via screen/offset
08	Ferrule & Eraser Fitting	Metal ferrule crimped onto tip; eraser plug press-fitted
09	Quality Inspection	Dimensional, hardness and writing-quality checks against IS 13729 standards
10	Packaging	Sorted, boxed and labelled for retail, institutional or export despatch

Key Raw Materials

- Wood slats (poplar / cedar) — domestic supply from Kashmir, supplemented by imports
- Natural graphite — mined in India, China, Brazil; secure supply chains
- China clay — graphite binder for lead manufacturing
- Lacquer, dyes and paints — readily available from domestic chemical suppliers
- Metal ferrules, erasers, glue and packaging materials — standard procurement from MSME vendors

Financial & Investment Analysis

NPCS prepared a detailed cost estimation and financial viability model calibrated to M/s. CRI Limited's scale objectives and the West Bengal manufacturing environment. The project demonstrates sound financial parameters that compare favourably against MSME benchmarks.

Financial Parameter	Estimate / Indicator
Plant & Machinery Investment	₹ 12.00 Lakh (approx. US\$ 14,500)
Working Capital Requirement	₹ 2.22 Lakh per cycle
Total Project Cost	₹ 15.72 Lakh (inclusive of civil works & contingencies)
Recommended Financing Structure	10%–15% Promoter Equity + Bank Term Loan
Debt Service Coverage Ratio	2.59x (Healthy — well above 1.5x benchmark)
Break-Even Point	0.79 (Below 1.0 — rapid break-even)
Estimated Payback Period	2–3 Years (with institutional contracts)
Applicable MSME Schemes	PMEGP, CGTMSE, West Bengal MSME Capital Subsidy

Investment Breakdown (Indicative)

Cost Head	Amount (INR)	% of Total
Plant & Machinery	₹ 12.00 Lakh	76.3%

Civil Works & Site Preparation	₹ 1.00 Lakh	6.4%
Pre-operative & Preliminary Expenses	₹ 0.50 Lakh	3.2%
Working Capital (First Cycle)	₹ 2.22 Lakh	14.1%
Total Project Cost	₹ 15.72 Lakh	100.0%

Project Execution Timeline

Phase	Activity	Duration
Phase 1 — Opportunity Screening	Sector analysis, client briefing, opportunity shortlisting	2–3 Weeks
Phase 2 — Market Research	Demand mapping, competitive intelligence, pricing benchmarks, export mapping	3–4 Weeks
Phase 3 — Technical Assessment	Process documentation, machinery sourcing, plant layout, capacity planning	3–4 Weeks
Phase 4 — Financial Modelling	CapEx/OpEx estimation, cash-flow model, DPR preparation and review	2–3 Weeks
Phase 5 — Final Report & Advisory	Report submission, client presentation, implementation roadmap handover	1–2 Weeks
Phase 6 — Implementation Support	Machinery procurement guidance, permit advisory, strategic support (ongoing)	Ongoing

Results & Outcomes Delivered

For M/s. CRI Limited

- Full investment confidence backed by data-driven feasibility analysis
- Bankable DPR suitable for bank financing and government scheme applications
- Clear technical blueprint enabling direct machinery procurement
- Regulatory roadmap reducing time-to-commissioning
- Market linkage strategy covering institutional buyers and export channels
- Risk mitigation through thorough supply-chain and financial stress analysis

Strategic Business Impact

- Successful portfolio diversification into scalable manufacturing
- Access to West Bengal MSME capital subsidy and central PMEGP financing
- Positioned to serve India's growing education stationery demand
- Export-ready unit design aligned with international quality standards
- Employment generation in manufacturing, logistics and quality operations
- Alignment with global eco-friendly and sustainable product megatrends

Following NPCS's comprehensive feasibility report and strategic advisory, M/s. CRI Limited confirmed its decision to proceed with the project. The company has initiated implementation activities including machinery procurement, site finalisation, permit applications and key talent hiring. NPCS continues to provide advisory support throughout the execution phase.

Client Testimonial



NPCS's detailed project report and market insights gave us the confidence to diversify into wooden pencil manufacturing. Their team evaluated every aspect — market demand, raw material supply, technical requirements, costs and profitability. Thanks to their guidance, we are moving ahead with a project that is both financially sound and sustainable.

— Mr. Amit Das, Director, M/s. CRI Limited, Kolkata

Why Choose NPCS?

Proven Industrial Expertise

30+ years and 30,000+ DPRs across virtually every manufacturing sector give NPCS an unmatched depth of industry knowledge.

Data-Driven Feasibility

Every recommendation is grounded in primary market research, verified supply-chain data and independently validated financial models.

End-to-End Project Support

NPCS accompanies clients from idea stage through market research, DPR preparation, financial closure and project commissioning.

Global Market Understanding

With clients in 50+ countries, NPCS combines global market intelligence with deep knowledge of India's regulatory and industrial landscape.

Risk Mitigation Approach

NPCS stress-tests every feasibility study against downside scenarios — ensuring clients enter projects with eyes fully open to risks and mitigation levers.

MSME & Startup Specialists

From first-generation entrepreneurs to large business groups, NPCS calibrates its advisory to the client's scale, capital and risk appetite.

Conclusion

This case study demonstrates the power of evidence-based industrial consulting in transforming an investment ambition into a viable, bankable and strategically sound manufacturing venture. By recommending wooden pencil manufacturing to M/s. CRI Limited, NPCS identified a business that leverages India's abundant poplar and graphite resources, captures growing demand for sustainable writing instruments, generates local employment and promises attractive returns on a moderate capital base.

The project's strong financial indicators — a DSCR of 2.59, a break-even point below 1.0 and an estimated 2–3 year payback — reflect NPCS's disciplined analytical framework and its commitment to delivering recommendations that clients can act on with confidence. M/s. CRI Limited's prompt move to implementation is the clearest measure of the value NPCS delivered.

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