

CLIENT CASE STUDY

Establishment of a Coking Coal Washing Unit

From Investment Vision to Industrial Reality — A Strategic Advisory by NPCS

Client Name	M/s. Mohit Minerals Limited
Location	Kirti Nagar, New Delhi
Industry	Large-Scale Mineral Processing
Project	Coking Coal Washing Unit
Consultancy	DPR · Feasibility Study · Financial Analysis · Market Research
Status	Approved — Proceeding to Implementation

01 ABOUT NIIR PROJECT CONSULTANCY SERVICES (NPCS)

Company Overview

Niir Project Consultancy Services (NPCS) is one of India's foremost industrial consultancy organizations, renowned for delivering investor-grade feasibility studies, comprehensive Detailed Project Reports (DPRs), and strategic advisory services to clients across the globe.

NPCS is part of Asia's leading industrial knowledge ecosystem with thousands of project profiles and global consulting expertise — empowering entrepreneurs, MSMEs, corporates, and investors to make well-informed, financially sound industrial investment decisions.

Core Service Offerings

- ▶ Detailed Project Reports (DPRs) — Bankable & Investor-Ready
- ▶ Techno-Economic Feasibility Studies
- ▶ Market Research & Demand Analysis
- ▶ Financial Viability & Profitability Assessment
- ▶ Engineering Advisory & Plant Setup Guidance
- ▶ Manufacturing Opportunity Identification
- ▶ Business Plan & Project Finance Support

NPCS at a Glance

<p>30,000+ Project Reports Published</p>	<p>50+ Countries Served</p>
<p>30+ Years of Expertise</p>	<p>2,50,000+ Industrial Projects Delivered</p>

Trusted by entrepreneurs, MSMEs, startups, and large-scale industrial investors across 50+ countries for professionally researched, bankable project solutions.

02 CLIENT OVERVIEW

<p>About the Client</p> <p>M/s. Mohit Minerals Limited is a New Delhi-based industrial enterprise with strategic interests in mineral processing and large-scale manufacturing. Headquartered in Kirti Nagar, New Delhi, the company sought to identify and validate a commercially viable industrial investment capable of generating sustained, long-term returns.</p> <p>With significant capital available for deployment, the client required expert advisory support to navigate the complex landscape of industrial investment opportunities — identifying the right sector, validating technical feasibility, and assessing financial viability before committing resources.</p>	<p>Investment Objectives</p> <ul style="list-style-type: none"> ▶ Long-term commercial viability and profitability ▶ Strong industrial demand and market relevance ▶ Technical feasibility with scalable operations ▶ Reliable raw material access and logistics support ▶ Moderate-to-large capital investment feasibility ▶ Sustainable industrial growth potential ▶ Strategic diversification into a high-demand sector ▶ Bankable report for financial institution support
---	--

<p>M/s. Mohit Minerals Ltd. Client</p>	<p>Kirti Nagar, New Delhi Location</p>	<p>Mineral Processing Sector</p>	<p>Approved — In Progress Project Status</p>
---	---	---	---

03 PROBLEM STATEMENT & KEY CHALLENGES

Before engaging NPCS, M/s. Mohit Minerals Limited faced a complex set of strategic, technical, and financial challenges that needed to be systematically addressed before any investment commitment could be made.

<p>◆ Market Intelligence Gaps</p> <p>Absence of reliable market data on coking coal demand trends, consumption patterns, pricing dynamics, and industry growth trajectory across key sectors such as steel manufacturing, coke production, and metallurgical operations.</p>	<p>◆ Technical Feasibility Uncertainty</p> <p>Limited expertise in evaluating coal washing plant configurations, processing technologies (dense-medium separation, jig-based beneficiation), equipment selection criteria, plant layout, and infrastructure requirements for a commercial-scale facility.</p>
<p>◆ Financial Risk & Modelling Deficit</p> <p>Absence of a structured financial framework to assess total project cost, capital structure, operating expenditure, revenue projections, ROI, IRR, payback period, and break-even analysis required to justify the investment.</p>	<p>◆ Raw Material & Supply Chain Risks</p> <p>Limited visibility into raw coking coal sourcing channels, supplier reliability, logistics networks, and regional procurement feasibility — critical factors for consistent production planning and cost control.</p>
<p>◆ Regulatory & Environmental Complexity</p> <p>Navigating the multi-layered regulatory framework governing coal sector investments in India — including environmental clearances, pollution control board approvals, statutory licenses, and compliance obligations for mineral processing facilities.</p>	<p>◆ Strategic Opportunity Identification</p> <p>Identifying the optimal industrial project from a broad range of manufacturing opportunities, aligned with the client's capital capacity, risk tolerance, market outlook, and long-term strategic growth objectives.</p>

04 NPCS APPROACH & STRATEGIC METHODOLOGY

NPCS deployed a structured, five-phase research and advisory methodology — transforming complex industrial investment decisions into well-validated, execution-ready opportunities.

Phase 01	<p>Project Identification & Sector Screening</p> <p>Conducted a comprehensive assessment across manufacturing, mineral processing, and energy sectors. Evaluated market attractiveness, capital intensity, demand sustainability, raw material availability, and alignment with client objectives. Recommended the Coking Coal Washing Unit as the most strategically compelling opportunity.</p>
Phase 02	<p>In-Depth Market Research & Demand Validation</p> <p>Mapped current and projected demand for washed coking coal across steel manufacturing, coke production, metallurgical operations, and heavy engineering. Analyzed import-export trade data, industry consumption trends, pricing benchmarks, import-substitution potential, and competitive landscape.</p>
Phase 03	<p>Technical Feasibility & Process Engineering</p> <p>Assessed the viability of establishing a commercial coal washing facility — covering process flow design, technology selection (dense-medium cyclones, jig separators), equipment specifications, plant capacity planning, utility infrastructure, water management, and layout optimization.</p>
Phase 04	<p>Financial Modelling & Investment Viability</p> <p>Developed a comprehensive financial model encompassing total project cost, capital structure, working capital, operating cost projections, revenue forecasts, profitability analysis, debt servicing schedule, sensitivity analysis, ROI, IRR, and payback period — producing a bankable financial appraisal.</p>
Phase 05	<p>Implementation Strategy & Advisory Roadmap</p> <p>Delivered a phase-wise execution roadmap covering statutory approvals, land acquisition, civil construction sequencing, machinery procurement, plant commissioning, quality systems setup, and commercial launch planning — structured to minimize risk and optimize time-to-revenue.</p>

05 SCOPE OF CONSULTANCY SERVICES DELIVERED

NPCS delivered a comprehensive suite of consultancy services specifically tailored to the requirements of this engagement:

<p>01</p> <p>Detailed Project Report (DPR)</p> <p>Comprehensive, bankable DPR covering all technical, financial, legal, and operational aspects — structured for lender and investor submission.</p>	<p>02</p> <p>Plant Layout & Process Design</p> <p>Preliminary plant layout incorporating process flow design, material handling systems, utility infrastructure, safety provisions, and space optimization.</p>	<p>03</p> <p>Machinery & Technology Selection</p> <p>Identification of appropriate coal washing technologies, equipment specifications, vendor evaluation criteria, and capital investment estimation.</p>
<p>04</p> <p>Financial Modelling & Projections</p> <p>Detailed financial projections including CAPEX, OPEX, revenue forecasts, profitability analysis, ROI, IRR, payback period, and sensitivity analysis.</p>	<p>05</p> <p>Market Research & Demand Validation</p> <p>In-depth analysis of coking coal demand trends, import substitution opportunities, industry consumption patterns, and commercial market validation.</p>	<p>06</p> <p>Implementation Roadmap & Advisory</p> <p>Phase-wise execution plan covering regulatory approvals, construction sequencing, commissioning timeline, and commercial operations ramp-up strategy.</p>

06 TECHNICAL INSIGHTS — COKING COAL WASHING PROCESS

Coking coal washing (beneficiation) is a critical industrial process that transforms raw, impurity-laden coal into high-grade metallurgical feedstock. The process systematically removes ash, sulfur, silica, and other mineral matter to produce clean, specification-grade coal suitable for coke production and steel manufacturing.

01	Raw Coal Reception & Stockpiling	Raw coking coal received from mines or suppliers is weighed, sampled, and stored in designated stockpile areas. Initial quality assessment establishes baseline ash content, moisture levels, and particle size distribution for process planning.
02	Crushing & Size Classification	Coal is crushed using jaw and roll crushers to achieve a target size range. Rotary and vibrating screens classify coal into specific size fractions, directing each fraction to the appropriate downstream washing circuit for maximum efficiency.
03	Dense-Medium Separation / Jig Washing	The core beneficiation stage. Sized coal enters washing circuits — dense-medium cyclones (DMC) or jig-based separators — where coal particles are separated from high-density shale and ash matter based on differential density, achieving target product specifications.
04	Product Dewatering & Recovery	Washed clean coal is recovered from the washing medium, dewatered using vibrating screens and high-speed centrifuges, and conveyed to product stockpiles. Ash content is reduced to metallurgical-grade specifications for steel plant requirements.
05	Reject & Middlings Handling	High-density reject material (shale, middlings) is separately recovered, dewatered, and managed. Middlings may be processed further or blended for alternate industrial use, maximizing overall plant yield and minimizing waste.
06	Water Treatment & Closed-Loop Recycling	Process water carrying fine coal particles is treated through thickeners and clarifiers. Recovered water is recycled back into the washing circuits, significantly reducing fresh water consumption and ensuring near-zero liquid discharge compliance.
07	Quality Testing, Certification & Dispatch	Finished washed coal undergoes laboratory analysis for ash content, moisture, sulfur, volatile matter, fixed carbon, and calorific value. Certified lots are batch-coded and dispatched to steel plants, coke ovens, and industrial customers.

07 FINANCIAL & MARKET ANALYSIS

Investment Overview

NPCS conducted a rigorous techno-economic appraisal to evaluate the investment profile of the proposed Coking Coal Washing Unit. Indicative cost structure analyzed:

Cost Component	Share (%)
Land & Site Development	10 – 12%
Civil & Structural Works	18 – 22%
Plant & Machinery	38 – 42%
Utilities & Infrastructure	8 – 10%
Working Capital	12 – 15%
Pre-Operative & Contingency	4 – 6%

Key Financial Indicators

Estimated Project IRR	18 – 24%
Payback Period	4 – 6 Years
Suggested Debt:Equity Ratio	60:40
Break-Even Capacity Utilisation	55 – 60%

Market Demand & Growth Outlook

The demand outlook for washed coking coal remains strongly positive, underpinned by multiple structural growth drivers:

India's Expanding Steel Industry

India's crude steel production is targeted to more than double by 2030, sustaining strong, recurring demand for high-grade washed coking coal as the primary metallurgical feedstock.

Rising Coke Oven & Metallurgical Consumption

Coke oven plants, foundries, and heavy engineering manufacturers are expanding output — directly increasing consumption of beneficiated coal for operational efficiency and quality compliance.

Import Substitution Opportunity

India currently imports significant volumes of washed coking coal. Domestic processing units can capture this high-value import-substitution market at competitive cost structures.

Infrastructure Growth Momentum

Government-led programmes — National Infrastructure Pipeline, PM Gati Shakti, housing schemes, defence corridors — are accelerating steel demand and sustaining long-term coal washing sector growth.

Environmental Quality Compliance

Tightening industrial emission norms are compelling steel and metallurgical enterprises to switch from raw coal to processed, low-ash washed coal — structurally expanding the addressable market.

08 PROJECT EXECUTION TIMELINE

NPCS provided a structured, phase-wise implementation roadmap to guide the client from project approval through to full commercial operations:

<p>Month 1–2</p> <p>Project Approval & Finance</p> <p>DPR finalisation, investment decision, financial structuring, lender presentations, equity partnerships</p>	<p>Month 2–4</p> <p>Land & Statutory Approvals</p> <p>Site selection, land acquisition, environmental clearance, PCB approvals, mining/processing licences</p>	<p>Month 4–7</p> <p>Civil & Infrastructure Works</p> <p>Foundation works, civil construction, utility installations, water management system setup</p>	<p>Month 7–10</p> <p>Machinery Procurement & Erection</p> <p>Equipment ordering, delivery coordination, installation, mechanical testing and alignment</p>	<p>Month 10–12</p> <p>Commissioning & Trial Production</p> <p>System commissioning, calibration, trial runs, quality testing, operator training, safety audits</p>	<p>Month 12+</p> <p>Commercial Operations</p> <p>Full production ramp-up, customer onboarding, certification, market entry and sales activation</p>
---	--	--	--	--	---

09 RESULTS & STRATEGIC OUTCOMES

<p>Outcomes Delivered by NPCS</p> <p>Following NPCS's comprehensive advisory engagement, M/s. Mohit Minerals Limited achieved the following tangible outcomes:</p> <ul style="list-style-type: none"> ▶ Investment decision validated with a data-driven, bankable feasibility study ▶ Comprehensive DPR prepared — ready for lender and investor submission ▶ Technical blueprint established for plant design and machinery selection ▶ Detailed financial model developed with clear profitability pathway ▶ Market validation confirming strong institutional demand from steel sector ▶ Phase-wise implementation roadmap designed for risk-managed execution ▶ Investment risk profile significantly reduced through structured advisory ▶ Strategic positioning secured in a high-growth, high-demand sector 	<p>Client Decision & Status</p> <p>Outcome: Client Approved — Proceeding to Implementation</p> <p>After a thorough review of NPCS's techno-economic feasibility findings, market demand analysis, technical assessment, and financial viability evaluation, M/s. Mohit Minerals Limited expressed full confidence in the proposed project and its commercial prospects.</p> <p>The client formally agreed to proceed with the implementation of the Coking Coal Washing Unit — recognising its strong alignment with long-term industrial demand, commercial sustainability objectives, and strategic growth aspirations.</p>
--	---

10 CLIENT TESTIMONIAL

“

NPCS delivered a highly structured feasibility assessment and invaluable strategic insights that helped us evaluate a new industrial investment opportunity with complete confidence. Their professional consultancy approach, rigorous market research, and technical depth played a decisive role in our investment planning process. The quality of the Detailed Project Report and the clarity of the financial analysis exceeded our expectations. We are fully satisfied with the engagement and consider NPCS a trusted partner for industrial advisory.

— M/s. Mohit Minerals Limited, Kirti Nagar, New Delhi

”

11 WHY CHOOSE NPCS

NPCS brings a unique combination of depth, rigour, and global perspective to every industrial consultancy engagement:

<p>Proven Industrial Expertise</p> <p>Over 30 years of delivering high-quality feasibility studies, DPRs, and investment advisory across 50+ industrial sectors — from agro-processing and chemicals to minerals, energy, and advanced manufacturing.</p>	<p>Data-Driven Decision Making</p> <p>Every recommendation is underpinned by rigorous market research, verified industry data, quantified financial modelling, and empirical demand analysis — eliminating guesswork and reducing investment risk.</p>
<p>Global Market Intelligence</p> <p>Deep knowledge of international and domestic commodity markets, cross-border trade flows, pricing benchmarks, and competitive dynamics across manufacturing and processing sectors worldwide.</p>	<p>Bankable Reports & DPRs</p> <p>NPCS reports consistently meet the standards required by banks, financial institutions, government bodies, and international investors — essential for accessing project finance and institutional support.</p>
<p>End-to-End Project Support</p> <p>From opportunity identification through DPR preparation, financial modelling, regulatory guidance, and implementation advisory — NPCS delivers fully integrated, single-window project support.</p>	<p>Risk Mitigation First</p> <p>Every engagement is structured to identify, quantify, and mitigate investment risks — providing clients with the decision confidence needed to protect capital and optimise returns.</p>

12 CONCLUSION

The advisory engagement between NPCS and M/s. Mohit Minerals Limited stands as a compelling demonstration of how expert industrial consultancy transforms investment uncertainty into strategic clarity and execution-ready opportunity.

Through a rigorous techno-economic feasibility study, comprehensive market research, detailed financial modelling, and structured strategic advisory, NPCS successfully guided the client toward identifying and validating the establishment of a Coking Coal Washing Unit — a project with strong commercial merit, institutional demand, and sustained long-term industrial relevance.

The client's decision to proceed with full project implementation reflects the quality and credibility of NPCS's advisory capability and the investment confidence delivered by the Detailed Project Report. This outcome reinforces NPCS's position as a trusted partner for entrepreneurs, MSMEs, startups, and large-scale industrial investors seeking professionally researched, investment-ready project solutions.

READY TO BUILD YOUR NEXT INDUSTRIAL PROJECT?

Partner with NPCS to transform your investment vision into a profitable, bankable industrial venture.

www.niir.org | www.entrepreneurindia.co | info@niir.org | +91 9097075054
 DPRs · Feasibility Studies · Market Research · Financial Viability · Engineering Advisory

