

CLIENT CASE STUDY

# Manufacturing of Low Toxicity Base Oil from Kerosene

*Transforming Petroleum Derivatives into High-Value Specialty Products*

CLIENT

M/s. Coasts Petroleum Products Co.

LOCATION

Riyadh, Saudi Arabia

INDUSTRY

Petroleum Products Manufacturing

SERVICE

Techno-Economic Feasibility Study & Project  
Advisory

## About NIIR Project Consultancy Services (NPCS)

NIIR Project Consultancy Services (NPCS) is one of Asia's most respected and comprehensive industrial knowledge ecosystems. Founded with a mission to empower entrepreneurs and industrial investors, NPCS delivers world-class techno-economic advisory and project development services across a vast range of manufacturing sectors.

NPCS is part of Asia's leading industrial knowledge ecosystem with thousands of project profiles and global consulting expertise. From initial project identification to detailed bankable reports, NPCS provides an end-to-end ecosystem of knowledge, analysis, and strategic guidance that enables investors to make informed decisions with confidence.

<p><b>30,000+</b></p> <p>Detailed Project Reports Published</p>	<p><b>50+</b></p> <p>Countries Served</p>	<p><b>30+</b></p> <p>Years of Industrial Expertise</p>	<p><b>250,000+</b></p> <p>Industrial Projects Delivered</p>
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### Core Services

<p><b>☑ Detailed Project Reports (DPR)</b> Bankable, investor-ready project reports covering technology, economics, and market analysis for manufacturing ventures.</p>	<p><b>☑ Techno-Economic Feasibility Studies</b> Comprehensive assessment of technical viability and financial performance to minimize investment risk.</p>
<p><b>☑ Market Research &amp; Demand Analysis</b> In-depth studies on market size, growth drivers, competition, and import-export intelligence.</p>	<p><b>☑ Engineering &amp; Technical Advisory</b> Expert guidance on process technology, plant layout, machinery selection, and utilities planning.</p>
<p><b>☑ Financial Modeling &amp; Investment Advisory</b> ROI projections, IRR analysis, break-even evaluation, and investment structuring support.</p>	<p><b>☑ Strategic Implementation Support</b> Phase-wise implementation roadmaps, vendor identification, regulatory guidance, and operational planning.</p>

## Client Overview

### Company Profile

M/s. Coasts Petroleum Products Co. is an industrial organization headquartered in Riyadh, Saudi Arabia, focused on large-scale manufacturing and investment within the petroleum products sector. The company brings significant regional expertise and a strategic vision for value-added industrial development aligned with Saudi Arabia's Vision 2030 objectives.

### Project Snapshot

<b>Client</b>	M/s. Coasts Petroleum Products Co.
<b>Location</b>	Riyadh, Saudi Arabia
<b>Industry</b>	Petroleum Products Manufacturing
<b>Project Recommended</b>	Manufacturing of Low Toxicity Base Oil from Kerosene
<b>Service Provided</b>	Techno-Economic Feasibility Study & Detailed Project Advisory
<b>Implementation Status</b>	Approved & Implementation Planning Initiated

### Investment Objectives

- Identify a high-value, profitable manufacturing venture
- Leverage regional raw material availability
- Develop a scalable and sustainable industrial project

- Minimize investment risk through rigorous feasibility analysis
- Enter a growing market with strong long-term demand

## Problem Statement & Investment Challenges

M/s. Coasts Petroleum Products Co. faced a set of complex, interrelated challenges that required expert analytical support and strategic guidance before committing to a large-scale manufacturing investment. NPCS was engaged to systematically address each challenge with data-driven insights.

<p><b>Market Intelligence Gap</b></p> <p>The client lacked actionable data on the demand trajectory, global pricing, and competitive landscape for specialty petroleum derivatives.</p>	<p><b>Technical Complexity</b></p> <p>Manufacturing low toxicity base oil requires advanced refining and purification technologies; selecting the right process demanded expert guidance.</p>
<p><b>Financial Risk Exposure</b></p> <p>Large-scale industrial investment carries significant capital risk. Accurate cost modeling and ROI projections were essential to justify the project.</p>	<p><b>Supply Chain Uncertainty</b></p> <p>Despite Saudi Arabia's petroleum resources, identifying reliable, consistent kerosene feedstock supply chains required detailed on-ground analysis.</p>
<p><b>Regulatory Complexity</b></p> <p>Navigating environmental compliance, product standards, and export regulations for specialty oils demanded specialized knowledge.</p>	<p><b>Project Selection Dilemma</b></p> <p>Multiple industrial opportunities existed; the client needed expert evaluation to select the most feasible, scalable, and profitable venture.</p>

## NPCS Approach & Strategic Methodology

NPCS deployed its proven, structured consulting methodology — blending market intelligence, technical engineering expertise, and financial analysis — to deliver a comprehensive, actionable assessment for the client.

<p><b>01</b></p> <p><b>Project Identification</b></p> <p>Multi-sector screening &amp; opportunity mapping</p>	<p><b>02</b></p> <p><b>Market Analysis</b></p> <p>Demand trends, pricing &amp; competitive landscape</p>	<p><b>03</b></p> <p><b>Technical Feasibility</b></p> <p>Process technology &amp; plant design review</p>	<p><b>04</b></p> <p><b>Financial Modeling</b></p> <p>ROI, IRR, break-even &amp; cost structures</p>	<p><b>05</b></p> <p><b>Implementation Strategy</b></p> <p>Phased roadmap &amp; operational framework</p>
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### Why Low Toxicity Base Oil from Kerosene?

Following a rigorous multi-sector evaluation, NPCS identified the manufacturing of Low Toxicity Base Oil from Kerosene as the optimal investment opportunity for the client. This recommendation was backed by five strategic justifications:

<b>01</b>	<p><b>Strong Raw Material Availability</b></p> <p>Saudi Arabia's position as a global petroleum producer ensures consistent, cost-competitive kerosene and related feedstock supply.</p>
<b>02</b>	<p><b>Growing Industrial Demand</b></p> <p>Low toxicity base oils are increasingly required across manufacturing, automotive, metalworking, and pharmaceutical sectors globally.</p>
<b>03</b>	<p><b>Superior Value Addition</b></p> <p>The process converts petroleum fractions into higher-value specialty products, significantly enhancing profitability margins.</p>
<b>04</b>	<p><b>Moderate Capital Requirements</b></p> <p>Compared to large petrochemical complexes, this project delivers strong profit potential with manageable capital outlay.</p>
<b>05</b>	<p><b>Sustainability Alignment</b></p> <p>Low toxicity oils meet modern environmental and safety standards, enhancing global market relevance and export viability.</p>

## Scope of Services Delivered

NPCS delivered a comprehensive suite of consultancy services, ensuring the client had a complete technical, financial, and strategic foundation before proceeding with the investment.

<p><b>☑ Detailed Project Report (DPR) Preparation</b> Comprehensive bankable project report covering all technical, financial, and market dimensions of the proposed manufacturing unit.</p> <p><b>☑ Machinery &amp; Equipment Selection</b> Identification and specification of key processing equipment including fractionation columns, hydrotreaters, filtration systems, and blending units.</p>	<p><b>☑ Plant Layout &amp; Infrastructure Design</b> Conceptual plant layout recommendations covering production area, utilities, storage, and safety infrastructure.</p> <p><b>☑ Financial Modeling &amp; Investment Analysis</b> Detailed capital cost estimates, working capital requirements, revenue projections, ROI, IRR, and payback period calculations.</p>
<p><b>☑ Market Demand Validation</b> Analysis of domestic and international market demand, pricing benchmarks, trade data, and end-user industry growth projections.</p>	<p><b>☑ Implementation Roadmap</b> Phase-wise project development timeline covering regulatory approvals, procurement, construction, commissioning, and commercial operations.</p>

## Project Execution Timeline

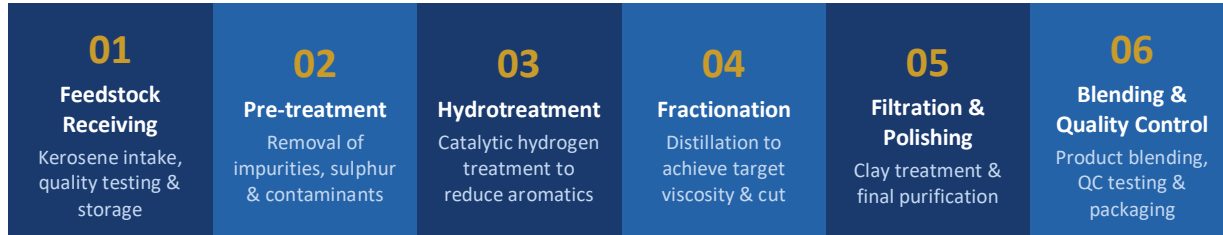
NPCS structured the project advisory into a clear, phased execution plan, enabling the client to track progress, manage resources, and make informed decisions at each stage.

Phase	Timeline	Key Deliverables
<b>Phase 1 — Opportunity Identification</b>	Week 1–2	Sector screening report; recommendation of Low Toxicity Base Oil project
<b>Phase 2 — Market Research</b>	Week 3–5	Demand analysis, global market sizing, pricing intelligence, competitive landscape
<b>Phase 3 — Technical Feasibility</b>	Week 6–8	Manufacturing process overview, technology selection, plant capacity study
<b>Phase 4 — Financial Modeling</b>	Week 9–11	Capital cost estimate, operational cost analysis, ROI, IRR, payback period
<b>Phase 5 — DPR Compilation</b>	Week 12–14	Detailed Project Report with all technical and financial findings
<b>Phase 6 — Implementation Advisory</b>	Week 15–16	Project execution roadmap, regulatory checklist, vendor recommendations

## Technical Insights: Manufacturing Process

Low Toxicity Base Oil is produced by refining and treating kerosene through a series of controlled chemical and physical processes. The resulting product is a low-aromatic, low-toxicity oil suitable for specialized industrial applications across multiple sectors.

### Step-by-Step Manufacturing Process



### Key Machinery & Technologies

Equipment / Technology	Role in Process
Hydrotreating Unit	Catalytic removal of sulphur, aromatics, and nitrogen
Fractional Distillation Column	Separation of kerosene fractions by boiling point
Clay Treatment System	Decolorization, deodorization, and polishing
Filtration & Separation Units	Removal of particulates and residual impurities
Blending & Storage Tanks	Product blending, quality adjustment, and safe storage
Laboratory QC Equipment	Testing viscosity, flash point, pour point, and toxicity levels

# Financial & Market Analysis

## Financial Performance Overview

Financial Parameter	Estimated Value / Insight
Capital Investment	Moderate — feasible for mid-scale industrial investors
Plant Capacity	Scalable from small to large commercial volumes
Operational Cost Structure	Stable, with primary costs in feedstock and energy
Profit Margin Potential	Strong — specialty product premium over kerosene
Return on Investment (ROI)	Attractive returns projected within standard industrial benchmarks
Internal Rate of Return (IRR)	Positive IRR indicating strong financial viability
Payback Period	Competitive payback period relative to sector
Break-even Point	Achievable at moderate capacity utilization

## Market Demand & Growth Drivers

The global market for low toxicity base oils and specialty petroleum derivatives is expanding rapidly, driven by:

- Stringent environmental regulations driving shift from high-aromatic to low-toxicity lubricants
- Rapid growth of metalworking, automotive, and pharmaceutical manufacturing sectors
- Rising demand for food-grade and cosmetic-grade processing oils
- Industrial diversification programs in GCC and emerging economies

- Strong export demand from Asia, Africa, and European markets

**Import Substitution Opportunity**

Saudi Arabia currently imports a portion of its specialty lubricant requirements. This project positions M/s. Coasts Petroleum Products Co. to capture both the domestic import substitution market and regional export opportunities — offering a dual revenue advantage.

## Results & Outcomes

NPCS's structured advisory approach delivered measurable outcomes that enabled M/s. Coasts Petroleum Products Co. to move forward with full confidence in their investment decision.



<p><b>✔ Informed Investment Decision</b> The client gained a clear, data-backed understanding of market potential, technical requirements, and financial viability before committing capital.</p> <p><b>📄 Implementation Readiness</b> The client received a fully structured project development roadmap, enabling immediate transition to implementation planning.</p>	<p><b>📄 Risk Significantly Reduced</b> Systematic identification and mitigation of technical, financial, market, and regulatory risks removed major uncertainty from the investment.</p> <p><b>📄 Strategic Market Positioning</b> M/s. Coasts Petroleum Products Co. is now positioned to enter the specialty petroleum derivatives market with a differentiated product offering.</p>
<p><b>📄 Value Chain Enhancement</b> The project enables conversion of raw kerosene into high-value specialty oils, capturing premium margins across the value chain.</p>	<p><b>📄 Scalable Business Model</b> The recommended project architecture allows capacity expansion as market demand grows, ensuring long-term scalability.</p>

## Client Testimonial

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*Niir Project Consultancy Services provided us with valuable insights and professional guidance in identifying a promising industrial investment opportunity. Their techno-economic evaluation helped us make an informed decision with confidence. We appreciate the structured approach and deep expertise NPCS brought to our project planning process. Their comprehensive analysis gave us clarity on both the market opportunity and the technical path forward.*

**— Management Team**

*M/s. Coasts Petroleum Products Co., Riyadh, Saudi Arabia*

## Why Choose NPCS?

NPCS stands apart as a premier industrial consultancy through a unique combination of deep sector expertise, comprehensive data assets, and an unwavering commitment to client success.

<p><b>Proven Industrial Expertise</b></p> <p>30+ years of industrial consulting experience across 100+ sectors — from basic chemicals to advanced specialty manufacturing.</p> <p><b>Data-Driven Feasibility</b></p> <p>Every recommendation is backed by rigorous quantitative analysis — not assumptions. Our reports meet the standards required by banks, investors, and development agencies.</p>	<p><b>Global Market Intelligence</b></p> <p>Access to proprietary databases covering global demand, trade flows, pricing, and competitive intelligence across 50+ countries.</p> <p><b>End-to-End Project Support</b></p> <p>NPCS supports clients across the full project lifecycle — from idea validation to DPR, and from implementation planning to operational guidance.</p>
<p><b>Risk Mitigation Focus</b></p> <p>NPCS systematically identifies and addresses technical, financial, market, and regulatory risks before they become costly problems.</p>	<p><b>Client-Centric Approach</b></p> <p>Every engagement is tailored to the client's specific investment context, goals, and regional market conditions — no off-the-shelf advice.</p>

## Conclusion: Strategic Value Delivered

The engagement with M/s. Coasts Petroleum Products Co. exemplifies the transformative impact of NPCS's structured consultancy methodology. By combining deep market intelligence, technical engineering expertise, and rigorous financial analysis, NPCS enabled the client to identify, evaluate, and commit to a high-value manufacturing opportunity in the specialty petroleum derivatives sector.

The manufacturing of Low Toxicity Base Oil from Kerosene represents not merely a viable industrial investment, but a strategically aligned opportunity that leverages Saudi Arabia's natural resource advantages, addresses growing global demand for environmentally safer lubricants, and positions the client for long-term, scalable profitability.

This case study demonstrates that with the right advisory partner, industrial investment decisions can be made with precision, confidence, and a clear path to sustainable business success.

### Technical Clarity

Full process technology review and plant design guidance delivered

### Financial Confidence

Investment viability validated with strong ROI and payback projections

### Market Readiness

Demand outlook validated across regional and international markets

## READY TO BUILD YOUR NEXT INDUSTRIAL PROJECT?

Partner with NIIR Project Consultancy Services (NPCS) to transform your investment idea into a profitable industrial venture. With 30+ years of expertise, 30,000+ project reports, and clients in 50+ countries, NPCS is your trusted partner for industrial success.

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[www.niir.org](http://www.niir.org) | [www.entrepreneurindia.co](http://www.entrepreneurindia.co)

[info@niir.org](mailto:info@niir.org) | [+91 9097075054](tel:+919097075054)