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Ministry of Coal

Government of India

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Project Evaluation Report • Confidential

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PROJECT TITLE	Integrated Coal Waste-to-Energy Demonstration Project		
PRINCIPAL INVESTIGATOR	Dr. A. K. Sharma	**INSTITUTE**	National Institute of Coal Research
SUBMISSION DATE	15 Oct 2025	**REQUESTED BUDGET (INR)**	₹ 18,500,000
PROJECT DURATION	30 months	**PROPOSAL ID**	MOC-PROP-2025-0047

78%	32	₹185lak	30 mo
Overall Score	Risk Index	Requested Funds	Duration

80% Novelty

Executive Summary

This proposal demonstrates strong technical novelty in converting coal waste to clean energy at pilot scale. The methodology is sound and builds on prior national trials, with appropriate risk mitigations. Key recommendation: proceed to conditional funding subject to clarifications in cost breakdown and timeline milestones.

- Novelty: high — introduces integrated gasification + carbon capture module.
- Technical Maturity: medium-high; requires pilot commissioning support.

74% Feasibility

Technical Feasibility

Detailed engineering plans were provided. The PI demonstrates sector experience and access to pilot facilities. Critical path items include feedstock supply assurance and emissions control testing.

- Key dependencies: feedstock logistics, emissions certification.
- Mitigations: proposed phased commissioning and third-party testing.

71% Cost Efficiency

Cost Justification

Budget appears aligned to pilot scale; however line-item detail is insufficient for procurement items above ₹5M. Recommend conditional release tied to improved procurement plan.

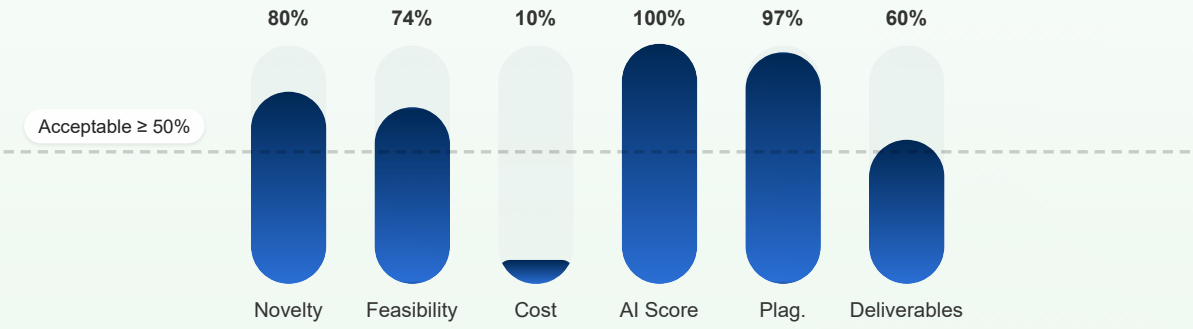
- Capital intensity is concentrated in specialized equipment (35% of budget).
- Operational costs are reasonable based on projected throughput.

55% Deliverable

Timeline & Deliverables

Project timeline of 30 months is feasible with phased milestones. Request a detailed Gantt and acceptance criteria for each milestone prior to first tranche disbursement.

- Milestone 1 (0-6m): Detailed engineering and procurement.
- Milestone 2 (6-18m): Installation and pilot commissioning.



Current Capabilities in Detail

Plagiarism	AI Score	Novelty	Cost	Timeline
97 / 100	100 / 100	80 / 100	10 / 100	60 / 100

Novelty

Score: 80/100 Changeable: 20%

The proposal introduces an integrated coal waste-to-energy process combining gasification and carbon-capture at pilot scale. The approach is a meaningful departure from current practice by integrating emissions control with energy recovery, increasing the innovation potential.

Recommended actions:

- Document prior art and clearly highlight the novel integration steps versus published work.
- Provide pilot test plans and small-scale validation data to substantiate claimed innovations.
- Include IP or patent landscape notes where applicable to strengthen novelty claims.

Cost Justification

Score: 71/100 Changeable: 24%

The budget broadly aligns with pilot-scale efforts but lacks detailed line-item breakdowns for high-value equipment. Several procurement entries above ₹5M require vendor quotes or justification.

Recommended actions:

- Provide detailed quotations for specialized equipment and vendor estimates for each major line item.
- Separate capital vs operational expenses and include lifecycle maintenance cost estimates.
- Clarify contingencies and explain assumptions behind unit costs to reduce budget uncertainty.

Technical Feasibility

Score: 74/100 Changeable: 12%

Engineering plans and team experience indicate feasibility at pilot scale. Critical items include feedstock logistics, emissions control testing, and availability of pilot facilities for commissioning.

Recommended actions:

- Supply detailed feedstock supply agreements and contingency plans for variable feedstock quality.
- Include third-party testing schedules for emissions and demonstrate access to pilot facilities.
- Provide a commissioning plan with acceptance criteria and responsible parties for each milestone.

Deliverables

Score: 60/100 Changeable: 32%

Proposed milestones are defined but need clearer acceptance criteria and measurable outputs for each tranche. Strengthening deliverable descriptions will help tie disbursements to verified progress.

Recommended actions:

- Attach a Gantt with milestone dates and specific, testable acceptance criteria for each deliverable.
- Define measurable KPIs (e.g., pilot throughput, emissions targets, energy recovery rates) per milestone.
- Propose verification methods and third-party sign-off procedures to enable tranche-based funding.

AI Score — Automated Analysis

Plagiarism Analysis

The automated plagiarism checker returned a high score (97/100) indicating minimal overlap with known sources. Where similarity is detected, the system highlights specific passages; authors should add citations or clarifications for any reused material to maintain transparency.

Model Confidence

The AI scoring model assigns a confidence metric to each computed score. High confidence values accompany the AI Score (near 0.95), but lower confidence appears on cost-related estimates where training data is sparse. Where confidence is low, request additional evidence or human review.

Automated Novelty Detection

Novelty was assessed using semantic similarity and novelty-detection algorithms; the proposal scored ~80/100 on automated novelty. The system flags components that closely match prior work and highlights aspects likely to be genuinely innovative for reviewer focus.

Timeline & Risk Prediction

The AI timeline estimate (60/100) aggregates historical project durations and identified risks (feedstock logistics, emissions testing). The tool recommends targeted mitigations for high-risk items and flags milestones that would benefit from additional contingency planning.

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