

# How to make coal mining sustainable

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Notwithstanding the optimism over renewables displacing fossil fuels rapidly, coal will continue to dominate India's electricity generation for at least a couple of decades more. Given this scenario, how can we ensure that the coal sector incorporates sustainability — with regard to social aspects, economic dependencies, and ecological sensitivities — into the mining process, right from the planning stage?

Coal fuelled approximately three-fourths of the country's electricity generation in FY 2018-19. In addition to electricity generation, it is also a vital input for other core industries like steel and cement, which play a critical role in the country's development. Despite being the world's second-largest coal producer, India imported 235 million tonnes of coal at the cost of more than ₹1.7 trillion during FY19 (See Chart).

While mining operations have positive economic impacts on the local area in terms of infrastructure development, provision of employment and business opportunities, adverse effects of coal mining on the ecology of the local area are also well known. The changes in the ecosystem of the region are particularly significant in the case of open-cast coal mines, which account for approximately 94 per cent of the coal produced in India. All mining operations entail a temporary diversion of land for mining and allied activities, after which the mine owner must rehabilitate the mined-out land for beneficial use of the local communities.

Therefore, the Ministry of Coal (MoC) mandates every owner of an open-cast coal mine to deposit ₹6,00,000 per hectare of the total project area in annual installments (to be escalated using the wholesale price index from August 2009 onwards) into an escrow account managed by the Coal Controller.

## Final mine closure

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The Coal Mines (Special Provisions) Act, 2015, permits the government to auction coal mines to the private sector for captive and commercial purposes. The government has auctioned 24 coal blocks to private companies till March 2019, and will be further auctioning coal blocks for commercial mining by both Indian and foreign companies.

Government-controlled public sector companies may not have any difficulty in meeting their financial obligations related to the final mine closure. However, there is a risk that some coal mines operated by private companies, or State government entities who outsource their coal mines to private entities, may be closed without having the necessary funds to complete the mine closure activities as per the approved Mining Plans.

The ability to successfully rehabilitate mined-out areas is fundamental to the coal industry's social license to operate. The practice of releasing up to 80 per cent of the escrow amount after every five years, based on progress in indicative activities, may not ensure the availability of adequate funds for final mine closure.

Therefore, India needs more effective and efficient regulatory governance to streamline approvals while ensuring the adoption of advanced technologies for mining, environment protection, and reclamation.

## Unified authority

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In 2014, a high-level committee appointed by the Central government recommended the creation of a National Environment Management Authority, including, *inter alia*, a special cell with appropriate expertise to deal with coal mining.

Coal is a central subject, and government companies produce more than 94 per cent of the coal in India. Therefore, the government must set up an independent, multi-disciplinary unified authority on the pattern of the Director-General of Mines Safety, which is staffed with varied scientific and technological experts required to regulate all matters related to health and safety in the mineral industry.

Such an authority must have in-house professional expertise in the ecological, environmental, geological, mine planning, hydro-geology, biodiversity, and social aspects of coal mine closure to consider all these facets in an integrated manner before granting all key statutory approvals for coal mines.

Once this authority is functional, the role of the MoC in approving Mining Plans, the powers of the Coal Controller to issue Mine Opening/Closing Permissions and manage escrow accounts related to mine closure, and the role of the Ministry of Environment, Forest and Climate Change (MoEF&CC) in issuing environment/forest/wildlife clearances for coal mines, must be handed over to this authority. These steps are critical to remove the overlapping jurisdictions of multiple bodies which govern matters related to forest, environment, and mine opening/closure in India.

While this authority must also be empowered to enforce compliance of these clearances by all coal mines in India throughout operation right up to final closure, it need not be involved in the allotment of coal blocks or in regulating the coal market. Any appeal against an order/decision made by this authority may lie only with the National Green Tribunal.

## Official Code

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To achieve the above goals, the Parliament must enact a "Sustainable Coal Mining Code" to consolidate all statutory provisions governing opening/closing and environment/forest matters related to coal mines. This Code must empower the unified

authority to ensure efficient and effective environmental governance of coal mines in the manner explained above.

Since 1977, the Office of Surface Mining Reclamation and Enforcement (OSMRE) in the US has ensured that mine owners operate their open-cast coal mines in a manner that protects the local communities and the environment during mining, as well as rehabilitate the mined-out land for beneficial use post-mining. Therefore, the OSMRE may also be a role model for the proposed unified authority.

A dynamic equilibrium between environment conservation and development for inter-generation equity is the need of the hour in India. An empowered unified authority for coal mining can ensure effective compliance with all statutes related to mining, environment, forest, and mine opening/closure in coal mines by using remote sensing and GIS-based tools for remote surveillance in conjunction with quarterly inspections of each coal mine.

This authority will also facilitate job creation and contribute to a reduction in coal imports by ensuring “ease of doing business” without compromising on forest and environment compliances.

Ultimately, this will contribute to the realisation of India’s Sustainable Development Goals and facilitate both energy security and sustainability for India during the ongoing energy transition.

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