

Closed Mines: Eco Challenges

Keeping in mind the hazard that mining activity poses to the health of the environment and society, it becomes imperative to have a well thought out mine closure plan in place.

Mining is a temporary activity which involves intermediate use of land. Typically, the operating life of a mine lasts from a few years to several decades, depending upon the natural environment such as weather, soil and quality, excavation of resources mined through the mining, use and availability of land. In India, the mining industry is an important and indispensable contributor to the development of the nation.

Mining operations, though quite essential, usually create a negative environmental impact not only during the ongoing mining activity, but even after the mine has closed. Keeping in mind the hazard that the mining activity poses to the health of the environment and society, it

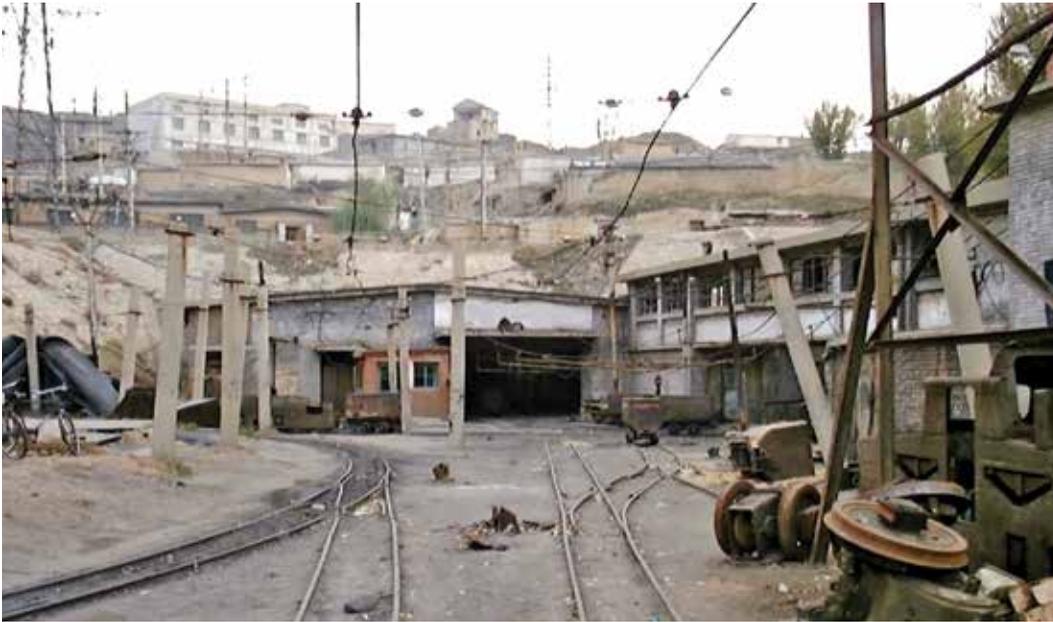
becomes imperative to have a well thought out mine closure plan in place.

Mine closure occurs once the mineable mineral resource at a working mine is exhausted, or operations are no longer viable. In India, the government has set out comprehensive regulations dealing with mine closure. Existing as well as new mining lessees are required to submit the progressive mine closure plan along with prescribed financial sureties and a final mines closure plan prior to the proposed closure of the mine.

Mine closure plans are required by the regulatory agencies in India before a mining permit is granted, and must demonstrate that the site will not pose a threat to the health of the environment or society in the future. Any closure



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plan must consider the long-term physical, chemical, biological and social effects on the surrounding natural systems (aquatic, groundwater, surface water etc.). Steps related to mine closure planning usually include preparation of detailed drawings of disturbed landscape, compilation of baseline information, discussions with regulators and stakeholders with regard to end purpose of land use, formulating of supporting research programmes, and preparation of budgets and schedules to facilitate smooth closure and provisions for adequate financial assurance from the mine owners.

Financial assurance is increasingly required by regulators as a guarantee that the funds required for mine closure will be available in the event that the responsible company is unable to complete the closure as planned.

Mine owners will have to ensure that the protective, reclamation and rehabilitation work in accordance with the final mine closure plan has been carried out before closure of a mine. Where the reclamation and rehabilitation measures as envisaged in the approved mine closure plan in respect of which a financial assurance is given have not been carried out in accordance with the mine closure plan, the government shall be entitled to forfeit the financial assurance given by the mine owners.

Some of the benefits of planned mine closure include identification of high-risk priorities for research or rehabilitation; reduction of ongoing environmental liabilities by progressive rehabilitation, distribution of rehabilitation and closure costs during the productive phase of mining rather than deferral

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to the end of the project, improved access to capital from lending institutions, lower risk of regulatory non-compliances and less regulatory interest, improved access to land resources from governments, greater acceptance by key stakeholders, and reduced, post-closure monitoring and maintenance period for areas rehabilitated earlier during the life of the mine.

Depending on the site, after the life span of the mining operations is over, it may be used for some other purpose or restored to its pre-mining use following closure.

As we progress into the 21st century, there is increasing awareness of the need to provide for sustainability of ecological and social settings in which mines are developed, operated and closed. Effective regulatory framework for mine closure for abandoned mines, operating mines and future mines remains a major challenge for every mining nation in the world.

In order to address the sustainability issue of mining and to strengthen the regulatory framework, the Government of India is working toward effectively handling mine closure in a systematic manner.

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