

3. CHANGING CONTEXT OF MINE CLOSURE - AN INDIAN PERSPECTIVE

3.1 Mineral Legislation in India

In India, specific provisions have been inserted into constitution to ‘protect and improve’ the environment through (Forty–Second Amendment) Act 1976. Forty–Second Amendment adds a new part, that is Part IV, dealing with duty of every citizen of India “to protect and improve” the natural environment. In Article 48A, it is stated that the state shall endeavor “to protect and improve” the natural environment and to safeguard the wild life and forests of the country. Implications of the constitutional provisions are many folds. The state has the responsibility to take measures and to ensure protection and improvement of the natural environment. In the eye of law, a company is an artificial person having duties and responsibilities for the country. So, it is the constitutional responsibility of every company “to protect and improve” the natural environment. Abandonment of mine in unplanned manner indicates dereliction of an important constitutional duty. For the protection of the natural environment, a closure phase in the life of mine is therefore necessary. The closure phase should be environmentally sustainable.

A great majority of provisions, policies, acts, rules and regulations are adopted by the Central Government “to protect and improve” the natural environment.

3.2 Policies, Acts, Rules, Regulations and Circulars

Major policy resolutions, which indicate environment management (Sinha, 2001) are:

- § Indian National Forest Policy 1988.
- § National Industrial Policy 1991.
- § National Conservation Strategy and Policy Statement on Environment Development 1992.
- § Policy Statement for Abatement of pollution 1992.
- § National Mineral Policy 1993.

The recent policy which focuses on environmental management is:

- § National Environmental Policy 2004 (Draft).

Acts, rules and regulations that focus on environment management are:

- § The Coal Mines Regulations 1957.
- § The Mines and Minerals (Development and Regulations) Act 1957 (MMDR) - Section 18 Mineral Development.
- § The Mineral Concessional Rules 1960.
- § The Coal Mines Conservation and Development Act 1974.
- § The Mineral Conservation and Development Rules 1988.

Acts, regulations and circulars that are relevant to mine closure plans are:

- § The Mines and Minerals (Development and Regulations) Act 1957.
- § Regulations 6, 61, 106, 112 of Coal Mines Regulations 1957 and related DGMS Circulars.

3.3 Major Policies

3.3.1 National Environmental Policy 2004

National Environmental Policy 2004 describes the key environmental challenges currently and prospectively facing the country, the objectives and environmental policy, normative principles underlying policy action, strategic themes for intervention, board indications of legislative and institutional development need to accomplish the strategic themes and mechanism for implementation and review.

The National Environmental Policy is intended to act as a guide for regulatory reform, programmes and projects for environmental conservation and review and enactment of legislation, by agencies of the Central, State and Local Governments. It requires partnerships of stakeholders that are public agencies, local communities, investment community in harnessing their respective resources and strengths for environmental management.

The objectives of NEP 2004 (GOI, 2004) are:

- § Conservation of critical environmental resources;
- § Livelihood security for the poor;
- § Inter generational equity;
- § Efficiency in environmental resource use;
- § Enhancement of resources for environmental conservation; and,

- § Environmental governance; Integration of environmental concerns in economic and social development.

The following principles would guide the activities of public agencies, local communities and investment community in relation to NEP 2004 (GOI, 2004):

- § Human beings are at the centre of sustainable development concerns.
- § The right to development must be fulfilled so as to meet developmental and environmental needs of present and future generations.
- § Environmental protection is an integral part of the development process.
- § Where there are credible threats of serious damage to key environmental resources, lack of full scientific certainty shall not be used as a reason for postponing cost effective measures to prevent environmental degradation.
- § Economic efficiency would be sought to be realized in various public actions for environmental conservation.
- § Legal liability may be viewed as an embodiment in legal doctrine of the ‘polluter pays’ approach.
- § It is preferable to prevent environmental damage from occurring in first place rather than taking necessary action to restore degraded environmental resources after the fact.
- § Environmental standard setting must reflect the economic and social development situation. Standards adopted in one society may be unacceptable in other society. Setting would involve considerations like: risks to human health, environmental entities and strategic considerations.
- § Decentralization involves transfer of power from central authority to state or local authorities in order to empower public authorities having jurisdiction at the spatial level at which particular environmental issues are salient, to address these issues.
- § Equity norms must be distinguished according to context, that is, ‘procedural equity’ relating to fair rules for allocation of entitlements and obligations, and ‘end result equity’ relating to fair outcomes in terms of distribution of entitlements and obligations.
- § Cost effective of felling measures most be undertaken.

- § Besides some unique natural and manmade entities, which may impact the well being broadly conceived of large number of persons, significant risks to human health, life and environmental life support systems, may be considered as “Incomparable”.
- § Integration refers to the inclusion of environmental considerations in sectoral policy making, the integration of the social and natural sciences in environmental related policy research and strengthening of relevant linkages among various agencies, charged with the implementation of environmental policies.
- § The state is merely a trustee of all natural resources, which are by nature meant for public use and enjoyment, necessary to protect the legitimate interest of a large number of people or for matters of strategic national interest.

3.3.2 National Mineral Policy

First Industry Policy came in to picture in the year 1948 in the form of National Policy for Mines and Minerals. At the first industrial policy, mining sector did not receive due attention. In the second industrial policy 1956, mining sector received due attention. For mining sector, National Mineral Policy formulated in August 1990 was the first comprehensive national policy.

National Mineral Policy 1993

Aspects that constitute the essentials of national minerals policy are:

- § Minerals are valuable natural resources and have finite life and are non renewable. Management of mineral resources has, therefore, to be closely integrated with the overall strategy of development and the exploitation of minerals is to be guided by long-term national goals and perspectives.
- § The country is not endowed with the requisite minerals. It is therefore imperative to achieve the best use of minerals. For this, the actions like scientific method of mining, economic utilization and beneficiation are necessary.
- § It has to be seen that the mineral resources should fulfill the need of present and future.
- § Mineral exploration in the sea-bed, development of proper inventory, proper linkage between exploitation of minerals and development of mineral industry, preference to members of scheduled tribes for development of small deposits in

scheduled areas, environment and ecology from the adverse effects of mining, enforcement of mining plan for adoption of proper mining methods, optimum utilization of minerals, export of minerals in value added form and recycling of metallic scrap and mineral waste and protection of forest should be done.

The objectives of NMP (GOI, 1993) are:

- § To develop mineral resources taking into account the national and strategic considerations;
- § To insure minerals adequate supply and best use keeping in view the present needs and future requirements;
- § To promote research and development in minerals;
- § To promote necessary linkages for smooth and uninterrupted development of the mineral industry to meet the needs of the country;
- § To minimize adverse effects of mineral development on the forest, environment and ecology through appropriate protective measures;
- § To ensure conduct of mining operations with due regard to safety and health of all concerned;
- § To explore for identification of minerals in land and offshore areas; and,
- § To insure establishment of appropriate educational and training facilities for human resources development to meet the manpower requirements in mineral industry.

According to NMP 1993, the key points of strategy of mineral development are:

- § Conservation and mineral development;
- § Scientific methods of exploitation;
- § Productivity norms;
- § Mineral processing and beneficiation;
- § Recycling of metallic scrap and mineral wastes;
- § Mining equipment and machinery;
- § Manpower development;
- § Linkages;
- § Dissemination of information on technological changes;
- § Infrastructural facilities and regional development;

- § Financial support for mining;
- § Small deposits;
- § Mineral development and protection of environment;
- § Mines safety;
- § Rehabilitation of mines closures; and,
- § Rehabilitation of displaced persons.

The National Mineral Policy 1993 expresses the government intent towards mine closure in the following statement: “Mineral deposits being exhaustible, once the process of economic extraction of mine is complete, there is need of its closure. Especially, where the minerals activities have been spread over a few decades, mining community get established and closure of mine means not only loss of jobs but also disruption of community life. Wherever mine closure becomes necessary, it should be orderly and systematically done. It should be so planned as to help the workers and dependents community rehabilitate themselves without undue hardship.”

Non-atomic and non-fuel minerals are covered by National Mineral Policy 1993. In comparison to the earlier policies, it has the difference by opening the door for mineral sector to private companies. It allows equity participation by foreign companies in joint venture in mining.

3.3.3 National Conservation Strategy and Policy Statement on Environment and Development 1992:

The main aim behind National Conservation Strategy 1992 is to admit environmental considerations into the system of development process through guidelines. It also indicates that making judicious and sustainable use of natural resources fulfills the basic needs of people. For sustainable development, conservation is identified as main element. The objectives of National Conservation Strategy 1992 include, among others, the following:

- § For meeting the basic needs of both present and future generation, sustainable and equitable use of resources;
- § In order to minimize adverse effects on environment, proper siting of development projects;
- § Restoration and reclamation of ecologically degraded areas; and,

§ Prevention and control of future deterioration of land, water and air.

To fulfill the objectives, the following instruments of action have been identified (Sinha, 2001):

- § To ensure that all projects above a certain size and in certain ecologically sensitive areas should require compulsory prior environmental clearance;
- § To carryout EIA of all development projects right from the planning stage and integrating it with their cost-benefit considerate. Appropriate costs of environmental safeguards and regeneration would continue to form an integral part of projects;
- § To incorporate environmental safeguards and protection measures, in policies, planning, site selection, choice of technology and implementation of development projects like agriculture, water resource development, industry, mineral extraction and processing, energy, forestry, transport and human settlements;
- § To encourage research, development and adoption of environmentally compatible technologies and to promote application of the modern tools of science and technology for conservation, bridging of large gaps in supply and demand as well as control and monitoring natural resource;
- § To create environmental consciousness through education and mass awareness programmes;
- § To elicit and ensure participation of people in programmes for environmental improvement and for integrating the environmental concerns in planning and implementation of development programmes;
- § To develop appropriate organizational structures and a pool of professional manpower to serve as the cadre for environmental management service;
- § To aim at moderation process of demand unleashed by the developmental process itself by taking measures to recycle waste materials and natural resources, conserve energy, conserve use of natural resources in industrial products by measures like wood substitution and generally try to reach moderation in lifestyles consistent with sustainability and human dignity; and,

- § To effectively implement the various environmental laws and regulations for environmental protection through creation or strengthening of the requisite enforcement machinery.

The important strategies of National Conservation Strategy 1992, on mine closure planning are:

- § Framing of laws for proper use of land in order to protect the soil from degradation, erosion and pollution;
- § To take necessary action for preventing wind erosion;
- § To check the condition of surface and ground water for various uses by the help of legislations;
- § Taking appropriate measures for prevention and control of pollution due to disposal of solid wastes, hazardous substances and effluents in land and water courses;
- § Making framework for proper use of land and water;
- § Reclamation and Restoration of mined areas, salt affected soils, weed-infested areas, grazing lands; and,
- § Based on nature of land and environment considerations, classification, apportionment and zoning of land for designated uses like forestry, agriculture, industrial activities, human settlements, and grassland green areas.

3.3.4 National Forest Policy

In 1894, first forest policy came into picture with the objectives like:

- § Set up a system of commercial logging;
- § Maintain forest cover;
- § Local people need fulfillment with respect to forest based things;
- § Preservation of climatic condition; and,
- § Preservation of physical condition.

In 1952 (12th May), first forest policy of independent India was enunciated with objectives like:

- § To strike a balance between forest product and forest depletion, evolution of a system for appropriate land use;

- § Classification of forests based on function such as: village forests, national forest, protected forests, etc;
- § Framing regulation of excessive grazing and uncontrolled grazing on forest land; and,
- § Not supporting things like conversion of forestland to agricultural land.

As a follow up to the above policy some measures were taken but it was observed that forests have suffered depletion. In 1988, causes for the depletion were identified. The causes (GOI, 1988) were:

- § Conversion of forest land to some other purposes like agricultural land without ensuring environmental safeguards and compensatory afforestation;
- § Issues like demand for fuel- wood, timber arising;
- § Inadequacy protection measures; and,
- § Tendency to look upon forests as revenue earning resource.

National Forest Policy 1988

Environmental stability and maintenance of ecological balance is the principal objective of National Forest Policy 1988.

The basic objectives of National Forest Policy 1988 (Sinha, 2001) are:

- § To meet national needs, increasing the productivity of forests;
- § Try to maximize substitution of wood;
- § Encouraging proper utilization of forest produce;
- § Try to fulfill the requirements of fuel wood, minor forests produce and small timber of the tribal and rural population;
- § Checking the extension of sand-dunes in the desert of Rajasthan and along the coastal tracts;
- § To achieve the objectives and to minimize pressure on existing forests, creating people's involvement;
- § Maintenance of stability of environment through preservation;
- § Restoration of ecological balance, if necessary;
- § By preserving the remaining natural forests, conserving the natural heritage of the country;

- § Try to increase the forest by massive afforestation and programmes related to forest such as: social forestry programmes; and,
- § Checking soil erosion and denudation in the catchment areas of rivers, reservoirs, lakes, etc.

3.4 Major Acts, Rules, Regulations and Circulars

3.4.1 Mines and Minerals (Development and Regulations) Act 1957

As a follow-up measure to Industrial Policy Resolution of 1956, the MMDR Act 1946 was repealed and MMDR Act 1957 was enacted. Two rules: Mineral Concession Rules 1960 and the Mineral Conservation and Development Rules 1958 were framed under MMDR Act 1957.

MMDR Act was drastically amended in 1987 to incorporate some important provisions relating to environment protection. The amendments in the MMDR Act were followed by significant modifications of the MCR 1988

The relevant provisions of the MMDR Act are:

- § In the interest of preservation of natural environment mining lease or prospecting license may be prematurely terminated.
- § Unless particular authority approves mining plan, mining lease cannot be granted.
- § For protection of environment, the Central Government is duty bound to take necessary steps by preventing or controlling any pollution caused by prospecting or mining operations,
- § The Central Government is empowered to make rules for, among other things, the following: (a) tailing disposal and b) control at pollution due to mining.

Mineral Conservation and Development Rules 1988

The fifth chapter of MCDR 1988 comprises eleven rules. Provisions of all eleven rules are intended for environmental protection.

Such provisions include: protection of environment, removal and utilization of top soil, storage of overburden, waste rock, etc., reclamation and rehabilitation of lands, precaution against ground vibrations, control of surface subsidence, precaution against air pollution, discharge of toxic liquid, precaution against noise, permissible limits and standards and restoration of flora.

The key points of MCDR 1988 are:

- § Prospecting license or a mining leaseholder shall take all necessary precautions for the protection of environment and control of pollution while conducting prospecting, mining, metallurgical operations in the area.
- § Prospecting license or a mining lease holder shall take steps so that the overburden, waste rock, rejects and fines generated during prospecting and mining operations or tailings, slimes and fines produced during sizing, sorting and beneficiation or metallurgical operations shall be stored in separate dumps in safest manner and wherever possible, the waste rock, overburden etc. shall be back-filled into the mine excavations.
- § Prospecting license or a mining leaseholder shall undertake the phased restoration, reclamation and rehabilitation of lands affected by prospecting or mining operations. Before the conclusion of such operations and the abandonment of prospect or mine, this work should be completed.
- § Prospecting license or a mining lease holder shall carry out prospecting or mining operations, as the case may be, in such a manner so as to cause least damage to the flora of the area, take immediate measures for planting in the same area or any other area selected by the Controller General or the authorized officer not less than twice the number of trees destroyed and look after them during lease after which these trees shall be handed over to the State Forest Department or any other authority as may be nominated by the Controller General or the authorized officer.

Mineral Conservation and Development (Amendment) Rules 2003

According to Mineral Conservation and Development (Amendment) Rules 2003,

- a) “Abandonment of mine” means final closure of a mine either whole or part thereof when the mineral deposits within mine or part thereof, have been fully extracted or when the mining operations have become uneconomic;
- b) “Final mine closure plan” means a plan for the purpose of reclamation, decommissioning and rehabilitation in the mine or part thereof after cessation of mining and mineral processing operations that has been prepared in the manner

- specified in the standard format and guidelines issued by the Indian Bureau of Mines;
- c) “Financial assurance” means the sureties furnished by the leaseholder to the competent authority so as to indemnify the authorities against the reclamation and rehabilitation cost;
 - d) “Mine closure” means steps taken for reclamation, rehabilitation measures taken in respect of a mine or part thereof commencing from cessation of mining or processing operations in a mine or part thereof; and,
 - e) “Progressive mine closure plan” means a progressive plan, for the purpose of providing protective, reclamation and rehabilitation measures in a mine or part thereof that has been prepared in the manner specified in the standard format and guidelines issued by Indian Bureau of Mines.

According to Mineral Conservation and Development (Amendment) Rules 2003, every mine shall have mine closure plan, which shall be of two types. They are: 1) Progressive mine closure plan and 2) A final mine closure plan.

The key points with respect to progressive mine closure plan are:

- § The owner, agent, manager or mining engineer shall submit a progressive mine closure plan to Regional Controller of Mines or officer authorized by the State Government.
- § The owner, agent, manager or mining engineer shall review the progressive mine closure plan in every five years.
- § The officer authorized by State Government or Regional controller of Mines shall convey approval or refusal for the mine closure plan within 90 days of its receipt.
- § If the refusal or approval is not conveyed, then the progressive mine closure plan shall be deemed to have been provisionally approved.

The key points with respect to submission of final mine closure plan are:

- § The owner, agent, manager or mining engineer shall submit final mine closure plan to Regional Controller of Mines or officer authorized by the State Government for approval before one year to the proposed mine closure.
- § Within 90 days, the Regional Controller of Mines or the officer authorized by the State Government shall convey approval or refusal of the final closure plan.

§ The final mine closure plan shall be deemed to have been provisionally approved, if approval or refusal is not conveyed.

According to Mineral Conservation and Development (Amendment) Rules 2003, for the modification of mine closure plan, the holder of the mining lease shall submit to the Controller General in this behalf. The modifications come into action only after the approval of Controller General and alterations (he may consider) shall be included.

In MCDR (amendment) 2003, the holder of the mining lease shall have the responsibility for taking protective measures, contained in mine closure plan. The holder or the mining lease shall have the responsibility for carrying out works like reclamation and rehabilitation. Owner, agent, manager or mining engineer shall submit a yearly report before 1st July of every year to the Regional Controller of Mines or the officer authorized by the State Government. If any change is there, the reasons shall be submitted to the Controller of Mines or officer authorized by the State Government.

According to Mineral Conservation and Development (Amendment) Rules 2003, financial assurance, has to be furnished by every lease holder in terms of Rs.25, 000/- for category ‘A’ and Rs. 15,000/- for category ‘B’ mines, per hectare of mining lease area. The minimum amount for category ‘A’ shall be of rupees two lakh and the minimum amount for category ‘B’ shall be of rupees one lakh.

[Note: Fully mechanized category ‘A’ mines which shall be such mines where the work is being carried out by deployment of heavy machinery for deep hole drilling, excavation, loading and transport, and average employment exceeds one hundred and fifty in all or seventy-five below ground. In the case of any other mine, referred to as category ‘B’ mine.]

The financial assurance shall be submitted through performance or surety bond or letter or credit from any scheduled bank or trust fund build up through annual contributions from the revenue generated by mine and based on expected amount sum required for abandonment of mine or any other form of security or any other guarantees acceptable to the authority to Regional Controller of Mines or the officer authorized by the State Government.

Before executing the mining lease deeds, the leaseholder shall submit the financial assurance to the Regional Controller of Mines or the officer authorized by the State

Government. But for existing mining lease, the financial assurance along with progressive mine closure plan shall be submitted.

Upon the notice given by the leaseholder for the satisfactory compliance and certified by the Regional Controller of Mines or the officer authorized by the State Government, release of financial assurance shall be effective.

The Regional Controller of Mines or the officer authorized by the State Government shall give notice to leaseholder of his intention to issue the orders for forfeiting the assured sum before 30 days, if the Regional Controller of Mines or the officer authorized by the State Government has reasonable grounds that reclamation and rehabilitation measures as mentioned in approved mine closure plan has not been/ will not been carried out properly. If no satisfactory reply has been received within thirty days, the Regional Controller of Mines or the officer authorized by the State Government shall pass an order for forfeiting the surety amount. Upon the issuance of order, the State Government may realize any credit or bonds obtained or provided as financial assurance for the purpose of protective, reclamation, rehabilitation and shall carryout those measures or appoint an agent for this purpose.

Mineral Concession Rules 1960

According to Mineral concession Rules 1960, the key points are:

- § The lessee shall not determine the lease except after notice in writing of not less than twelve calendar months to the State Government or to such officer, or authority as the State Government may specify in this behalf.
- § Where a lessee holding a mining lease for a group of minerals applies for the surrender of any mineral from the lease on the ground that deposits of that mineral have since exhausted or depleted to such an extent that it is no longer economical to work the mineral, the State Government may permit the lessee to surrender that mineral. But for this the following conditions should be satisfied, namely: the lessee applies for such surrender of mineral at least six months before the intended date of surrender; and the lessee gives an undertaking for not causing any hindrance in the working of the mineral so surrendered by any other person who is subsequently granted a mining lease.

- § Surrender of the lease area by the lessee shall be permitted only thrice during the period of the lease on fulfilling the conditions:(i) that at least a period of five years has elapsed since the last surrender; and (ii) that the provisions have been complied with the mining plan including the environment management plan.

Mineral Concession (Amendment) Rules 2003

According to Mineral Concession (Amendment) Rules 2003, 29A, the key points are:

- § The lessee shall not determine the lease unless a final mine closure plan duly approved by the Regional Controller or the officer authorized by the State Government.
- § The lessee shall not be required to obtain a certificate from the Regional Controller of Mines or the officer authorized by the State Government to the effect that protective, reclamation and rehabilitation work in accordance with the approved mine closure plan have been carried out by the lessee.

3.4.2 Coal Mines Regulations 1957

Regulations that are relevant to mine closure in Coal Mines Regulations 1957 are: 6, 61, 106 & 112.

Regulation 6: Notice of abandonment or discontinuance.

According to Regulation 6 of CMR 1957, the key points are:

- § When it is intended to abandon a mine for a period exceeding 60 days, the owner, agent or manager shall not less than 40 days before such abandonment give to the Chief Inspector and the regional inspector a notice stating the reasons.
- § When a mine has been abandoned over a period exceeding 60 days, the owner, agent or manager shall within seven days of the abandonment give to the Chief Inspector, the regional inspector and District Magistrate, notice in Form I.

Regulation 61: Plans and sections to be submitted after discontinuance.

According to Regulation 61 of CMR 1957, the key points are:

- § Where any mine is abandoned over a period exceeding 60 days, the owner of the mine within 30 days after the abandonment submit to the Chief Inspector two true copies of the up-to date plan and sections of the working.
- § The original or a certified true copy of the plan and section submitted shall be kept in the office at the mine.

Regulation 106: Protective works before a mine is closed.

According to Regulation 106 of CMR 1957, the key points are:

- § The chief Inspector may, by an order in writing, require the owner of any mine to which regulation that is notice of abandonment or discontinuance applies such protective measures within such time he may specify therein.
- § If the owner fails to construct such protective works within specified time, the Chief Inspector may get the works executed by any other agency and the cost as certified by Chief Inspector shall be defrayed by the owner of the mine and recoverable from him as an arrear of land revenue.

Regulation 112: Fencing and gates.

According to Regulation 112 of CMR 1957, the key points are:

- § Open cast workings temporarily or permanently out of use and any place in or about an excavation, which is dangerous, shall be completely filled in or kept securely fenced.
- § Before a mine is abandoned, the owner, agent or manager shall cause the entrance into the mine to be fenced by a structure of a permanent character sufficient effectively to prevent persons falling into or entering the same.
- § Every entrance from a roadway in a mine for the time being is neither being worked nor being used shall be provided with fence, barrier or gate.

D.G.M.S. Circulars

Circulars of regulations 6 & 61 of CMR 1957 are relevant to mine closure.

CMR 6 (Cir. 37/1973):

According to this, the key point is:

- § In case of pumping operations in disused shafts prior information should be sent to the D.G.M.S. and pumping shall not be started without making arrangements for mechanical ventilation.

CMR 61 (Cir. 7/1967):

According to this, the key points are:

- § It is very essential to have up-to-date and complete plans of the abandoned working at a mine in the interest of safety of person employed in the neighbouring

mine as well as the public. Their non-submission constitutes a serious violation and also a continuing offence so long as it is not remedied and complied with.

- § When any mine is abandoned over a period exceeding 60 days, the owner of the mine is required to submit within 30 days of abandonment to the D.G.M.S. two copies of “Abandoned Mine Plan” and sections. These are, infact, true copies of up-to-date plan and section with additional information regarding location of mine.
- § It is advised that these AMP be submitted to the Dy. Director General of Mines Safety of the concerned zone in order to cut down procedural delay in processing and recording the AMPs.