

## 8. ENVIRONMENTAL AND FOREST LEGISLATION RELATING TO MINES

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### 8.1 EARLY ENVIRONMENTAL LEGISLATION IN FREE INDIA

The Factories Act, 1948 can be considered as the pioneer among the post-independence enactments, which contains substantial provisions for the control of environmental pollution. The Factories Act emphasis that liquid effluents, gases and fumes generated during a manufacturing process should be treated prior to their final disposal to minimize their adverse effects. This has been applicable to mineral beneficiation plants and mineral based industries, though not in the mines.

In pursuance of the recommendations of the Stockholm Conference in 1972, India came out with independent legislation called Water (Prevention and Control of Pollution) Act, 1974 and The Air (Prevention and Control of Pollution) Act, 1981. The Article 48 of the Indian Constitution was amended by 42<sup>nd</sup> Amendment Act, 1976 and the following was inserted :

48-A : "Protection and improvement of environment and safeguarding of forests and wild life", thus casting an obligatory duty on the part of the State to protect the environment and to safeguard the forests and wild life of the country. To make it effective this Act has amended the Seventh Schedule of the Constitution by inserting entry "17-A Forests" and entry "17-B Protection of wild animals and birds", in the concurrent list III. Protection and improvement of natural environment including forest, lakes, rivers and wild life and to have compassion for living creatures has included in the list of fundamental duties of every citizen of India.

So far as mining industry is concerned, the first significant step to formulate guidelines for integrating environmental concerns with the exploitation of mineral resources was to constitute a Working Group on "Mining and the Environment" set up by the then Environmental Division of the Department of Science and Technology of the Government of India which was later transformed into a full fledged Ministry of Environment & Forests (MOEF). This working Group which consisted of a number of experts from the related fields including one from the IBM was headed by an eminent mining engineer. The recommendations of this Group, submitted in 1981, were later published by the Department of Environment entitled "Environmental Management of Mining Operations", the first of its kind in the country.

### 8.2 ENVIRONMENTAL (PROTECTION) ACT 1986

The Act was promulgated as a comprehensive umbrella legislation setting for the general powers of the Central Government. The Act recognises air, water and land as three important constituents of environment in any area. The physical, chemical and biological conditions of these constituents are the direct measure of the environmental pollution in the area. The Act applies to the whole of India.

"Under Sec. 10 and 11 of the Act, the Central Government has empowered the Controller General, Chief Controller of Mines, Regional Controller of Mines and Deputy Controller of Mines of IBM to enter any mine, examine and test and seize any equipment, industrial plant record, register, document, take samples of air, water, soil or other substances, for the purpose of administering the various provisions of the Act in Mines, Vide S.O. 83 (E) and S.O. 84 (E) respectively dated 6<sup>th</sup> February, 1987.

Under Sec. 12 of the Act, the Central Government has recognised the IBM as one of the environmental laboratories vide Gazette Notification No. S.O. 803(E) dated 23.9.92 issued by the CPCB, New Delhi, for testing of sample of air, water, soil and other substances”

### 8.3 THE ENVIRONMENT (PROTECTION) RULES, 1986

The Environment (Protection) Rules, 1986, which were notified shortly thereafter specified the standards for emission or discharge of the pollutants. The Environment (Protection) Rules, 1986, were again amended in 1987 which were notified by the Central Government as Environment (Protection) Amendment Rules, 1987. These rules contained certain provisions relating to mines which are defined as such under the Mines & Minerals (Regulation and Development) Act, 1957. They stipulate that certain designated officers of the IBM have to be intimated if the discharge of any environmental pollutant in excess of the standards occurs or is apprehended to occur. These rules specified further that so far as mines are concerned, the same officers of the IBM, under section 10 of the Parent Environment (Protection) Act, 1986, shall have a right to enter at all reasonable times for the purpose of performing any of the functions of the Central Government entrusted to them which include examination and testing of any equipment, industrial plant, record, register, document or any other material object. They are also authorised to conduct a search of any building and seizure of any equipment, industrial plant, record, registers, documents, etc. for the purpose of analysis, samples of air, water, soil or other substance from any mine or a mineral beneficiation plant under section 11 of the parent Act referred to earlier and the authorised officers for this purpose have also been notified in EPR (Amendment) Rules, 1987. Rule 3 of EPR, 1986, stipulates permissible standards of emission in certain industries related to mining which have been furnished in Annexure-9.

### 8.4 SPECIFIC LEGISLATION RELATING TO ENVIRONMENTAL PROTECTION IN MINES

#### *Mines & Minerals (Development & Regulation) Act, 1957*

In 1986, the then Mines & Minerals (Regulation & Development) Act, 1957, referred to later as MM (D&R) Act, was drastically amended to include specific provisions relating to protection of environment in mines. Certain provisions for premature termination of prospecting licenses or mining leases were incorporated in the amended Act for preservation of natural environment and prevention of pollution among others. Requirement of a “Mining plan” for fresh grant or renewal of any mining lease was incorporated in the amended Act.

The important provisions of mine environment are dealt with in this Act as enumerated below :

*Sec. 4.A(1) :* Where the Central Government, after consultation with the State Government, is of opinion that it is expedient in the interest of regulation of mines and mineral development, preservation of natural environment, control of floods, prevention of pollution, or to avoid danger to public health or communications or to ensure safety of buildings, monuments or other structures or for conservation of mineral resources or for maintaining safety in the mines or for such other purposes, as the Central Government may deem fit, it may request the State Government to make a premature termination of a prospecting licence or mining lease in respect of any mineral other than a minor mineral in any area or part thereof, and, on receipt of such request, the State Government shall make an order making a premature termination of such prospecting licence or mining lease with respect to the area or any part thereof.

*Sec. 4.A(2) :* Where the State Government, after consultation with the Central Government is of the opinion that it is expedient in the interest of regulation of mines and mineral development preservation of natural environment, control of floods, prevention of pollution or to avoid danger to public health or communications or to ensure safety of buildings, monuments or other structures or for such other purposes, as the state Government may deem fit, it may, by an order, in respect of any minor mineral, make premature termination of prospecting licence or mining lease with respect to the area or any part thereof covered by such licence or lease.

*Sec. 5(2) :* No Mining lease shall be granted by the State Government unless it is satisfied that – (b) there is a mining plan duly approved by the Central Government or by the State Government, in respect of category of such mines as may be specified by the Central Government, for the development of mineral deposits in the area concerned.

*Sec.18(1) :* It shall be the duty of the Central Government to take all such steps as may be necessary for the conservation and systematic development of minerals in India and for the protection of environment by preventing or controlling any pollution which may be caused by prospecting or mining operations and for such purposes the Central Government may, by notification in the Official Gazette, make such rules as it thinks fit.

*Sec.18(2) :* In particular, and without prejudice to the generality of the foregoing power, such rules may provide for all or any of the following matters, namely.

(k) The disposal or discharge of waste slime or tailings, arising from any mining or metallurgical operations carried out in a mine.

(i) The manner in which and the authority by which directions may be issued to the owners of any mine to do or refrain from doing certain things in the interest of conservation or a systematic development of minerals or for the protection of environment by preventing or controlling pollution which may be caused by prospecting or mining operations.

#### *Mineral Concession Rules, (MCR) 1960*

These rules framed under the MM (R&D) Act, 1957 and thereafter requires that the 'mining plan' shall incorporate amongst others, a plan of the area showing the water courses, limits of reserved and other forest areas, density of trees, if any, assessment of impact of mining activity of forest, land surface and environment including air and water pollution, details of scheme of restoration of the area by afforestation, land reclamation use of pollution control devices and such measures as may be directed by the Central or the State Government from time to time. All these requirements are incorporated in an environment management plan which is an integral part of a mining plan.

#### *Mineral Conservation & Development Rules, 1988*

These rules were also framed under the parent MM (R&D) Act replacing the earlier rules of 1958 and they pertain to the mining leases already granted under MM (D&R) Act and MCR.

The rules provide for generation of environmental baseline data even before the commencement of prospecting operations and preparation of an environmental management plan incorporating proposals for the prevention and control of air and water pollution, progressive reclamation and rehabilitation of the land disturbed by prospecting operations, a scheme of plantation of trees and such other measures as may be directed from time to time for minimising the adverse effect of prospecting operations on the environment.

These rules contain an entire chapter devoted to "Environment". There are as many as eleven provisions in this particular chapter. They include storage and utilisation of top soil, storage of overburden, waste rock, etc., reclamation and rehabilitation of lands, precautions against ground vibrations, control of surface subsidence, precautions against air and noise pollution, discharge of toxic liquids and restoration of flora.

Implementation of all these provisions is monitored by the Inspecting Officers of the IBM during the periodic inspections of mines. Based on these inspections violations of the relevant provisions are pointed out by the Inspecting Officers and prosecutions have also been launched to secure compliance.

## **8.5 MINE CLOSURE PLAN**

Mining is one of the industrial enterprises that are known to have in advance a finite life. It is, therefore, necessary to plan and design the new mines with their closure in mind and in case of existing mines to revise their operational procedures to allow the Reclamation & Rehabilitation (R&R) measures, easier to achieve, that is, "to design for a closure". It is expected that all areas disturbed by the operations will be rehabilitated for proper use.

India being a developing country, the problems faced with respect to mine closure operations are not purely of economic concern but rather the use and familiarity with proper techniques, management policies and practices to reduce the environmental impact, for a sustainable development. Though the percentage of land affected by mining in India is relatively small, their concentrations as well as location in some environmentally fragile areas makes the situation grim and requires large-scale Reclamation & Rehabilitation (R&R) measures. The problems on land degradation are mainly due to quarrying, waste dumping and development of infrastructures with respect to their effect on forest growth, agriculture and water resources.

It is now realised that exploitation of the mineral deposit in Eco-friendly manner is possible with suitable R&R measures. Reclamation is the process by which pre-mining land use can be re-established under similar conditions, whereas the rehabilitation is the process used to mitigate impacts of mining on the environment.

To achieve the above object of R & R policy, the Central Government vide Notification No. GSR 329 (E) dated 10.04.2003 and No. GSR 330 (E) dated 10.04.2003 amended the Mineral Concession Rules, 1960 and Mineral Conservation and Development Rules, 1988, respectively. As per these amendments all the existing mining lessees are required to submit the "Progressive Mine Closure Plan" along with prescribed financial sureties within 180 days from date of notification. Further, the mining lessee is required to submit "Final Mine Closure Plan" one year prior to the proposed closure of the mine. In the notification it has been enumerated that the "Progressive Closure Plan" and the "Final Closure Plan" should be in the format and as per the guidelines issued by the Indian Bureau of Mines.

Mine closure encompasses rehabilitation process as an ongoing programme designed to restore physical, chemical and biological quality disturbed by the mining to a level acceptable to all concerned. It must aim at leaving the area in such a way that rehabilitation does not become a burden to the society after mining operation is ceased. It must also ensure to create a self-sustained eco-system.

Mine closure operation is a continuous series of activities starting from day one of the initiation of mining project. Therefore, progressive mine closure plan will be an additional chapter in the present mining plan and will be reviewed every five years in the Scheme of Mining. As progressive mine closure is a continuous series of activities, it is obvious that the proposals of scientific mining have had included most of the activities to be included in the progressive mine closure plan.

Final mine closure plan as per statute, shall be considered to have its approval at least nine months before the date of proposed closure of mine. This period of nine months is reckoned as preparatory period for final mine closure operations. Therefore, all proposals for activities which have to be carried out after production of mineral from the mine or milling is ceased, shall be included in the final mine closure plan. The final mine closure plan will thus be a separate document.

## **8.6 RESTRICTIONS ON MINING OPERATIONS IN COASTAL REGULATION ZONE**

A notification under Section 3(1) and section 3(2)(v) of the Environment (Protection) Act, 1986 and the Rule 5(3) (d) of the Environment (Protection) Rules, 1986 declaring the coastal stretches as Coastal Regulation Zone (CRZ) and imposing restrictions on industries, operations and processes in the CRZ was published vide S.O.No. 944(E), dated 15<sup>th</sup> December, 1990. The Ministry of Environment & Forests issued a notification No.SO 114(E) dated 19<sup>th</sup> February, 1991, under the Environment (Protection) Act and the Rules made thereunder. The coastal stretches of seas, bays, estuaries, creeks, rivers and backwaters which are influenced by tidal action (in the landward side) up to 500 metres from the High Tide Line (HTL) and the land between Low Tide Line (LTL) and the HTL has been declared as Coastal Regulation Zone (CRZ) and certain restrictions imposed on setting up and expansion of industries, etc. including mining of sands, rocks and other substrata materials except those rare minerals not available outside the CRZ areas. Dredging and underwater blasting in and around coral formations are also not permitted.

While some of the iron ore and silica sand mines of Goa, and Maharashtra have come under ban under this notification, the coastal states have been advised to prepare Coastal Management Plans as a prelude to this Notification.

## **8.7 ENVIRONMENTAL AUDIT**

Environmental Auditing is defined by the International Chamber of Commerce as "a management tool comprising a systematic, documented, periodic and objective evaluation of how well environmental organisations, management and equipment are performing with the aim of helping to safeguard the environment by:

- (a) Facilitating management control of environmental protection
- (b) Assessing compliance with company policies which would include muting regulatory requirements.

### ***Industries which require Environment Auditing***

A gazette notification on environmental audit had been issued by the Ministry of Environment and Forests on 13<sup>th</sup> March 1992 (amended vide notification GSR 386 (E) dated 22 April 1993). This notification applies to every person carrying on an industry, operation or process requiring consent to operate under Section 25 of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974) or under section 21 of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981), or both, or authorisation under the Hazardous Wastes (Management and Handling) Rules, 1989, issued under the Environment (Protection) Act, 1986 (29 of 1986). The notification requires that an Environmental Statement for the financial year ending on the 31<sup>st</sup> March be submitted to the concerned State Pollution Control Board on or before the 30<sup>th</sup> September of the same year. This audit report is required to be submitted in a prescribed format (FORM V appended as Annexure-10) by 30<sup>th</sup> September each year for the relevant financial year ending 31<sup>st</sup> March. The word 'audit report' were later substituted by the word "statement".

Environmental Audit conducted for a mine should address the following aspects which should be regarded as a pragmatic management tool.

- (a) control of any water coming from the mines whether seepage or waste-water from processing.
- (b) Regenerate degraded land through proper rehabilitation programme
- (c) Dust nuisance
- (d) Disposal/utilisation of solid waste generated
- (e) Health and safety audit
- (f) Review of major regulations connected with mines and minerals

An Environmental Audit enables to take a look at the mining site and that for a mining sector is required to be conducted in three stages :

Stage 1	:	Pre audit activities
Stage 2	:	On-site activities
Stage 3	:	Post audit activities

### **8.8 PROHIBITION OF MINING OPERATIONS IN ECOLOGICALLY FRAGILE AREAS**

The task force set up by the Government of India has identified a number of areas/ecosystems as ecologically fragile areas where mining cannot generally be recommended. While it is a continuous process, a list of such areas has been furnished in Annexure-11.

Limestone mining in the ecologically fragile Doon valley in the State of Uttar Pradesh has been prohibited under orders from the Hon'ble Supreme Court, the apex court of the land. Only a couple of mines which are in operation at present will also be closed down on expiry of their respective periods for which leases had been granted for

mining. A Monitoring Committee has been appointed under the orders of the Supreme Court to oversee.

The Aravalli Range covering the northern states of Rajasthan and Haryana, is yet another ecologically sensitive area where mining operations (including renewals of mining leases) have been prohibited under a Notification No. S.O. 319 (E) dated 7<sup>th</sup> May, 1992 has been issued by the MOEF, prohibiting all mining operation amongst others. Any person desirous to undertake any mining operations in the said areas shall submit an application to the Secretary, Ministry of Environment & Forests, New Delhi, in a prescribed application form specifying inter alia, the details of the area and the proposed process or operation duly supported by an EIS and EMP and such other information as may be required by the Central Government.

Mining operations in all areas of Sariska National Park and Sariska Sanctuary notified under the Wild Life (Protection) Act, 1972, situated in the State of Rajasthan have been prohibited except with prior permission of the Central Government as they pose a threat to ecology of the area and to wild life vide notification referred to in the preceding paragraph.

Blasting in limestone mines in Sirmur district Himachal Pradesh in northern India have been prohibited under orders of the Hon'ble High Court of the state and a Monitoring Committee consisting of experts had been constituted to oversee the implementation of High Court's order. It is claimed that blasting is not suitable in these mines because of their proximity to roads, agricultural fields and habitation. The vibration caused by the blasts can cause destabilisation of hill slopes resulting in landslides besides causing diversion of ground water leading to drying up of springs.

#### **8.9 EXTENT OF APPLICATION OF FOREST (CONSERVATION) ACT, 1980 TO MINING OPERATIONS**

The Forest (Conservation) Act, 1980 (No. 69 of 1980) came into force on 25<sup>th</sup> day of October, 1980. It was amended in 1988. Section 2 of this Act, inter alia, provides that any forest land or any portion thereof may be used for any non forest purpose except with the prior approval of the Central Government under Section 3 of this Act. The Central Government is empowered to constitute an Advisory Committee consisting of such number of persons as it may deem fit to advise the Government for grant of approval under Section 2 and other matters connected with the conservation of forests.

The requirements that should be met before declaring an area as a Wildlife Sanctuary or a National Park under the Forest Acts are defined under Section 29, the Protected forests as:

1. The [State Government] may, by notification in the [Official Gazette] declare the provisions of this chapter applicable to any forest-land or waste-land which is not included in a reserved forest, but which is the property of the Government, or over which the Government has proprietary rights, or to the whole or any part of the forest produce of which the Government is entitled.
2. The forest-land and waste-land comprised in any such notification shall be called a "protected forest".

3. No such notification shall be made unless the nature and extent of the rights of Government and of private persons in or over the forest-land or waste-land comprised therein have been inquired into and recorded at a survey or settlement, or in such other manner as the [State Government] thinks sufficient. Every such record shall be presumed to be correct until the contrary is proved:

Provided that if, in the case of any forest-land or waste-land, the [State Government] thinks that such enquiry and record are necessary but that they will occupy such length of time as in the meantime to endanger the rights of Government, the [State Government] may, pending such inquiry and record, declare such land to be a protected forest, but so as not to abridge or affect rights of individual or communities.

For the control over Forests and Lands not being the Property of Government under Section 35, Protection of forests for the special purposes:

1. The State Government may, by notification in the Official Gazette, regulate or prohibit in any forest or waste-land:
  - a) The breaking up or clearing of land for cultivation
  - b) The pasturing of cattle
  - c) The firing or clearing of the vegetation

When such regulation or prohibition appears necessary for any of the following purposes:

- i) For protection against storms, winds, rolling stones; floods and avalanches
  - ii) For the preservation of the soil on the ridges and slopes and in the valleys or hilly tracts, the prevention of landslips or of the formation of ravines and torrents, or the protection of land against erosion or the deposit thereon of sand, stones or gravel
  - iii) For the maintenance of a water supply in springs, rivers and tanks
  - iv) For the protection of roads, bridges, railways and other lines of communication
  - v) For the preservation of public health.
2. The State Government may, for any such purpose, construct on its own expense, in or upon any forest or waste-land, such work as it thinks fit.
  3. No notification shall be made under sub-section (1) nor shall any work be begun under sub-section (2) until after the issue of a notice to the owner of such forest or land calling on him to show cause, within a reasonable period to be specified in such notice, why such notification shall not be made or work constructed, as the case may be and until his objections, if any, and any evidence he may produce in support of the same, have been heard by an officer duly appointed for that purpose and have been considered by the State Government.

Changes that have been brought out in the Forest Conservation Act, 1980 for de-reserving of forests as laid down under the Indian Forest Act, 1927 are:



Breaking up of the soil or the clearing of the forest land seriously affects reforestation or regeneration of forest. Therefore, such breaking up of the soil can only be permitted after taking into consideration all aspects of the question, such as the overall advantages and disadvantages to the economy of the country, environmental conditions, the ecological imbalances, that are likely to occur, the effects on the flora and the fauna in the area, etc. It was, therefore, thought that the entire control of forest areas should vest in the Central Government. With that end in view, Sec.2 provided that prior approval of the Central Government should be obtained before permitting the use of the forest land for non-forest purposes.

The meaning of “non-forest purpose” under the Forest Conservation Act, 1980:

“Non-forest purpose” means the breaking up or clearing of any forest land or portion thereof for

- a) The cultivation of tea, coffee, spices, rubber, palms, oil-bearing plants, horticultural crops or medicinal plants;
- b) Any purpose other than re-afforestation, but does not include any work relating or ancillary to conservation, development and management of forest and wild life, namely, the establishment of check-posts, firelines, wireless communications and construction of fencing, bridges and culverts, dams, water-holes, trench marks, boundary marks, pipelines or other like purposes.

The relevant provisions of Forest (Conservation) Act, 1980, and the Rules made thereunder in 1981 apply for diversion of any forest land for any non-forest use including mining, even though, of late, considerable relaxation has been granted by the Central Government. The existing provisions affecting mining operations are as follows :

- (i) Mining including underground mining, is a non-forestry activity. Therefore, prior approval of the Central Government is essential before a mining lease is granted in respect of any forest area. A renewal of an existing mining lease in a forest area also requires prior approval of the Central Government. The respective States of the Indian Union should send the proposals for renewal of mining leases atleast six months prior to the dates of expiry of the existing leases.
- (ii) All mining projects involving diversion of more than 20 hectares of forestland shall require clearance from the environmental angle.
- (iii) All proposals involving diversion/dereservation of forestland up to 20 hectares and proposals for clearing naturally grown trees in the forest area or portion thereof shall be sent by the concerned State/Union Territory Government to that regional office of the MOEF under whose territorial jurisdiction the area falls.
- (iv) The Chief Conservator of Forests of the concerned regional office shall be competent to dispose of all proposals involving diversion/dereservation of forest land up to 5 hectares except in respect of proposals for regularisation of encroachments and mining (including

renewal of mining leases). Thus, all such proposals pertaining to mining need clearance from the MOEF.

- (v) Extraction of minor minerals like boulders, bajri, stone, shell, etc. from the riverbeds shall not be permitted if the riverbed is a national park or a wild life sanctuary unless such extraction is for the benefit of forest or wildlife.
- (vi) Extraction of minor minerals shall be from the middle of the riverbed after leaving one fourth of the river bed or each bank untouched.
- (vii) Forest area required for safety zone for mining operations should not be part of the forest area proposed for diversion. However, it should be indicated separately in the proposal. Such area will have to be fenced at the cost of the project authority. Further, project authority will have to deposit funds with the Forest Department for the protection and regeneration of such safety zone area and also will have to bear the cost of afforestation over one and a half times of the safety zone area in degraded forest elsewhere.
- (viii) Compensatory afforestation is one of the most important conditions stipulated by the Central Government while approving proposals for diversion/dereservation of forest land for non-forest uses. Compensatory afforestation shall be done over equivalent area of non-forest land. However, compensatory afforestation may be raised over degraded forest land twice in extent of the forest area diverted/dereserved in a few cases including extraction of minor minerals from river beds.

#### **8.10 WILD LIFE PROTECTION ACT 1972**

According to the Wildlife Protection Act, 1972 "wildlife" includes any animal, bees, butterflies, crustacea, fish and moths and aquatic or land vegetation which forms part of any habitat.

#### **8.11 NATIONAL MINERAL POLICY PERTAINING TO PROTECTION OF ENVIRONMENT IN MINES**

The National Mineral Policy for non-fuel and non-atomic minerals announced in the Parliament on 5.3.1993, prohibits mining operations in identified ecologically fragile and biologically rich areas and strip mining in forest area. The latter could be permitted only when accompanied by a comprehensive time bound reclamation programme. It states further that the environment management plan should have adequate measures for minimising environmental damage restoration of mined areas and for plantation in accordance with the prescribed norms. As far as possible, reclamation and afforestation will proceed concurrently with mineral extraction. Efforts should also be made to convert old disused mine sites into forests and other forms of land use.

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