

17. RECOMMENDED READINGS

1.	Environmental Protection Agency (1979)	Assessment of Environmental Impact of the Mineral Mining Industry Washington D.C. USEPA
2.	Banerjee, S.P. (1982)	Proceedings of First National Seminar on Minerals & Ecology, Dhanbad, India, March, organised by MGMI.
3.	United Nations Environment Programme (1983)	The Restoration and Rehabilitation of Land and Soils after Mining Activities (Environment Management Guidelines)
4.	Ramnathan, N.L. & Mehta, R. (Ed.) (1983)	"Environmental Management of Mining Operations", D.O.E., Govt. of India, New Delhi.
5.	Banerjee, S.P. (1987)	Environmental Impact Assessment Procedure, Journal of Mines, Metals & Fuels, Vol. 155, No.6, p. 581.
6.	Centre for Environmental Management and Planning (CEMP) (1987)	Environmentally sound Development in Energy and Mining Industries, Proceedings of a Seminar of the CEMP, Aberdeen, U.K.
7.	United Nations Environment Programme (1988)	Environmental Impact Assessment Basic Procedures for Developing Countries.
8.	Proceedings of National Seminar (1989)	Protection of Environment & Ecology by Mining Industry, Panjim, Goa, 3 rd February.
9.	Australian Mining Industry Council (1989)	Mine Rehabilitation Handbook.
10.	Tandon, G.L. (1990)	Environmental Protection vis-a-vis growth of Mineral & Mining World, Vol.2, No.6, p.26
11.	Dhar, B.B. (1990)	Environmental Management of Mining Operations, New Delhi, Ashishi Publishing House.
12.	Mining Association of Canada (1990)	Guide for Environmental Practice.
13.	Choudhuri, S.K. (1990)	Surface Mining in India, Journal Mineral & Mining World, Vol.2, No.6, pp.7-8
14.	United Nations Environment Programme/ Industry and Environment (1991)	Technical Report Series No.5 – Environmental Aspects of Selected Non-ferrous Metals (Cu, Ni, Pb, Zn, Au) Ore Mining-A Technical Guide.

15.	The Berlin Guidelines (1991)	Proceedings of International Round Table organised by the Development Policy Forum of the German Foundation for International Development (DSE) and the United Nations Department of Technical Co-operation for Development (UN/DTCD).
16.	Mohnot, J.K. Sainini, G.S. and Dubey, A.K. (1991)	Mineral Exploitation & Environment in Himalayan Mining Region, International Conference on Mineral Development & Row, IBM, Dhanbad, Nov. 28-30.
17.	Dubey, A. (1992)	Impact of Trace Element Air Pollution on Human Health, Indian Journal of Environment Protection 12 (7), pp. 512-514
18.	Soni, P., Kumar Om & Vasistha, H.B. (1992)	Reclaiming Mined Lands for Management of Water Quality, Indian Journal of Forestry, 15 (1) pp. 9-16.
19.	Tiwari, S.N. (1992)	Noise Pollution in Mines in Brief, Journal of Indian Mining & Engineering 31(11), pp.21-22.
20.	Dhar, B.B. (1992)	Environment and Sustainable Development in Developing countries with special reference to Mining Industry, Third Asia Pacific Mining Conference, Manila, 18-21 March, pp. 459-473
21.	Choudhuri, S.K. (1993)	"Status of Environment in Indian Mines" – Paper presented in the International Seminar on Environmental Recovery of Mining Impacts organised for G-15 countries, Brasilia, Brazil; 22-26 th Nov.
22.	CMRS, Dhanbad (1993)	Compendium of papers in a course on Environmentally Viable Mining Technology for Fragile Ground Conditions, New Delhi, Dec. 14-17 th
23.	Banerjee, S.P. (Ed.) (1994)	Proceedings of Second National Seminar on Minerals & Ecology, Dhanbad, Bihar, January.
24.	Proceedings of International Symposium (1994)	The Impact of Mining on Environment Problems and Solutions, Nagpur, January, 11 th -16 th .

AIR AND WATER POLLUTION CONTROL AREAS

State	Air Pollution Control Areas	Water Pollution Control Areas
Andhra Pradesh	Entire State	Entire State
Assam	Not yet notified any area.	Entire State
Bihar	Entire State	Entire State
Gujarat	Entire State	Entire State
Goa	Area bounded by the boundaries. Starting clockwise from Mormugao port sea coast and following the Zuari river south bank upto the Cortalim Agacaim ferry, then following national Highway No.17 upto mormugao Taluka Boundary until it meets with sea coast near Arossim, after that Arabian sea coast.	Entire State
Haryana	Entire State	Entire State
Himachal Pradesh	Entire State except Lahaul, Spiti and Kinnaur districts and Pangi & Bharmour Blocks of Chamba district.	Entire State
Karnataka	Area bounded by the respective boundaries of the industries specified in the schedule appended to the Air Act, 1981.	Entire State
Kerala	KEA No.I Area, (ii) Cochin - Alwayae area (iii) Trivandrum & Kozhikode (iv) Quilon & Palghat dist. (v) Cannanore district	Entire State
Madhya Pradesh	(i) Korba Sada Area, (ii) Bhilai, (iii)Katni Corpn. Area, (iv) Maihar Municipal Area, (v) Satna Corpn. Area, (vi) Singrauli Sada Area, (vii) Mandideep Industrial Area, (viii) Indore Corpn. Area.	Entire State
Maharashtra	(i) Area under Bombay Metropolitan Region Development Authority (BMRI) (ii) Area under MIDC Patalganga Roha, and Tarapur.	Entire State
Meghalaya		Entire State
Punjab	Entire State	Entire area
Rajasthan	Area bounded by the specified industries in the schedule appended to the Air Act, 1981.	(i)Whole of the district of eastern Rajasthan, (ii)Industrial & Municipal areas of western Rajasthan.
Tamil Nadu	Entire State	Entire State
Uttar Pradesh	The area bounded by the respective boundaries of the industries specified in schedule appended to the Air Act, 1981.	Entire State
Union Territory Delhi	Areas given in map 1 & 2 as published in the Gazette of India, Ext. Part II, Sec-3, Sub Sec (1), dt.16-11-84, Page 3 & 4. 1. Starting clockwise from the northernmost point at the intersection of Ring Road and G.T. Karnal Road at Azadpur, the boundary line following G.T. Karnal Road up to Rana	Entire Territory

	<p>Pratap Bagh, DESU Colony where G.T. Road intersects with Najafgarh Drain then it follows Najafgarh Drain till the Drain intersects with Railway line coming from Rohtak then it follows the Ring Railway line upto Mayapuri Ring Road Flyover from that southern-most point it moves to north and to north-east along Ring Road upto Azadpur, the starting point.</p> <p>2. Starting clockwise from Wazirabad Barrage on Yamuna river in the North, the boundary line follows the Yamuna river upto railway bridge on Yamuna river near Indraprastha, from the point it follows the railway line upto Tilak Bridge from where it follows the Tilak Marg and then encircling the India Gate it follows the Kasturba Gandhi Marg in a north westerly direction upto the outer circle of Connaught place along the outer circle it joins the Chelmsford Road and follows the Chelmsford Road and the Qutab Road upto where it intersects the Delhi-Karnal Railway line near Paul Mithai where Control Areas it follows the Railway line upto its intersection with najafgarh Drain near Shakti Nagar and finally, it follows the Najafgarh Drain where it falls into river Yamuna near Wazirabad Barrage.</p>	
--	---	--

IMPORTANT PROVISIONS OF AIR (PREVENTION AND CONTROL OF POLLUTION) ACT 1981 ON AIR POLLUTION AS APPLICABLE TO MINING INDUSTRY

Sec. 2 – Definitions :

- (a) “air pollutant” means any solid, liquid or gaseous substance (including noise) present in the atmosphere in such concentration as may be or tend to be injurious to human beings or other living creatures or plants or property or environment;
- (k) “industrial plant” means any plant used for any industrial or trade purposes and emitting any air pollutant into the atmosphere;

Sec. 17 – Functions of State Boards :

- (1) Subject to the provisions of this Act, and without prejudice to the performance of its functions, if any, under the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974), the functions of a State Board shall be;
- (a) to lay down, in consultation with the Central Board and having regard to the standards for the quality of air laid down by the Central Board, standards for emission of air pollutants into the atmosphere from industrial plants and automobiles or for the discharge of any air pollutant into the atmosphere from any other source whatsoever not being a ship or an aircraft

Sec. 19 – Power to declare Air Pollution Control Areas :

- (1) The State Government may, after consultation with the State Board, by notification in the Official Gazette, declare in such manner as may be prescribed, any area or areas within the State as air pollution control area or areas for the purposes of this Act.
- (2) If the State Government, after consultation with the State Board, is of the opinion that the user of any fuel, other than an approved fuel, in any air pollution control area or part thereof, may cause or is likely to cause air pollution, it may by notification in the Official Gazette, prohibit the use of such fuel in such area or part thereof with effect from such date (being not less than three months from the date of publication of the notification) as may be specified in the notification.

Sec. 21 – Restrictions on use of certain Industrial Plants :

- (1) Subject to the provisions of this section, no person shall, without the previous consent of the State Board, establish or operate any industrial plant in an air pollution control area;

Provided that a person operating any industrial plant in any air pollution control area immediately before the commencement of Sec. 9 of the Air (Prevention and Control of Pollution) Amendment Act, 1987, for which no consent was necessary prior to such commencement, may continue to do so for a period of three months from such commencement or, if he has made an application for such consent within the said period of three months till the disposal of such application.

- (2) An application for consent of the State Board under sub-section (1) shall be accompanied by such fees as may be prescribed and shall be made in the prescribed form and shall contain the particulars of the industrial plant and such other particulars as may be prescribed :

Provided that where any person, immediately before the declaration of any area as an air pollution control area, operates in such area any industrial plant, such person shall make the application under this sub-section within such period (being not less than three months from the date of such declaration) as may be prescribed and where such person makes such application, he shall be deemed to be operating such industrial plant with the consent of the State Board until the consent applied for has been refused.

- (1) Every person to whom consent has been granted by the State Board under sub-section (4), shall comply with the following conditions, namely :
 - (i) the control equipment of such specifications as the State Board may approve in this behalf shall be installed and operated in the premises where the industry is carried on or proposed to be carried on ;
 - (i) the existing control equipment, if any shall be altered or replaced in accordance with the directions of the State Board;
 - (ii) the control equipment referred to in Cl. (I) or Cl. (ii) shall be kept at all times in good running condition ;
 - (iii) the conditions referred to in Cls. (I), (ii) and (iv) shall be complied with within such period as the State Board may specify in this behalf;

Sec. 22 – Persons carrying on industry, etc. not to allow emission of air pollutants in excess of the standards laid down by State Board :

No person operating any industrial plant, in any air pollution control area shall discharge or cause or permit to be discharged the emission of any air pollution in excess of the standards laid down by the State Board under Cl.(g) of sub-section (1) of sec.17.

Sec. 37 – Failure to comply with the provisions of Sec. 21 or Sec. 22 :

- (1) Whoever fails to comply with the provisions of Sec. 21 or Sec. 22 shall, in respect of each such failure, be punishable with imprisonment for a term which shall not be less than one year and six months but which may extend to six years and with fine, and in case the failure continues, with an additional fine which may extend to five thousand rupees for every day during which such failure continues after the conviction for the first such failure.
- (2) If the failure referred to in sub-section (1) continues beyond a period of one year after the date of conviction, the offender shall be punishable with imprisonment for a term which shall not be less than two years but which may extend to seven years and with fine.

Sec. 39 – Penalty for contravention of certain provisions of this Act :

Whoever contravenes any of the provisions of this Act or any order or direction issued thereunder, for which no penalty has been elsewhere provided in this Act, shall be punishable with imprisonment for a term which may extend to three months or with fine which may extend to ten thousand rupees or with both, and in the case of continuing contravention, with an additional fine which may extend to five thousand rupees for every day during which such contravention continues after conviction for the first such contravention.

SYMPTOMS OF METAL TOXICITY IN PLANTS

Elements	Effects
Aluminium	Stubby roots, leaf scorch, mortling.
Boron	Dark Foliage; marginal scorch of older leaves at high concentrations; stunted, deformed, shortened internodes; creeping forms; heavy pubescence; increased gall production.
Chromium	Yellow leaves with green veins
Cobalt	White, dead patches on leaves.
Copper	Dead patches on lower leaves from tips; purple stems; chloritic leaves with green veins; stunted roots, creeping sterile forms in some species.
Iron	Staunted tops, thickened roots; cell division disturbed algae, resulting cells greatly enlarged.
Manganese	Chloritic leaves, stem and petiole lesions, curling and dead areas on leaf margins, distortion of laminae.
Molybdenum	Stunting, yellow-orange colouration.
Nickel	White, dead patches on leaves, apetalous sterile forms.
Uranium	Abnormal number of chromosomes in nuclei; unusually shaped fruits sterile apetalous for stalked leaf rosette.
Zinc	Chlorotic leaves with green veins, white dwarfed forms; dead areas on leaf tips roots stunted.

**COMMON TOXIC METALLIC POLLUTANTS OBSERVED IN DIFFERENT
METALLIFEROUS MINE AIR QUALITY, THEIR THRESHOLD LIMITS FOR
8 HOURS TIME WEIGHTED AVERAGE & THEIR HARMFUL EFFECTS**

Para- meter	Max. limit mg/cum	Harmful effect	CPCB limit	International Limits in mg/cum
Chromite Mines				
Co	0.1	Carcinogenic if concentration in total dust 0.5 mg/cum, US occupational exposure - 0.02 mg/cum, UK-long term limit-0.1 mg/cum	NS	Aus-0.05, Bel-0.05, Can-0.05 Swiss-0.1, CSK-0.05, Den-0.05 Fin-0.5, Ger-0.1, Hungr-0.1, Isreil-0.05, Pol-0.5, USA-0.02
Ni	0.5	Toxic to respiratory system and also carcinogenic	NS	Aus-1.0, Swee-0.5, Bel-1.0, Swiss-0.5, CSK-0.05, Den-0.5, France-1.0, Ger-1.0, Hung-0.5, USA-0.5
Cr (VI)	0.05	Carcinogenic	NS	USA-0.05, Fran-0.05
Cr (T)	0.5	Carcinogenic	NS	Aus-0.5, Bel-0.5, Can-0.5, Swiss-0.5, France-0.5, Fin-0.1- 0.5, Ger-0.5, USA-0.5
Copper Mines				
Pb	0.1	Excretion of porphyrins, precursors of hemoglobin with the urine, affects children brain. Tolerable weekly intake 3 mg /person, US occupational exposure- 0.05 mg/cum, UK long term limit -0.15 mg/cum	Ambi- ent 1.5 µgm /cum	Aurgen-0.15, Aus-0.15, Bel-0.15 Brez-0.01, Can-0.05, Swiss-0.1 Rus-0.005, Ger & Dem 0.1, China-0.03, Jap-0.1, USA-0.15
Cu	1.0	Toxic, Max. biological exposure limit for liver 250µg/g. Maximum concentration for Agricultural soils 100 ppm or 2-3 kg/ha/yr, Occupational exposure 8 hrs- 0.1-1.0 mg/cum	NS	Aus-1.0, Bel-1.0, Can-1.0, Swiss-1.0, Russia-0.5, Ger-1.0, Den-1.0, Fin-1.0, Franc-1.0, UK-1.0, USA-1.0
Co	0.1	Carcinogenic if concentration in total dust 0.5 mg/cum, US occupational exposure - 0.02 mg/cum, UK-long term limit-0.1 mg/cum	NS	Aus-0.05, Bel-0.05, Can-0.05 Swiss-0.1, CSK-0.05, Den-0.05 Fin-0.5, Ger-0.1, Hungr-0.1, Isreil-0.05, Pol-0.5, USA-0.02
As	0.2	Causes acute & chronic cancer. Maximum at work place 0.05 ppm or 0.2 mg/cum. Maximum as compound in total dust- 0.2 mg/cum. Soil concentration limit-20 mg/kg.	NS	Argen-0.5, Aus-0.05, Bel-0.2, CSK-0.2, Den-0.05, Fin-0.01, Ger-0.1, USA-0.01, China-0.3
Ni	1.0	Toxic to respiratory system and also carcinogenic	NS	Aus-1.0, Swee-0.5, Bel-1.0, Swiss-0.5, CSK-0.05, Den-0.5, France-1.0, Ger-1.0, Hung-0.5, USA-0.5
Iron & Manganese Ore Mines				
Mn	0.25	Effect on nervous system	NS DGMS 5.0mg/ cum	USA-0.2, Swiss-2.5, Fin-2.5, Den-2.5, Ger-5.0, Russia-5.0
Lead & Zinc Mines				
Pb	0.1	Excretion of porphyrins, precursors of hemoglobin with the urine, affects children	Ambie nt	Aurgen-0.15, Aus-0.15, Bel-0.15 Brez-0.01, Can-0.05, Swiss-0.1

		brain. Tolerable weekly intake 3 mg/person US occupational Exposure-0.05 mg/cum, UK long term Exposure-0.15 mg/cum	1.5 µgm /cum	Rus-0.005, Ger & Dem 0.1, China -0.03, Jap-0.1, USA-0.15
Cu	0.5	Toxic, Maximum biological exposure limit for liver 250µg/g. Max. concentration for Agriculture soils 100 ppm or 2-3 kg/ha/yr, Occupational exposure 8hrs- 0.1-1.0 mg/cum	NS	Aus-1.0, Bel-1.0, Can-1.0, Swiss-1.0, Russia-0.5, Ger-1.0, Den-1.0, Fin-1.0, Franc-1.0, UK-1.0, USA-1.0
Cd	0.05	Carcinogenic, causes cardiovascular diseases and hyper tension. USEPA listed as hazardous air pollutant. Tolerable weekly in take 0.4-0.5 / person, US occupational limit -0.05mg/cum, UK long term exposure limit.-0.05 mg/cum		Aus-0.05, Bel-0.05, Can-0.05,Swis -0.05, CSK-0.05, Isreil-0.05, Jap-0.05, Sweeden-0.05, Ger-0.05, USA -0.01, Den-0.01, Fin-0.02
As	0.2	Causes acute & chronic cancer. Max. at work place 0.05 ppm or 0.2 mg/cum. Max. as comp. in total dust- 0.2 mg/cum. Soil conc. limit-20 mg/kg.	NS	Argen-0.5,Aus-0.05, Bel-0.2, CSK-0.2, Den-0.05, Fin-0.01, Ger-0.1, USA-0.01, Chai-0.3
Co	0.05	Carcinogenic, Concentration in total dust 0.5 mg/cum, US occupational exposure-0.02 mg/cum, UK-long term limit-0.1 mg/cum		Aus-0.05, Bel-0.05, Can-0.05 Swiss-0.1, CSK-0.05, Den-0.05 Fin-0.5, Ger-0.1, Hungr-0.1, Isreil-0.05, Pol-0.5, USA-0.02
Bauxite Mines				
Al	10	Effect on nervous system		Aus-10, Bel-10, Can-10, Swiss-6 Ger-6, Franc-10, UK-5 – 10, Israel -10, Sweed-4, USA-10
Ti	10	Carcinogenic	NS	Poland-10
NS - Not Specified, CPCB - Central Pollution Control Board, DGMS- Directorate General of Mines Safety				
Aus- Australia, Bel- Belgium, Can- Canada, Swiss- Switzerland , Ger- Germany, Franc- France, Chai- China				
Sweed - Sweden, Fin - Finland, CSK - Czechoslovakia , Argen - Argentina, Hungr - Hungary, Pol- Poland, Den- Denmark, Jap - Japan, Rus - Russia,				

- 1.2 Needless to say, personal bearing protection should on no account be in lieu of technical prevention. Appropriate measures to prevent generation, transmission, amplification, and reverberation of noise and vibration should therefore, be taken when machinery and equipment is being designed. Noise and vibration levels should also be amongst the factors to be taken into account when any machinery or equipment is to be ordered. Accordingly, there should be a close liaison with manufacturers with a view to reducing noise and vibration emission of such machines and equipment. Obviously, it is preferable to purchase quieter equipment, or which produces less vibration than to be compelled later on to take steps against excessive noise and vibration.
- 1.3 When neither by suitable design of equipment nor by their installation, noise and vibration levels can be brought below the danger limits, the following protective measures may be considered :
- (a) enabling workers to have easy access to soundproof booths either totally or partially enclosed;
 - (b) providing workers with adequate hearing protection and antivibration devices;
 - (c) providing workers with anti-vibration working platforms; or
 - (d) limiting time of exposure to excessive noise or vibration.

Vibration Limits :

- 7.1 As for the vibration limits, the aim should be to take appropriate steps which will ensure desirable degree of comfort and protection required especially against :
- (a) vibration affecting the hands and arms (vibrating tools);
 - (b) whole body vibration transmitted through the supporting surface.
- 7.2 No specific vibration limits are indicated because available scientific data is inadequate. However, for a continuous exposure, maximum permissible levels of vibration, depending on daily exposure, should be laid down, in the light of current scientific knowledge, technical progress, and possibilities of prevention.

**DGMS CIRCULAR NO.18 (TECH) OF 1975 ON NOISE & VIBRATION
CONTROL IN MINES**

Sub : Protection of Workers against Noise and Vibration in the Working Environment

Unlike other major countries practically no work has been done in Indian mines for far to study the hazards of noise and vibration in the working environment. There can, however, be no doubt that we have to tackle this problem with the increasing mechanisation of mining operations. Probably, this problem already exists in the following situations, among others :

- (1) While operating pneumatic drills etc.
- (2) Near Heavy Earth Moving machinery.
- (3) In locations housing continuously operated machinery like surface mechanical ventilator, surface screening plants, underground main pumps, etc.
- (4) During operation of Anderton shearer machine etc.

- 2.1 It is known that exposure to noise may interfere with speech communication, cause annoyance and distraction. It has been reported that it may also reduce output and efficiency and cause fatigue apart from various health disorders unrelated to the effects on the hearing.
- 2.2 Interference with speech communication is possibly due to non-auditory effects of noise. It is also the most important one since in industrial environment, the ability to communicate by speech is important. In general, noise levels that are hazardous to hearing will also interfere with speech though the converse is not necessarily true.
 - 2.2.1 It is often asserted that noise reduces output and efficiency and affects moral. A change in noise level, up or down, from those to which persons are accustomed may cause adverse effects which quickly subside. It is difficult to demonstrate any prolonged effect on performance or working efficiency. But, in as much as sound can cause annoyance, difficulty in communication, etc. this may become a factor for absenteeism, etc.
 - 2.2.2 Fatigue may result from talking loudly or from extra effort caused by misunderstanding a matter difficult to assess objectively. It has been claimed that many noise occupations cause "nervous irritability and strain" but the reaction varies greatly in different individuals.

IMPORTANT PROVISIONS OF WATER ACT, WATER AND CESS ACT, RULES MADE THEREUNDER

1. The Water (Prevention and Control of Pollution) Act, 1974.

Sec.2 : Definition :

In this Act, unless the context otherwise requires,

- (a) “Pollution” means such contamination of water or such alteration of the physical, chemical or biological properties of water or such discharge or any sewage or trade effluent or any other liquid, gaseous or solid substance into water (whether directly or indirectly) as may, or is likely to, create a nuisance or render such water harmful or injurious to public health or safety, or to domestic, commercial, industrial, agricultural or other legitimate uses, or to the life and health of animals or plants or of aquatic organisms;
- (j) “stream” includes,
 - (i) river;
 - (i) water course (whether flowing or for the time being dry);
 - (ii) inland water (whether natural or artificial);
 - (iii) sub-terranean waters;
 - (iv) sea or tidal waters to such extent or, as the case may be, to such point as the State Government may, by notification in the Official Gazette, specify in this behalf;
- (j) “trade effluent” includes any liquid, gaseous or solid substance which is discharged from any premises used for carrying on any (industry, operation or process or treatment and disposal system) other than domestic sewage.

Sec. 24 : Provision on use of Stream or Well for Disposal of Polluting Matter, etc.

Subject to the provisions of this section,

- (a) no person shall knowingly cause or permit any poisonous, noxious or polluting matter determined in accordance with such standards as may be laid down by the State Board to enter (whether directly or indirectly) into any (stream or well or sewer or on land); or
- (b) No person shall knowingly cause or permit to enter into any stream any other matter which may tend, either directly or in combination with similar

matters, to impede the proper flow of the water of the stream in a manner leading or likely to lead to a substantial aggravation or pollution due to other cause or of its consequences.

Sec.25. : Restrictions on New Outlets and New Discharges

Subject to the provisions of this section, no person shall, without the previous consent of the State Board,

- (a) establish or take any steps to establish any industry, operation or process or any treatment and disposal system or any extension or addition thereto, which is likely to discharge sewage or trade effluent into a stream or well or sewer or on land (such discharge being hereafter in this section referred to as discharge of sewage); or
- (b) bring into use any new or altered outlet for the discharge of sewage; or
- (c) begin to make any new discharge of sewage.

Sec. 26 : Provision regarding Existing Discharge of Sewage or Trade Effluent

Where immediately before the commencement of this Act any person was discharging any sewage or trade effluent into a (stream or well or sewer or on land) the provisions of Sec. 25 shall, so far as may be, apply in relation to such person as they apply in relation to the person referred to in that section subject to the application for consent to be made under Sub-section (2) of that Section (shall be made on or before such date as may be specified by the State Government by notification in this behalf in the Official Gazette).

Sec. 41 :

Failure to comply with directions under Sub-section (2) or Sub-section (3) of Sec. 20 or orders issued under Cl. (e) of Sub-section (1) of Sec. 32 or directions issued under Sub-section (2) of Sec. 33 or Sec. 33-A.,

- (1) whoever fails to comply with any direction given under Sub-section (2) or Sub-section (3) of Sec. 20 within such time as may be specified in the direction shall, on conviction, be punishable with imprisonment for a term which may extend to three months or with fine which may extend to ten thousand rupees or with both and in case the failure continues, with an additional fine which extend to five thousand rupees for every day during which such failure continues after the conviction for the first such failure.
- (2) Whoever fails to comply with any order issued under Cl. (c) of sub-section (1) of Sec. 32 or any direction issued by a court under sub-section (2) of Sec. 33 or any direction issued under Sec. 33-A shall, in respect of each such failure and on conviction, be punishable with imprisonment for a term which shall not be less than one year and six months but which may extend to six years and with fine, and in case the failure continues, with an

additional fine which may extend to five thousand rupees for every day during which such failure continues after the conviction for the first such failure.

- (3) If the failure referred to in Sub-section (2) continues beyond a period of one year after the date of conviction, the offender shall, on conviction, be punishable with imprisonment for a term which shall not be less than two years but which may extend to seven years and with fine.

Sec.43 : Penalty for Contravention of Provisions of Sec. 24 :

Whoever contravenes the provisions of Sec. 24 shall be punishable with imprisonment for a term which shall not be less than (one year and six months) but which may extend to six years and with fine.

Sec. 44 : Penalty for Contravention of Provisions of Sec. 25 or Sec. 26

Whoever contravenes the provisions of Sec. 25 shall be punishable with imprisonment for a term which shall not be less than (one year and six months) but which may extend to six years and with fine.

Sec.45 : Enhanced Penalty after Previous Conviction :

If any person who has been convicted of any offence under Sec. 24 or Sec. 25 or Sec. 26 is again found guilty of an offence involving a contravention of the same provision, he shall, on the second and on every subsequent conviction, be punishable with imprisonment for a term which shall not be less than (two years) but which may extend to seven years and with fine :

Sec. 45-A : Penalty for Contravention of Certain Provisions of the Act :

Whoever contravenes any of the provisions of this Act or fails to comply with any order or direction given under this Act, for which no penalty has been elsewhere provided in this Act, shall be punishable with imprisonment which may extend to three months or with fine which may extend to ten thousand rupees or with both, and in case of a continuing contravention or failure, with an additional fine which may extend to five thousand rupees for every day during which such contravention or failure continues after conviction for the first such contravention or failure.

2. The Water (Prevention and Control of Pollution) Rules, 1975 :

Rule 32 : Application for Consent

An application for obtaining the consent of the Central Board for establishing or taking any steps to establish any industry, operation or process or any treatment and disposal system or any extension or addition thereto, which is likely to discharge sewage or trade effluent into a stream or well or sewer or on land (such discharge being

hereinafter in this rule referred to as discharge of sewage); or for bringing into use a new or altered outlet for the discharge of sewage or bringing to make any new discharge of sewage under Sec. 25 or for continuing an existing discharge of sewage under Sec. 26 shall be made to the Central Board in Form XIII.

3. The Water (Prevention and Control of Pollution) Cess Act, 1977

Sec. 2 : Definitions

- (d) "Specified industry" means any industry specified in Schedule I;

Sec. 3 : Levy and Collection of Cess

- (1) There shall be levied and collected a cess for the purposes of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974), and utilization thereunder.
- (2) The cess under Sub-section (1) shall be payable by
 - (a) every person carrying on any specified industry; and
 - (b) every local authority.

and shall be calculated on the basis of the water consumed by such person or local authority, as the case may be, for any of the purposes specified in column (1) of Scheduled II, at such rate, not exceeding the rate specified in the corresponding entry in column (2) thereof, as the Central Government may, by notification in the Official Gazette, from time to time, specify.

Sec. 5 : Furnishing of Returns

Every person carrying on any specified industry and every local authority, liable to pay the cess under Sec.3, shall furnish such returns, in such form, at such intervals and containing such particulars to such officer or authority, as may be prescribed.

Sec. 7 : Rebate

Where any person or local authority, liable to pay the cess under this Act, installs any plant for the treatment of sewage or trade effluent, such person or local authority shall, from such date as may be prescribed be entitled to a rebate of seventy per cent of the cess payable by such person or, as the case may be, local authority.

The Water (Prevention and Control of Pollution) Cess Act, 1977 - "Specified industry"

(See Sec. 2 (c))

SCHEDULE I

1. Ferrous metallurgical industry.
2. Non-ferrous metallurgical industry.
3. Mining Industry.
4. Ore processing industry
5. Petroleum industry.
6. Petro-chemical industry.
7. Chemical industry.
8. Ceramic industry.
9. Cement industry.
10. Textile industry.
11. Paper industry.
12. Fertilizer industry.
13. Coal (including coke) industry.
14. Power (thermal and diesel) generating industry.
15. Processing of animal or vegetable product industry.

Levy and Collection of Cess (See Sec. 3)

SCHEDULE II

	Purpose for which water is consumed (1)	Maximum rate (2)
1.	Industrial cooling, spraying in mine pits or boiler feed.	Three-fourths of a paisa, per kilolitre
2.	Domestic purpose.	One paisa, per kilolitre.
3.	Processing whereby water gets polluted and the pollutants are easily biodegradable.	Two paise, per kilolitre.
4.	Processing whereby water gets polluted and the pollutants are not easily bio-degradable and are toxic.	Two and a half paise per kilolitre.

4. The Water (Prevention and Control of Pollution) Cess Rules, 1978
Rule 4 : Furnishing of Returns

Every consumer shall furnish on or before the 5th of every calendar month, to the assessing authority, or return form I showing the quality of water consumer in the previous months.

FORM I (See Rule 4)

Return regarding water consumed during the month of

Name and Address of the consumer	Purpose for which water consumed	Reading at the beginning of the first day of the calendar month under report	Reading at the end of the last day of calendar month under report
1	2	3	4
Quality of water consumed in kilo litres	If the meter was out of order the monthly average consumption of water for the previous 3 months of the working period	Quality of water qualifying for rebate according to the assessee	Remarks*
5	6	7	8
1.	Industrial Cooling spraying in mine pits or boiler feed	(i) from Municipal water supply mains (ii) from well/tubewell (iii) from canal	
2.	Domestic purpose	(i) from Municipal water supply mains, (ii) from well/tubewell, (iii) from canal, (iv) from river, (v) from any other source,	
3.	Processing whereby water gets polluted and the pollutants are easily bio-degradable.	(i) from Municipal water supply mains, (ii) from well/ tube well, (iii) from canal, (iv) from river, (v) from any other source	
4.	Processing whereby water gets polluted and the pollutants are not easily bio-degradable and are toxic.	(i) from Municipal water supply mains, (ii) from well/tubewell, (iii) from canal, (iv) from river, (v) from any other source	

*For claiming rebate under Col.7 the assess shall indicate in this column the analytical and other reports annexed to this return in support of this claim.

Signature of the consumer -----

Name -----

Address -----

ANNEXURE TO FORM I

Report of analysis of treated effluent showing performance of the treatment plant for the month of

Sample collected on

Sample tested on

By the Laboratories

Sl. No.	Polluting parameters as mentioned in the conditions imposed under consent granted under Sec. 25/26 of the Water (Prevention and Control of Pollution) Act, 1974.	Maximum permissible limits or ranges allowed as per consent condition	Concentration of range of parameters as per report	Date on which	
				There was break-down or failure of the plant	under performance was noticed
1	2	3	4	5	6

Encl : Original Analysis report of Laboratory.

Signature.....

Date

Name

Address.....

TOLERANCE LIMITS FOR INDUSTRIAL EFFLUENTS -IS 2490 (PART-I) 1981

Characteristic	Tolerance limits for Industrial Effluents Discharge				
	Into Inland Surface Waters	Into Public Sewers	On land for Irrigation	Into Marine Coastal Areas	Method of Test Reference
(1)	(2)	(3)	(4)	(5)	(6)
Colour & odour			-		IS:2488 Part-I 1966
Suspended solids, mg/l, Max.	100	600	200 waste	(a) for process waste waters-100, (b) for cooling water effluents 10 percent above total suspended matter of influent cooling water	IS:2488 Part-I, 1966
Particle size of suspended solids	Shall pass 850 micron IS Sieve	...	...	(a) Floatable solids, max 3 mm, (b) Settleable solids, Max 850 microns	IS:2488 Part-I, 1966
Dissolved solids (inorganic), mg/l, Max.	2100	2100	2100	...	IS:2488 Part-V, 1976
pH value	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0	IS:2488 Part-I 1966
Temperature Max. °C	Shall not exceed 40 in any section of the stream	45 at the point of discharge	...	45 at the point of discharge	IS:2488 Part-I, 1966

	within 15 metres downstream from the effluent outlet				
Oil and grease mg/l, Max.	10	20	10	20	IS:2488 Part-I, 1966
Total residual Chlorine mg/l, Max.	1	...	...	1	IS:2488 Part-II, 1968
Ammoniacal nitrogen (as N), mg/l, Max.	50	50	...	50	IS:2488 Part-IV, 1974
Total kjeldahl nitrogen (as N), mg/l, Max.	100	...	...	100	IS:2488 Part-IV, 1974
Free ammonia (as NH ₃), mg/l, Max (6 days at 20 co), Max.	5	...	...	5	IS:2488 Part-IV, 1974
Biochemical oxygen demand (5 days at 27co) Max.	30	350	100	100	IS:2488 Part-IV, 1974
Chemical oxygen demand, mg/l, Max.	250	...	...	250	IS:2488 Part-V, 1976
Arsenic (as As) mg/l, Max	0.2	0.2	0.2	0.2	IS:2488 Part-II, 1968
Mercury (as Hg), mg/l, Max.	0.01	0.01	...	0.01	IS:2488 Part-II, 1968
Lead (as Pb), mg/l, Max.	0.1	1	...	1.0	IS:2488 Part-II, 1968
Cadmium (as Cd) mg/l, Max.	2	1	..	2	IS:2488 Part-II, 1968
Hexavalent chromium (as Cr+6), mg/l, Max.	0.1	2	...	1.0	IS:2488 Part-II, 1968
Total Chromium (as Cr), mg/l, Max.	2	2	..	2	IS:2488 Part-II, 1968
Copper (as Cu), mg/l, Max.	3	3	..	3	IS:2488 Part-II, 1968
Zinc (as Zn),	5	15	..	15	IS:2488 Part-

		damage, bone necrosis, bloody diarrhea		
Mn	0.5	Effect on nervous system. Bio-Exposure - urine-50µg/l, Toxicity- plants-0.05, Irrig.- 0.2 mg/l	2.0	Canada-0.2 (irrigation), Irish Pb/Zn mine- 0.5, Australia-0.05 EPA-0.05
Ba	1.0	Respiratory disease and carcinogenic	NS	Russia- (Fish)-2.0, For all other countries domestic- 1 to 2
Iron & Manganese Ore Mines				
Fe	5.0	Effect on heart & Iron Bacteria, Toxicity fish-0.3 mg/l, Toxic dose-20 mg/kg Lethal dose-60 mg/kg	3.0	Canada-5.0-domestic, British Colombia -0.3, US coal-4.0, Pb/ Zn mine-1, Petracco Australia-0.3
SO ₄	1000	To prevent acid mine drainage USEPA -500-10000	NS SPCB-1000	Canada-1000 (Agriculture & live stack)
Hg	0.01	Effect on nervous system and kidney	0.01	Canada- 0.003, live stack- British Columbia- Canada-0.001
Ni	0.5	Toxic-digestive system., depends on Ni species. Nickel sulphate is carcinogenic. For Agriculture, Canada & Italy- 150mg/kg, Germany-100-200 mg/kg Toxicity plants -0.18 & irriga.-0.2 mg/l	3.0	Canada-Agriculture. 0.5-5.0 Irrigation- 0.05-0.2 Aquatic life- 0.025-0.15 UK-Aquatic life-0.05-0.2
P	5.0	Toxic, gastrointestinal irritation, liver damage, bone necrosis, bloody diarrhea	5.0	
Mn	0.5	Effect on nervous system. Bio-Exposure urine-50µg/l Toxicity- plants-0.05, Irrigation-0.2 mg/l	2.0	Canada-0.2 (irrigation) Irish Pb/Zn- 0.5 Petracco Australia-0.05 EPA-0.05
Mg	100	Laxative effect.	NS	USA-50-domestic
S ²⁻	2.0	prevent AMD	2.0	
Lead & Zinc Mines				
Pb	0.5	Effect on nervous system and also carcinogenic	0.05	Alabama-0.2-domestic, Arizona-0.02-domestic, Canada-0.2 (Industry), US Cu mill-0.05 US Pb/Zn mine-0.2, Irish Pb/Zn mine-0.05, Petracco Australia- 0.05 British Columbia-Canada-0.5
Zn	5.0	Gastroenteritis, Nausea	5.0	Canada- livestock-50, Agriculture-1 to 5, US Pb/Zn mine-0.5, Irish Pb/Zn mine-0.5, Petracco Australia- 5.0, S.Africa-5.0, British Columbia&Canada-0.5
Cu	3.0	Toxic to liver & carcinogenic (suspected) Max. Conc.- Farm animals-0.5mg/l Irrigation-0.2mg/l	3.0	Canada- Agriculture-0.1, live stack - 0.5, US- Cu mill-0.05, US-Pb/Zn mine-0.05, Irish Pb/Zn mine-0.1, S. Africa -1.0, British Columbia & Canada-0.005, Australia (irrigation)- 0.2
Fe	1.0	Effect on heart & Iron Bacteria, Toxicity fish-0.3 mg/l, Toxic dose-20 mg/kg, Lethal dose-60 mg/kg	3.0	Canada-5.0 (domestic), US for coal- 4.0, Pb/Zn mine-1.0, Petracco Australia-0.3, British Colombia & Canada-0.3
SO ₄	500	To prevent acid mine drainage USEPA -500-10000	NS SPCB-1000	Canada-1000 (Agriculture & live stack)
S ²⁻	2.0	To prevent acid mine drainage	2.0	

Environmental Audit ReportFor the financial year ending 31st March.....**PART A**

- (i) Name and address of the owner/occupier of the Industry, operation and process.
- (i) Date of the last environmental audit report Submitted

PART B**Water and Raw Material Consumption**

- (i) Water consumption m³/d

Process

Cooling

Domestic

Name of products	Water consumption per unit of products	
	During the previous financial year	During the current financial year
	(1)	(2)
(1)		
(2)		
(3)		

(ii) Raw material consumption

Name of raw material	Name of products	Consumption of raw material per unit of output	
		During the financial year	During the financial year

PART C

Pollution General

(Parameter as specified in the consent issued)

(i)	Pollutants	Quantity of pollution generated	Percentage of variations from prescribed standards with reasons
(a) Water			
(b) Air			

PART D

Hazardous Waters

(As specified under Hazardous Waters/management and Handling Rules, 1989)

Hazardous Water	Total Quantity (kg)	
	During the previous financial year	During the current financial year
(a) From process		
(b) From pollution control facilities		

PART E
Solid Waters

	Total quantity	
	During the previous financial year	During the current financial year
(a) From process		
(b) From pollution control facility		
(c) Quantity recycled or re-utilised.		

PART F

Please specify the characteristics (in terms of concentration and quantum) of Hazardous as well as solid waters and indicate disposal practice adopted by both these categories of waters.

PART G

Impact of the Pollution control measures on conservation of natural resources and consequently on the cost of production.

PART H

Additional investment proposal for environmental protection including abatement of pollution.

PART I
Miscellaneous

Any other particulars in respect of environment protection and abatement of pollution.

List of Ecologically Sensitive Places

- Religious and historic places
- Archaeological monuments/sites
- Scenic areas
- Hill resorts/mountains/ hills
- Beach resorts
- Health resorts
- Coastal areas rich in corals, mangroves, breeding grounds of specific species
- Estuaries rich in mangroves, breeding ground of specific species
- Gulf areas
- Biosphere reserves
- National park and wildlife sanctuaries
- Natural lakes, swamps Seismic zones tribal Settlements
- Areas of scientific and geological interests
- Defense installations, specially those of security importance and sensitive to pollution
- Border areas (international)
- Airport
- Tiger reserves/elephant reserve/turtle nestling grounds
- Habitat for migratory birds
- Lakes, reservoirs, dams
- Streams/rivers/estuary/seas
- Railway lines
- Highways
- Urban agglomeration

Examples of Environmentally Fragile/Sensitive Ecosystems

1. Coral reefs of Andaman, Nicobar & Lakshadweep Islands.
2. Estuarine Zones specially following mangroves :

i)	Northern Andaman	(Andaman & Nicobar Islands)
ii)	Nicobar	(Andaman & Nicobar Islands)
iii)	Sunderbans	(West Bengal)
iv)	Bhimtar Kanika	(Orissa)
v)	Coringa	(Andhra Pradesh)
vi)	Mahanadi Delta	(Orissa)
vii)	Pichavam	(Tamil Nadu)
viii)	Goa	(Goa)
ix)	Godavari Delta	(Andhra Pradesh)
x)	Gulf of Kutch	(Gujarat)
xi)	Coondapur	(Karnataka)
xii)	Achra/Ratnagiri	(Maharashtra)
xiii)	Vembanad	(Kerala)
xiv)	Point Calimere	(Tamil Nadu)
xv)	Krishna Estuary	(Andhra Pradesh)

3. Doon Valley and Neorkhola in Eastern Himalayas.
4. Alpine's of laddakh & Tonglu – Sandakphu of Sikkim Himalayas.
5. Silent Valley and Namdapha.
6. Core area Biosphere Reserves :

- | | | |
|-------|-----------------------------------|------------------------------------|
| i) | Nilgiri | (Tamil Nadu, Karnataka and Kerala) |
| ii) | Gulf of Mannar | (Tamil Nadu) |
| iii) | Little Rann of Kutch | (Kutch) |
| iv) | Kanha | (Madhra Pradesh) |
| v) | Thar Desert | (Rajasthan) |
| vi) | Nanda Devi | (Uttar Pradesh) |
| i) | Uttarkhand
(Valley of Flowers) | (Uttar Pradesh) |
| viii) | Sunderbans | (West Bengal) |
| ix) | Manas | (Assam) |
| x) | Kaziranga | (Assam) |
| xi) | Namdapha | (Arunachal Pradesh) |
| xii) | Nokrek(Tura Range) | (Meghalaya) |
| xiii) | North Islands of Andamans | (Andaman & Nicobar Islands) |
| xiv) | Great Nicobar Islands | (Andaman & Nicobar Islands) |

7. Khasaijerain hills of Cheerapunjee.

8. Valley of flowers.

9. Ecotones/Corridors :

- (i) Corridor used by wild buffalo for migration from Sitanandi to Udaipur.
- (ii) Elephant migration route from Kuldiha to Simlipal in Orissa and from Madumalai to Bilgiri Ramaswany Temple Wildlife sanctuary via Sujjalkuttai and Barbetta. in Karnataka and Tamil Nadu.
- (iii) Natural areas linking protected regions within each major biome.
- (ii) Ecotonal forests, e.g. tropical freshwater swamp forest, tidal forests, low mangrove forests, tree mangrove forests etc.

APPLICATION FORM (See Sub-para 1(a) of Para 2)

1. (a) Name and Address of the project proposed :
 (b) Location of the project :
 Name of the place :
 District, Tehsil :
 Latitude/Longitude :
 Nearest Airport/Railway Station :
 (c) Alternate sites examined and the reasons for selecting the proposed site :
 (d) Does the site conform to stipulated land use as per local land use plan :
2. Objectives of the project :
3. (a) Land Requirement :
 Agriculture Land :
 Forest land and Density of vegetation :
 Other (specify) :

 (b) (i) Land use in the Catchment/ within 10 km radius of the proposed site :
 (ii) Topography of the area indicating gradient, aspects and altitude:
 (iii) Erodability classification of the proposed land:
 (c) Pollution sources existing in 10 km. radius and their impact on quality of air, water & land :
 (d) Distance of the nearest National Park/Sanctuary Biosphere Reserve/ Monuments/heritage site/Reserve Forest :
 (e) Rehabilitation plan for quarries/borrow areas :
 (f) Green belt plan :
 (g) Compensatory afforestation plan :
4. Climate and Air Quality :
 (a) Wind rose at site :
 (b) Max./Min./Mean annual temperature :
 (c) Frequency of inversion :
 (d) Frequency of cyclones/tornadoes/cloud burst :
 (e) Ambient air quality data :
 (f) Nature & concentration of emission of SPM, Gas (CO, CO₂, Nox, CH_n etc.) from the project :
5. Water balance :
 (a) Water balance at site :
 (b) Lean season water availability :
 (c) Source to be tapped with competing users (River, Lake, Ground, Public supply):
 (d) Water quality :
 (e) Changes observed in quality and quantity of ground water in the last 15 years and present charging and extraction details :
 (f) (i) Quantum of waste water to be released with treatment details :
 (ii) Quantum of quality of water in the receiving body before and after disposal of solid waste :
 (iii) Quantum of waste water to be released on land and type of land :

- (g) (i) Details of reservoir water quality with necessary Catchment Treatment Plan :
- (ii) Command Area Development Plan :
- 6. Solid wastes :
 - (a) Nature and quantity of solid wastes generated :
 - (b) Solid waste disposal method :
- 7. Noise and Vibrations :
 - (a) Sources of noise and vibrations :
 - (b) Ambient noise level :
 - (c) Noise and Vibration control measures proposed :
 - (d) Subsidence problem if any with control measures :
- 8. Power requirement indicating source of supply : Complete environmental details to be furnished separately, if captive power unit proposed :
- 9. Peak labour force to be deployed giving details of :
 Endemic health problems in the area due to waste water/air/soil borne diseases: •Health care system existing and proposed :
- 10. (a) Number of village and population to be displaced :
 (b) Rehabilitation Master Plan :
- 11. Risk Assessment Report and Disaster Management Plan :
- 12. (a) Environmental Impact Assessment } Report prepared as per
 (b) Environment Management Plan } guidelines of MOEF
 (c) Detailed Feasibility Report } issued from time to time
 (d) Duly filled in questionnaire }
- 13. Details of Environmental Management Cell :

I hereby give an undertaking that the data and information given above are true to the best of my knowledge and belief and I am aware that if any part of the data/information submitted is found to be false or misleading at any stage, the project be rejected and the clearance given, if any, to the project is likely to be revoked at our risk and cost.

Signature of the applicant
 with name and full address

Date :

Place :

Given under the seal of
 organisation on behalf of
 whom the applicant is signing

FORM FOR SEEKING PRIOR APPROVAL UNDER SECTION 2 OF THE
PROPOSALS BY THE STATE GOVERNMENT AND OTHER AUTHORITIES
(See rule 4 of FCR, 1981)

1. Project Details :

- (i) Short narrative of the proposal and project/scheme for which the forest land is required.
- (ii) Map showing the required forest area, boundary of adjoining forest and item-wise break-up of the required forest area for

2. Location of the project/scheme :

- (i) State/Union Territory.....
- (ii) District.....
- (iii) Forest Division, Forest Block, compartment etc.....

3. Item-wise break-up of the total land required for the project/scheme alongwith its existing land use.

4. Details of forest land involved :

- (i) Legal status of the forest (namely, reserves, protected/unclassified etc.)...
- (ii) Details of flora and fauna existing in the area
- (iii) Density of vegetation
- (iv) Species-wise and diameter class-wise abstract of trees.....
- (v) Vulnerability of the forest area to erosion, whether it forms a part of a seriously eroded area or not.....
- (vi) Whether it forms a part of national park. Wildlife sanctuary, nature reserve, biosphere reserve, etc; and if so, details of the area involved. (specific comments of the Chief wildlife Warden to be annexed).....
- (vii) Item-wise break-up of the forest land required for the project/scheme for different purposes.....
- (viii) Rare/endangered species of flora and fauna found in the area.....
- (ix) Whether it is a habitat for migrating fauna or forms a breeding ground for them.....
- (x) Any other significance of the area relevant to the proposal.....

5. Details of displacement of people due to the project :

- (i) Total number of families involved in displacement.....
- (ii) Number of Scheduled Castes/Scheduled Tribes families involved in displacement
- (iii) Detailed rehabilitation plan.....

6. Details of compensatory afforestation scheme :

- (i) Details of non-forest area/degraded forest area identified for compensatory afforestation, its distance from adjoining forests, number of patches, size of each patch
- (ii) Map showing non-forest/degraded forest area identified for compensatory afforestation and adjoining forest boundaries
- (iii) Detailed compensatory afforestation scheme including species to be planted, implementing agency time schedule cost structure etc.....
- (iv) Total financial outlays for compensatory afforestation scheme
- (v) Certificates from competent authority regarding suitability of area identified for compensatory afforestation for afforestation and from management point of view. (To be signed by an officer not below the rank of Deputy Conservator of Forests).....

7. Details regarding Mining proposals (only for mining proposal's) :

- (i) Total mining lease area and forest area required.....
- (ii) Period of mining lease proposed.....
- (iii) Estimated reserve of each mineral/ore in the forest area and in the nonforest area.....
- (iv) Annual estimated production of mineral/ore.....
- (v) Nature of mining operations (opencast/underground).....
- (vi) Phased reclamation plan
- (vii) Gradient of the area where mining would be undertaken.....
- (viii) Copy of the Lease Deed (to be attached only for renewal purposes).....
- (ix) Number of Labourers to be employed.....
- (x) Area of forest land required for
 - (a) Mining
 - (b) Storing mineral ore
 - (c) Dumping of overburden
 - (d) Storing tools and machinery.....
 - (e) Construction of building, power stations, workshops, etc.....
 - (f) Township/housing colony.....
 - (g) Construction of road/ropeway/railway lines.....
 - (h) Full land use plan of forest area required.....
- (xi) Reasons why any of the activities referred to in (a) to (h) above under the project for which forest land has been asked for cannot be undertaken/located outside forest area.....

- (xii) The extent of damage likely to be caused and the number of trees affected on account of mining and related activities.....
 - (xiii) Distance of the mining area from perennial water courses national and State Highways. National parks, sanctuaries and biosphere reserves.....
 - (xiv) Procedure for stocking of the topsoil for reuse.....
 - (xv) Extent of subsidence expected in underground mining operations and its impact on water forest and other vegetation.....
11. Cost benefit analysis.....
 12. Whether clearance from environmental angle is required (Yes/No).....
 13. Whether any work in violation of the Act has been carried out (Yes/No).....
 - (i) Details of the same including date of commencement.....
 - (ii) Officers responsible for violation of the Act.....
 - (iii) Action taken/being taken against erring officers.....
 - (iv) Whether work in violation of the Act is still in progress.....
 14. Any other information.....
 15. Details of Certificate/documents enclosed.....
 16. Detailed opinion of the Chief Conservator of Forest, Head of the Forest Department concerned covering the following aspects, namely :
 - (i) Out-turn of timber, fuelwood and other forest produce from the forest land involved.
 - (ii) whether the district is self-sufficient in timber and fuelwood, and
 - (iii) the effect of the proposal on
 - (a) Fuelwood supply to rural population
 - (b) Economy and livelihood of the tribal and backward communities.
 - (iv) specific recommendations of the Chief Conservator of forest/Head of the Forest Department for acceptance or otherwise of the proposal with reasons thereof. Certified that all other alternatives for the purpose have been explored and the demand for the required area is the minimum demand for forest land.

Signature of the authorised officers
of the State Government/Authority.

LIST OF ENVIRONMENTAL CONSULTANTS

1. B.M. Birla Science & Technological Centre, 27, Malviya Industrial Area, Jaipur – 302 017.
2. Central Mine Planning & Design Institute, Gondwana Place, Kanke Road, Ranchi – 834 008.
3. Centre of Mining Environment, Indian School of Mines, Dhanbad – 826 004.
4. Centre for Rural Development & Environment (CRDE), 384/9-B. Saket Nagar, Bhopal – 462 024.
5. Centre for Study of Man & Environment, CK/11, Sector-2 Salt lake City, Calcutta – 91.
6. Engineers India Limited, 1, Bhikaji Cama Place, R.K. Puram, New Delhi – 110 066.
7. ENVIRON Consultants, Environ Labs & Consultants, 6-3-668/15/4, Parjgutta, Hyderabad – 500 482.
8. ECOMEN Consultants Pvt. Ltd., Flat No.8, 2nd Floor, ARIF Chambers-V, Sector H, Aliganj, Lucknow – 226 020.
9. Enviro-protection, Division of Development Consultants Ltd., 24B, Park Street, Calcutta-700 016.
10. Enviro Techno Consultant, 51, East Lendra Park, Ramdaspath, Nagpur-440 010.
11. GEOMIN Consultants Pvt. Ltd., 248, Kharavela Nagar, Bhubaneswar – 751 001.
12. Indian Bureau of Mines, Indira Bhawan, Civil Lines, Nagpur – 440 001.
13. Metallurgical & Engineering Consultants (India) Ltd., Hinoo, Ranchi – 834 002.
14. MINMEC Consultancy Pvt. Ltd., M-51, SAKET, New Delhi – 110 007.
15. Mineral Engineering Services, 25/XXV, Club Road, Bellary – 583 103.
16. M.N. Dastur & Co. Ltd., P-17 Mission Row Extension, Calcutta – 700013.
17. Minservices, 8 Kannamwar Nagar, Wardha Road, Nagpur – 440 025.
18. National Environmental Engineering Research Institute, Wardha Road, Nagpur – 440 020.
19. NIRCON Engineering Consultant (Madras) Pvt. Ltd. No.15, Dr. Nateshan Road, Ashok Nagar, Madras – 600 083.
20. Pollution Control Consultants, B-10, New Market, Khasa Kothi Circle, Jaipur- 302 016.
21. Projects & Developments India Ltd., CIFT Bldg., Sindri – 828 122, Bihar.
22. Treelands Development Service Pvt. Ltd., 609, J.P. Nagar, I Phase, 15th Cross, Bangalore – 560 078.

Note : The list is not exhaustive. The aforesaid consultants have prepared EMPs for EAC(M) as well as for IBM.

ADDRESSES OF STATE AND CENTRAL POLLUTION CONTROL BOARDS

Sl.No.	State/Union Territory	Address
1.	Assam	Assam Board for Prevention & Control of Water & Air Pollution, Bamuni Maidan, Guwahati – 781 021, Assam.
2.	Andhra Pradesh	Andhra Pradesh Pollution Control Board, 2 nd Floor, Huda Complex, Amerpet, Opp. Sarathi Studio, Hyderabad, Andhra Pradesh.
3.	Bihar	Bihar State Pollution Control Board, Beltron Bhawan, II nd floor, Jawaharlal Nehru Marg, Shastri Nagar, Patna – 800 023.
4.	Gujarat	Gujarat Pollution Control Board, Sector 10-A, Gandhinagar – 382 045.
5.	Haryana	Haryana State Board for the Prevention and Control of Water Pollution, Kothi No.661, Sector 8-B, Chandigarh.
6.	Himachal Pradesh	Himachal Pradesh Water Pollution Control Board, Hotel Kings, Top Floor, The Mall, Simla – 171101.
7.	Jammu & Kashmir	Jammu & Kashmir State Pollution Control Board, Civil Secretariat, Jammu (May to Oct.) Srinagar (Nov. to April)
8.	Karnataka	Karnataka State Pollution Control Board, No.25 6 th , 7 th & 8 th Floors, Public Utility Building, Mahatama Gandhi Road, Bangalore – 560 001., Gram : Jalaraksha, Bangalore.
9.	Kerala	Kerala State Pollution Control Board, Kattakayam Building, T.C.11/1672-1, Plamoodu Junction, Pattom Palace, Trivandrum – 695 004, Gram : Cleenwater, Trivandrum.
10.	Maharashtra	Maharashtra State Pollution Control Board, 4 th Floor, Chatrapati Shivaji Market Building, Paltan Road, Mumbai – 400 001.
11.	Madhya Pradesh	Madhya Pradesh State Pollution Control Board, Paryavaran Parisar, E-5 Area Colony, Bhopal – 462 016.
12.	Orissa	Orissa State Pollution Control Board, A – 118, Nilakantha Nagar, II Unit VIII, Bhubneswar – 751 012.
13.	Punjab	Punjab Pollution Control Board, Nabha Road, Patiala – 147 001.
14.	Rajasthan	Rajasthan Pollution Control Board, J-2/35, Mahaveer Marg, C-Scheme Jaipur – 302 001

15.	Uttar Pradesh	Uttar Pradesh Pollution Control Board, Pragati Kendra, IInd Floor, Kapurthala Commercial Complex, Aliganj, Lucknow – 226 020.
16.	Tamil Nadu	Tamil Nadu Pollution Control Board, 32-Santhome High Road, 3 rd & 4 th floors, Chennai – 600 004.
17.	West Bengal	West Bengal Pollution Control Board, 10, Camac Street, Industry House, 2 nd Floor, Calcutta – 700 017.
18.	Goa	Goa Pollution Control Board, Faculty Block, Goa Medical College Complex, Bombalim – 403 005.
19.	Central Pollution Control Board, New Delhi	Parivesh Bhawan, CBD Cum Office Complex, East Arjun Nagar, Delhi – 110 032.

