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Waste Regulation in India: An Overview

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1. Introduction

The purpose behind this report is to analyse the major provisions of the main legislation concerning waste in India. It is an examination of the provisions that would be relevant to companies and enterprises engaged in activities and industries which are capable of producing waste.

The main aim of this research report is to identify the most important provisions arising from the different forms of legislation and detailing them in the report. In many instances, where legislation was complex in drafting and form, attempts were made to render them more accessible. Furthermore, where tables and deadlines established in the Act are no longer relevant, these have been discarded. This was done in an attempt to include only the more important parts of the legislation affecting waste with the desired goal of greater clarity and ease of reference. All the necessary data is found in the annexes, where necessary and should be read along with the report.

The limitations of the report are various. In the first place, due to the sheer amount of legislation in place, only a selection of the main legislation was covered. However, this is intended to serve as a basis for understanding, which can then allow for reference to other various elements of legislation. The second limitation is that this report is in no way intended as a substitute for proper legal advice. It is merely an overview and must be read in that context. Any person wishing to engage in an activity that is likely to come within the scope of these laws should seek legal advice specific to the industry concerned.

2. The Environmental Protection Act

Enacted in 1986, the Environment Protection Act aims to establish a sufficient protection system for the environment. It gives the power to the central government to regulate all forms of waste and to tackle specific problems that may present themselves in different regions of India. It is the primary legislation that must be considered and contains important provisions concerning the Environment. The following provisions are the rules which are of relevance to Companies aiming to undertake an industrial process in India.

Harm to the Environment

The primary prohibition, which echoes the Constitutional provision prohibiting harm to the environment, is contained in Section 7 which establishes that,

> No person carrying on any industry, operation or process shall discharge or emit or permit to be discharged or emitted any environmental pollutants in excess of such standards as may be prescribed.

Information on Accidents and Spillages

Section 9 concerns the furnishing of information in the case of accidental spillages:

> Thus where any environmental damage occurs is foreseen to occur due to any accident or other unforeseen act or event, there is a duty on the person who is either responsible for the discharge or the place where such discharge occurs to prevent or mitigate the environmental pollution caused as a result of such discharge. He must immediately inform the authorities or agencies. If called upon, he shall be bound to offer assistance to said authorities.

Polluter Pays Principle

Section 9(3) also contains an embodiment of the 'Polluter-Pays' principle, since it explains that the expenses and any interest accrued may be recovered by the Authority together with interests arising from the date of violation. This concept of 'continuing' punishment is an important one, since it establishes harsh penalties for the state of continuation. The punishment laid down for the is imprisonment for a term which may extend to five years and a fine of up to `100,000 and the possibility of an additional fine of `5,000 for every day where the offence is continued.

Lifting of the Corporate Veil

Of relevance to companies are the provisions on the 'lifting of the corporate 'veil'. Thus, where an environmental offence is committed with the consent or connivance of any director, manager or secretary or other officer of the company, then owing to such involvement – the above mentioned persons may also be held liable for offences committed by the company. This is an important concept in Environmental Law and company officials should be aware of the fact that the mere fact of the offence being committed in the name of the company is not enough to exclude them from being prosecuted.

3. The Environmental Protection Rules

Known as the 'Environmental Protection Rules 1986', these regulations were drawn up by the government under the powers conferred on it in terms of the Environment Protection Act 1986, as discussed above. They allow the government to give more detailed direction on a specific topic. This detailed direction may be changed without the necessity of having to amend the principal Act. Companies should be aware of any changes affected to the regulations and therefore, are advised to be aware of legislative developments in this regard.

The first provision of concern to companies and factories is that contained in Section 3 which discusses Standards for emissions or discharge of environmental pollutants. It refers to the standards laid down the standards for emission or discharge of environmental pollutants from the industries. In this regard it is important to note that a one year period for compliance is laid down with the standards, however, this may be shortened to a lesser period by the Central Board or State Board.

Again, companies must concern themselves with the obligation under Rule 13 which states that where an unforeseen accident or event results in the causing of environmental pollution – in excess of the prescribed standards, then the person in charge of the place at which such

discharge occurs shall inform the authorities prescribed by the act. The authorities to be informed are the officer-in-charge of emergency or disaster relief operation in a district or other region of a state or Union Territory.

A number of sub-standards are laid down and these will be listed below. These fall within the ambit and control of the Environmental Protection Rules.

The Regulation and Supply of 2-T lubricating Oil within the National Capital of Delhi

2-T Oil is defined as lubricating oil meeting the American Petroleum Institute-TC or Japanese Automobile Standards Organisation specifications which are used in 2-stroke petrol vehicle engines. It may either be contained in a sealed container or else is defined as 'loose', that is to say, not contained within a sealed containing package.

This latter definition is important as the sale or agreement to sell or any other form of disposal of loose T-2 Oil for use in 2-T engines is prohibited. The sale of 2-T Engine Oil in petrol stations is only permitted if sold pre-mixed with petrol through the nozzle.

4. The Ozone Depleting Substances (Regulation and Control) Rules, 2000

Promulgated in the year 2000, the rules were intended to regulate a large number of activities involving ozone depleting substances. The rules are divided into a large web of schedules which contain various cross references. By and large, the rules established phase-out dates for various groups of substances which are considered to deplete the ozone. Given that many dates have since elapsed, the relevant time dates which remain applicable have been reproduced below as well as a simplification of the prohibitions and regulations of the activity in the Act.

These regulations are aimed at controlling and regulating the discharge of 'ozone depleting substances' into the atmosphere. An ozone depleting substance is one as specified in Annex I to this research report.[1] It is important to note that the various substances are classified into groups. These groups are important for the calculation of limits of production of ozone emitting substances. Furthermore, substances may either be produced alone or as a 'blend' which is a manufactured product other than a container used for the transportation or storage of such substance.

It is also important to take note of the meaning of the term production. Production, as defined by the rules, means the manufacture of an ozone depleting substance from any raw material or feedstock chemicals. This being said, certain processes are excluded, namely (i) the manufacture of a substance that is used in the production of other chemicals, but is entirely consumed in the process and therefore, does not leave significant amounts of ozone depleting substances to be disposed of and (ii) quantities which are produced incidentally in the manufacture of other substances. One notes, therefore, that with regard to the term production, there seems to be an element of intention involved since mere incidental

[1] For ease of reference, this has been reproduced in Annexure I

production does not, in terms of the law, constitute production. This being said, companies would do well to full register any production of ozone depleting substances.

The Rules also makes provisions for persons having the ability to reclaim ozone depleting substances. Reclamation means the processing and upgrading of a recovered ozone depleting substance in order to restore the substance to a specified standard of performance. As examples, the Rules cite filtering, drying, distillation and chemical treatment.

Registration

The Rules establish the requirement of registration. Therefore, in order to be allowed to produce any ozone-depleting substance, registration with the relevant authority is necessary. The authorities to be registered with are as follows:

Table 1: Relevant authorities required for registration

(i) All producers of Ozone Depleting Substances are to register with the Ministry of Environment and Forests
(ii) For persons wishing to import or export products that are either made with or contain Ozone depleting substances, then registration with the Director General of Foreign Trade is necessary.
(iii) Traders, Dealers, Wholesalers and Sellers of Ozone Depleting Substances are to register with the Ministry of Environment and Forests
(iv) Enterprises, whose capital investment is less than `10,000,000 and are engaged in the manufacturing of Fire Extinguishers or Fire Extinguishing Systems must register with the Office of Small Industries Service Institute in their respective jurisdiction under the Small Industries Development Organisation under the Ministry of Small Scale, Agro and Rural Industries.

(v) Enterprises, who are similarly engaged in the manufacturing of Fire Extinguishers and Fire Extinguishing Systems having a capital investment greater than `10,000,000 must register with the Ministry of Environment and Forests.
(vii) Where facilities are available for the destruction of ozone depleting substances, then registration must be undertaken in the respective jurisdiction with the Small Industries Development Organisation under the Ministry of Small Scale, Agro and Rural Industries.[2]

Production and Consumption Levels of Ozone

The Rules then continue to regulate the level of production and consumption of ozone-depleting substances. Given the length and complexity of the schedule, it has been reduced to a table below concerning the dates relevant in the future.

[2] It is relevant to note that while the terms 'destruction' and 'destroy' are used in the Act, no legal definition of the term 'destroy' is given. This thus raises the question of when an ozone depleting substance is to be considered as having been 'destroyed' within the context of the Rules.

Table 2: Regulation of the level of production and consumption of ozone-depleting substances

Time Period Stipulated in the Rules	Group of Ozone Depleting Substances[3]	Maximum allowable Production 12 months as percentage of calculated base level for Group as a whole	Maximum allowable Production 12 months as percentage of calculated base level for Group as a whole
1-1-2010	II	0% above 1995-1998 levels	0% above 1995-1998 levels
1-1-2010	IV	0% above 1998-2000 levels	0% above 1998-2000 levels
1-1-2010	V	30% above 1998-2000 levels	40% above 1998-2000 levels
1-1-2015	V	0% above 1998-2000 levels	0% above 1998-2000 levels
1-10-2016	VI	100% above 2015 levels	115% above 2015 levels
1-1-2040	VI	0% above 2015 levels	0% above 2015 levels
1-1-2015	VIII	0% above 2015 levels	0% above 1995-1998 levels

[3] Reference is made once again to Annexure I in order to identify groups of Ozone Depleting substances

Groups I and III are catered for in a separate schedule and in this regard, the relevant dates and rates of production and consumption are contained in Schedule III to the Rules. The applicable remaining dates have been reproduced below:

The last available regulations relate to the year 2010. In this regard it is established:[4]

Table 3: Relevant dates and rates of production and consumption

Applicable Date (for 12 months)	Group of Ozone Depleting Substances[5]	Allowable Amount of Production in Megatonnes	Maximum Amount of Consumption
31.12.09	I	1,130	10% of 1995-1997 average level of consumption.

It is also important to note that persons having received assistance from the Multilateral Fund must then commit to reduce their emissions in accordance with the agreement signed with the executive committee of the Multilateral Fund.

Import or Export

Companies should be aware that any export or import of an ozone depleting substance to a country not party to the Montreal Protocol is prohibited. The Montreal Convention is an agreement signed in 1987 intended to phase out the use of ozone depleting substances.

With regards to the import from or export to countries that are party to the Montreal protocol and are specified in Schedule VI, this is only permissible under license. Licenses are issued by the authorities indicated in Table 1 above. Companies must be aware that imports of said substances will contribute to their overall levels of production and consumption of ozone depleting substances as indicated above.

Sale and Purchase of Substances

The Rules also contain provisions on the prohibition for selling, stock or exhibition for sale or distribution of any ozone depleting substance unless registration is undertaken with the indicated Authority above. Thus, commercial activities are regulated.

However, persons or enterprises should note that the following commercial activities are now prohibited, irrespective of registration with the authority. These are detailed in the table below.

[4] At the time of writing, no amounts or rates were laid down for the year starting on 31.12.10
[5] As referred to in Annex II

Table 4: Prohibitions on certain activities involving ozone-depleting substances

Manufacture of Aerosol products or pressurised dispensers (excluding metered dose inhalers for medicinal purpose) using substances falling in Group I
Manufacture of Polyol for foam products using products using substances falling in Group I
Manufacture of foam products including foam part of Domestic Refrigerator using substances falling in Group I
Manufacture of Fire Extinguishers or Fire Extinguishing Systems using substances falling in Group II
Manufacture of different products using substances falling in Groups I, III, IV & V
As for the Manufacture of Different Products using products falling in Group VI, the phase-out date is 1st of January 2040.
Use of methyl bromide except pre-shipment & quarantine (falling in Group VI) has a phase-out date of 1st January 2015.

The sale of ozone-depleting substances to persons who have not themselves informed the Central Government of their intention to halt the use of the specified ozone-depleting substances after the date specified by them is prohibited. This is an important provision that companies must take note of. It would not, therefore, be permissible prohibitions on use of

ozone depleting substances by passing them on to a company that may form part of the same group but has not obtained the necessary authorisation.

The purchase of ozone-depleting substances is also regulated. One may refer to Table 3 above to view the activities and corresponding substance groups that are prohibited. Purchase, however of the substances still allowed as indicated above may only be allowed where the buyer has given a declaration to the seller as to the end use of the product. The form of the declaration is found in the rules[6] and should be consulted by any enterprise or person wishing to purchase the said substances. Without the given declaration, purchase will not be permissible.

Use of Ozone Depleting Substances

Crucially, the use of ozone-depleting substances is regulated by Rule 8. Again, reference to Table 4 above is necessary. As is highlighted by the table, a number of activities that involve the use of substances in the mentioned groups are prohibited. This being said, in the instances where the use is still permitted, then registration is necessary to be able to use any of the substances above. The relevant registration authorities are found in Table 1 above. Importantly, where use of ozone-depleting substances is being made this must be clearly labelled.

Conversely, and importantly for companies, any activity that is mentioned in Table 4 above that does not include the ozone depleting substance in the relevant groups, must use a label indicating the absence of the said ozone depleting substance.

Finally, any enterprise or person having received assistance from the Multilateral Fund shall also be required to submit an affidavit[7] stating that any equipment that has been replaced in the process of converting technology to a form which is non-ozone depleting must has been properly destroyed and dismantled and rendered unusable and further, that no ozone depleting substance should be used after the date of the completion of the project.

Prohibition on Investment

Further prohibitions are contained in the Rules which companies must be aware of. Investment with ozone depleting substances is prohibited and has been so since the entry into force of the regulations. This being said, investment into products with ozone depleting substances falling into Category VIII is banned as of 2015. The same prohibitions extend to the expansion of establishment of any manufacturing facilities which are capable of creating ozone depleting substances.

Sale and Purchase of Products Containing Substances

The import, export and sale of products made with or containing substances are also regulated in the Rules. Table 5 shows the products that require a license by the authority if they contain a substance that falls within the relevant group indicated. No export shall be

[6] Schedule XII, Part 1
[7] An affidavit is a sworn declaration and in this respect, legal advice and assistance must be sought.

allowed unless a label accompanies the product stating whether the product has been made with or contains ozone depleting substance.

Where the products below do not contain an ozone depleting substance, a label to the effect must be carried before the product may be imported.

Finally, it is prohibited for any person whether himself or through any other person or enterprise on his behalf, to sell, stock or exhibit for sale or distribute any product that have arisen from activities or services stipulated in Table 4 above.

Table 5: Products that require a licence by authority before import, export and sale

Name of Product	**Substance contained in Group**
Automobile and truck air-conditioning units whether incorporated in vehicle or not.	I
Domestic and commercial refrigeration and air-conditioning/heat pump equipment such as refrigerators, freezers, dehumidifiers and air conditioners	I, VI
Aerosol products (excluding medical aerosols)	I
Portable fire extinguishers	II
Insulation boards, panels and pipe covers	I
Pre-Polymers	I

Reclamation and Destruction of Substances

The reclamation of any ozone depleting substance requires registration as indicated in Table 1. Similarly, the destruction of any ozone depleting substance requires registration with the authority as indicated in Table 1. The manufacture, import and export of compressors require registration with the relevant authority, as indicated in Table 1.

Reporting requirements

Finally, one must note the relevance of monitoring and reporting requirements. These are detailed below in a table for ease of reference.

Table 6: Reporting requirements

Form of Activity	Reports to be Maintained	Reports to be Submitted
Persons or enterprises importing, exporting or selling any ozone depleting substance:	Dated records and related documents as regards the actual quantity of each ozone depleting substance produced, the quantity used as feed stock and records regarding sale and offer for sale of ozone depleting substances. Data recorded for actual quantity of substances purchased and sold within India, the name and address of the recipient of each shipment. Where the purpose for which substance was sold falls within Table 4, this is to be noted. Data regarding export of substances as detailed in the forms. Data recording the importing of ozone depleting substances as contained in the forms.	Report on production, import, export and sales of ozone depleting substances. To be submitted to the authority indicated in Table 1.
Persons stocking or purchasing any ozone depleting substance for use in activities highlighted in Table 4.	Records of purchase of ozone depleting substances, dated records of quantity of substance purchased and name and address of Indian supplier. If applicable, the actual quantity of each substance used separately for each plant and each activity	Report on purchase of ozone depleting substances. To be submitted to the relevant authority indicated in Table 1.

Persons or enterprises who have received technical or financial assistance from any international organisation or any financial assistance, which includes concession or exemption from payment of duties, from the Central Government.	Records regarding purchase of ozone depleting substances for use in activities specified in Table 4. Dated records of the actual quantity of each ozone depleting substance purchased from an Indian supplier and address of the Indian supplier. The actual quantity of each ozone depleting substance used separately for each plant and each activity (if applicable).	Records of use of non-ozone depleting substances by beneficiary companies. To be submitted to the relevant authority as indicated in Table 1.
Persons having the facility to reclaim an ozone depleting substance	The actual quantity of each ozone depleting substances recovered; the name and address of the individual or company from which the ozone depleting substances is recovered and the name and address, if different of the site at which the ozone depleting substances is reclaimed; the actual quantity of each ozone depleting substances reclaimed.	Report on reclamation of ozone depleting substances. To be submitted to authority indicated in Table 1.
Persons having the facility to destroy an ozone-depleting substance	Dated records of the actual quantity of each ozone depleting substances destroyed on the basis of destruction efficiency of the facility employed.	Report on destruction of ozone depleting substances. Report to be submitted to the authority indicated in Table 1.

Persons who manufacture, import, export or sell compressors	Records of the number of compressors produced, imported and exported as well as the size of the compressors.	Report on manufacture, import, export and sale of compressor and use of refrigerants in compressors sold. To be submitted to authority indicated in Table 1.

Finally it is relevant to note that all records must be made available for inspection for inspection at any reasonable time on request by an officer of the registering authority specified in Table 1.

5. The Noise Pollution (Regulation and Control Rules) 2000

Noise is an often underestimated form of pollution. This being said, studies show that significant harmful effects on human health and the environment. A possible explanation for its often being sidelined is the fact that it affects people with a greater level of noise sensitivity. In this segment of the population significant exposure to noise pollution tends to produce states of irritability, anger and distress. It also tends to disrupt sleep patterns (Schreckenberg, 2010).[8]

The Noise Pollution (Regulation and Control) Rules, 2000, aim to protect against this form of pollution.

The Rules specify the limits on the levels of noise pollution that may be emitted and aim to ensure that the level of noise, including noise emanating from vehicles are kept within the levels required by the Rules. The rules are expressly applicable to companies or associations of bodies and individuals, whether incorporated or not.[9]

[8] Dirk Schreckenberg, Barbara Griefahn1, Markus Meis: *The Associations between Noise Sensitivity, Reported Physical and Mental Health, Perceived Environmental Quality, and Noise Annoyance*, Noise & Health, January-March 2010, 12:46,7-16

[9] By amendment to the Rules, published in the Government Gazette on the November 22, 2000

Companies and individuals must be aware of the following provisions. In the first place, the use of loudspeakers requires written permission from the relevant authority. In this case, the authority in question as defined by the Rules is the authority or officer authorised by the Central Government, or as the case may be, the State Government and may include a District Magistrate, Police Commissioner, or any other officer designated for the maintenance of the ambient air quality standards in respect of noise. Therefore, any person wishing to make use of such equipment must obtain written permission to do so. A written request for permission, well in advance of the date in question is advisable in this regard.

The use of loudspeakers, public address systems and the like[10] between 10 p.m. and 6 a.m. is prohibited in open spaces and thus, must be confined to indoor venues.

Importantly, silence zones are established within 100 metres of hospitals[11], educational institutions[12] and courts. The silence zones are important since they are subject to special regulations.[13] No horns are to be used during the night time in this regard unless in case of an emergency. Similarly, sound emitting construction equipment is not to be used during the night time in silence zones and also residential areas.

For ease of reference, the limitations on the production of sound have been detailed below:

Table 7: Limitations on the production of sound

Category of Area/Zone	**Limits measured in Decibels Leq[14]**	
	Day	Night
Industrial Area	75	70
Commercial Area	65	55
Residential Area	55	45
Silence Zone	50	40

6. The Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008

The Management of Hazardous Waste is a complex set of rules which together combine to form the legal regime. Given the vast amount of rules available, the most important regulations will be considered below. These will be examined in their own right before and an outline of the main obligations for persons, enterprises or companies will be detailed.

[10] See the amendment to the rules contained in Gazette of India published on the January 11, 2011
[11] Including private hospitals, nursing homes and clinics
[12] Defined as means a school, seminary, college, university, professional academies, training institutes or other educational establishment, not necessarily a charted institution and includes all grounds necessary for the accomplishment of the full scope of educational instruction, including those things essential to mental, moral an physical development.
[13] See 2010 amendments, cfr. 11 above
[14] This is a measurement within a specified time period

The Rules establish the responsibility for the safe and environmentally sound handling of environmental waste by any 'occupier' of hazardous waste. An occupier is a person who has under his charge, any plant or factory producing hazardous waste or who holds hazardous waste. 'Recycling' is defined as reclamation or reprocessing of hazardous waste in an environmentally sound manner for the original purpose or for other purposes. 'reuse' means the use of a hazardous waste for a purpose of its original use or other use.

Hazardous waste held by an 'occupier' must be sent or sold to a recycler or re-processor who is authorised to dispose of it in the proper manner. Furthermore, in any handling of hazardous waste, the said holder or person in charge of it must take all the steps necessary to contain contaminating substances and prevent harmful effects on human health and the environment. Furthermore, the necessary training and equipment must be provided to persons who are working on a site that involves hazardous waste.

A person engaged in the generation, processing, treatment, package, storage, transportation, use, collection and destruction, conversion, offering for sale and any occupier must obtain an authorization from the State Pollution Board.[15]

Storage

The occupiers, recyclers, reprocessors, reusers and operators of facilities may store the hazardous waste for a period of up to 90 days[16] and records of sale, transfer, storage, recycling and reprocessing of such wastes shall be made available for inspection.

Recycling, Reprocessing and Reuse of Hazardous Waste:

Any person wishing to recycle or reprocess any waste as listed in Annex III must make an application by submitting the appropriate Form 5 as found in the Rules.[17] The following documents are also necessary:

(i) Consent to establish granted by the State Pollution Control Board
(ii) Certificate of registration issued by the District Industries Centre or any other government agency in this regard
(iii) Proof of installed capacity of plant and machinery issued by the District Industries Centre or any other Government Agency in this behalf
(iv) In the case of renewable, certificate of compliance of effluent, emission standards and treatment and disposal of hazardous wastes as applicable, from the State Pollution Control Board and the relevant Zonal Office of Central Pollution Control Board

[15] Form 1, found in the Act, must be filled and submitted in this regard. The same form must also be filled in for the purpose of renewal of authorization.
[16] The State Pollution Board may extend the duration allowed for the storage.
[17] Form 5, found in the Act

Sale or Transfer of Hazardous Waste for Recycling:

Any occupier of waste as defined above, may only sell or transfer it to a recycler having a valid registration from the Central Pollution Control Board.

Use of Hazardous Waste for the Purpose of Energy:

The use of hazardous waste as a resource for energy recovery may similarly only be carried out by the units after obtaining approval from the Central Pollution Control Board.

Import or Export of Hazardous Waste:

India is a signatory to the Basel Convention. Therefore, the Transboundary shipment of hazardous waste as it is termed is regulated by the Convention. The Waste Management regime, reflect this reality.

Import of hazardous waste is legally prohibited in India. This being said the import may be allowed for the purpose of recycling or recovery or reuse.

The export of hazardous waste may be allowed to an actual user of the wastes or operator of a disposal facility with the Prior Informed Consent of the Importing Country to ensure environmentally sound management of the hazardous waste in question.

Importing and exporting of Hazardous Waste for Recycling, Recovery or Reuse:

Importing of Hazardous Waste for disposal is prohibited in India. The only purpose for which import may be allowed is for purpose of recycling, recovery and reuse. Different procedures are applicable before hazardous waste may be imported for the purpose of recycling, recovery or reuse. References to the Annexes are necessary in this regard.

Annex III *– Hazardous Waste which requires Prior Informed Consent before Import from the country from where it is imported or exported to and shall require the license from the Directorate General of Foreign Trade and prior written permission from the Central Government.*

Annex IV – *These substances do not require the prior consent of the country from where it is imported. Where entries to the Annex are marked with a **, no consent is required from an authority in India to import the substance into India.*

*Entries marked with a *** indicate that import is permitted for recycling/reprocessing by units registered with the Ministry of Environment and Forests/Central Pollution Control Board.*

*Entries marked with **** indicate that import is permitted into India by users having Ministry of Environment and Forests Permission and Directorate General Foreign Trade permission.*

Annex V *– The import and export of the hazardous waste not specified in Annex III and IV above but having the characteristics highlighted in Annex VI shall require the prior written permission of the Central Government of India before it is imported into or exported from India.*

Export:

Any person intending to export hazardous wastes as detailed in the above annexes must complete the relevant Forms found in the final sections of the Section. Forms 7 and 8 must be completed together with full cover insurance policy for consignment to the Central Government together with the necessary 'Prior Informed consent' in writing from the importing country.

A 'No Objection Certificate' for the proposed export, granted by the Central Government of the importing country and forwarded to the Central Pollution Board and the concerned State Pollution Control Board and the concerned Port and Customs authorities for ensuring compliance of the conditions, if any, of the export and to take appropriate steps for the safe handling of the waste shipment.

The exporter must ensure that no export is effected without this clause.

Furthermore, the movement document, detailed in Form 9 must accompany the shipment. The exporter shall inform the Ministry of Environment and Forest upon completion of the trans-boundary movement of waste.

Furthermore, the exporter of the hazardous waste shall maintain the records of the hazardous waste exported by him in Form 10. These shall be available for inspection.

Import:

A person intending to import or transit hazardous waste indicated in the Annexes above shall apply by means of completion of Forms 7 and 8. This must be submitted to the Central Government of the proposed import together with the Prior Informed Consent. Simultaneously, a copy must be sent to the concerned Pollution State Control Board to enable them to send their comments, if any, to the Ministry of Environment and Forests.

It is then the Ministry of Environment and Forests that examines and grants the application. This is subject to the condition that the importer has:

(i) The environmentally sound recycling, recovery or reuse facilities
(ii) Adequate facilities and arrangement for treatment and disposal of wastes generated; and
(iii) Valid registration from the Central Pollution Control board and proof of use, if required.

Any importer must note that records of the hazardous waste imported by him must be maintained as indicated in Form 10 to the Act. These forms must be made available for inspection.

The importer must also inform the concerned State Pollution Control Board and the Central Pollution Board, the date and time of the arrival of the consignment of hazardous waste, ten days in advance.

Treatment, Storage and Disposal Facility for Hazardous Wastes:

Any persons wishing to operate a 'facility', which is any establishment wherein the processes incidental to the handling, collection, reception, treatment, storage and recycling, recovery, reuse and disposal of hazardous wastes are carried out, must design and set up the Treatment, Storage and Disposal Facility in compliance with the technical guidelines issued by the Central Pollution Control Board. Approval from the State Pollution Control Board for design and layout in this regard from time to time is necessary.

The operator of the Treatment, Storage and Disposal Facility shall be responsible for safe and environmentally sound operation of the facility and any closure. In this regard, the guidelines issued by the Central Pollution Board must be followed.

Any company operating a commercial venture in this regard must be aware of this. Finally, the operator must also maintain records of the hazardous wastes handled. This may be done by completing Form 10 found in the Rules.

Package, Labelling for Hazardous Wastes:

The occupier or operator of a Treatment, Storage and Disposal Facility or recycler, shall ensure that the hazardous wastes are packaged and labelled based on the composition in a manner suitable for safe handling, storage and transport as per the guidelines issued by the Central Board for Pollution. This should be clearly visible and should withstand physical conditions and climatic factors.

Transport of Hazardous Wastes:

If an occupier wishes to transfer hazardous waste, then he must fill in Forms 11 and 12 and provide the transporter with the relevant information regarding the hazardous nature of the wastes and measures to be taken in case of an emergency and shall mark the hazardous waste containers in accordance with the Forms.

In case of transport of hazardous wastes for final disposal to a facility for treatment, storage and disposal in a different state than where it is originally generated, the required 'No Objection Certificate' from the State Pollution Control Board of both the States in question must be obtained. In such a case, the occupier shall notify the concerned State Pollution Control Boards before he hands over the hazardous waste to the transporter.

For movement within the Country – that is to say, movement, which is not Transboundary, then Form 13 as Annexed to the Rules must be completed. Six copies of the form must be completed and signed by the transporter. The Rules establish that the six different copies must be in different colours, according to the authority to which they are forwarded. The table below indicates the colour code and the relevant authority:

Table 8: Colour Code for Forms for Intra-boundary Movement

Copy Number with Colour Code	Purpose
Copy 1 (White)	To be forwarded to the destination State Pollution Control Board or Committee. Furthermore, a copy must also be forwarded to the State Pollution Control Board of any state through which transit is proposed.
Copy 2 (Yellow)	To be carried by the occupier after taking signature on it from the transporter and the rest of the four copies to be carried by the transporter.
Copy 3 (Pink)	To be retained by the operator of the facility after signature.
Copy 4 (orange)	To be returned to the transporter by the operator of the facility/recycler after accepting waste.
Copy 5 (Green)	To be returned by the operator of the facility to the State Pollution Control Board/Committee after treatment and disposal of wastes.
Copy 6 (Blue)	To be returned by the operator of the facility to the occupier after treatment and disposal of hazardous materials wastes.

Maintenance of records and returns:

The occupier of hazardous wastes and operators of facilities are to complete Form 3 and maintain records of the operations contained therein.

Form 4, also contained in the Rules, must be completed and the occupier and operator of a facility shall send annual returns to the State Pollution Control Board.

Finally, where an accident occurs at the facility, or on a hazardous waste site or on a hazardous waste site or during transportation of hazardous waste this shall be reported immediately through the use of Form 14.

Liability:

Any damage caused to the environment or third party due to improper handling of the hazardous wastes or disposal of the hazardous wastes shall render the occupier, importer or operator facility responsible. He shall then be liable to pay financial penalties as levied by the State Pollution Control Board with prior approval of the Central Pollution Control Board.

7. The Plastics (Manufacture, Usage and Waste Management) Rules, 2009

These rules, which have not yet entered into force, are intended to supersede the Recycled Plastics Usage and Manufacture Rules 1999. The rules are designed to regulate the use of plastics in its various purposes.

Conditions during Manufacture, Sale, Stock, Distribution and Use:

It is to be noted in this case that manufacture refers to both degradable and non-degradable form. The rules stipulate that,

a) Carry bags and containers made of virgin plastics shall be in natural shade

b) The use of carry bags or containers made of recycled or biodegradable plastics for storing, carrying, dispensing or packaging of food stuffs shall be prohibited

c) Carry bags and containers made of recycled or biodegradable plastics and used for purposes other than storing and packaging food stuffs, shall be manufactured using pigments, colorants as per the Bureau of Indian Standards' specifications: IS 9833: 1981

entitled "List of pigments and colorants for use in plastics in contact with foodstuffs, pharmaceuticals and drinking water";

d) No person shall manufacture, stock, distribute or sell carry bags made of virgin or recycled plastics or bio-degradable plastics, which are less than 12X18 inches (30 x 45 cm) in size and less than 40 microns in thickness

e) No person shall manufacture carry bags or containers or pouches or multilayered packaging from biodegradable plastics unless these meet the Bureau of Indian Standards' specifications: ISIISO 17088:2008 entitle1 "Specifications for Compostable Plastics"·.

f) In any other instance than the packaging of food stuffs: no persons shall manufacture, stock, distribute or sell non-recyclable laminated plastic or metallic pouches, multilayered packaging and other non-recyclable plastics.

Recycling of Plastics:

Recycling of plastics are to be undertaken in accordance with the Bureau of Indian Standards specifications: IS 1453: 1988 entitled “The Guidelines for Recycling of Plastics"

Marking or Codification:

Manufacturers shall code or mark each bag or container made of plastics indicating whether it is made of ‘virgin plastic’ or ‘recycled plastic’ or ‘bio-degradable plastic as follows:

(a) Recycled bags or containers shall indicate that they are ‘recycled’ along with indication of the percentage of use of recycled material. A code mark as per Bureau of Indian Standards’ Specification ISIISO 17088: 2008 entitled ‘Specifications for Compostable Plastics’ shall be affixed.

(b) Carry bags or containers made from biodegradable plastic shall bear a code/mark as per Bureau of code/mark as per Bureau of Indian Standards' Specification: ISIISO 17088:2008 entitled "Specifications for Compostable Plastics" and shall be marked as ‘compostable’ or ‘bio-degradable during composting’.

(c) The marks shall contain, in English, Hindi or the local language – the following information: the name and address of the manufacturer, the registration number granted by the concerned State Pollution Control Board or Pollution Control Committee and the size and thickness of the carry bag or container.

Finally, there is an obligation on manufacturers of carry bags or containers made of virgin or recycled plastic to register with the concerned State Pollution Control Board.

Registration:

In order to register, every occupier manufacturing or proposing to manufacture carry bags or containers shall make an application in Form 1 to the State Pollution Control Board or Pollution Control Committee of the Union territory for the grant or registration or renewal of registration for his unit. No production will be allowed following the entry into force of the regulations, without the registration as required.

Standards:

All the standards mentioned in the Rules may be found on the website of the Indian Standards Bureau: http://www.standardsbis.in/Gemini/home/Home.action

8. Bio-Medical Waste (Management and Handling) Rules, 1998

The aim of these regulations is to ensure that bio-medical waste is properly disposed of. In this respect, bio-medical waste is defined as any waste, which is generated during the diagnosis, treatment or immunisation of human beings or animals or in research activities pertaining thereto or in the production or testing of biological.

Duty of Disposal

An occupier, defined as someone who in relation to any institution generating bio-medical waste, which includes a hospital, nursing home, clinic dispensary, veterinary institution, animal house, pathological laboratory, blood bank by whatever name called, means a person who has control over that institution and/or its premises. Said occupier must ensure that any waste is treated in a manner which is not harmful to human health or the environment. The methods of disposal are detailed in Table 8 below.

It is the responsibility of the occupier to set-up the requisite shall in accordance with the requisite bio-medical waste treatment facilities or to ensure requisite treatment of waste at a common waste treatment facility or any other waste treatment facility.

Segregation, Packaging, Transportation and Storage:

The rules prohibit the mixing of bio-medical waste with other wastes. It establishes that bio-medical waste shall be segregated into containers or bags at the point of generation prior to its storage, transportation, treatment and disposal. The containers must also be labelled. This must be done in accordance with Schedule III found in the rules.

Furthermore, if a container of biomedical waste is transported, then apart from any label prescribed in Schedule III then specific information must be given. This includes

- the waste category number, class and description ,the sender's contact details, as well as the receiver's details including the designated contact person in the case of an emergency[18].

The general rule is that no untreated bio-medical waste is to be kept stored beyond a period of 48 hours. This being said, if for any reason it becomes necessary to store the waste beyond such period – the authorised person must take permission of the authority as prescribed by the Government of the State and Union Territory. Measures must be taken to ensure that the waste does not adversely affect human health and the environment.

Authorisation and Reporting:

Every occupier of an institution generating, collecting, receiving, storing, transporting, treating, disposing and handling bio-medical waste except clinics, dispensaries, pathological laboratories and blood banks which provide treatment/service to less than 1000 patients per month shall make an application to the authority established by the Government of the State or Union Territory for grant of authorisation. This is to be done by means of completion of Form 1, as found in the Rules. Furthermore, a report must be submitted by every occupier by the January 31, every year. This must include information about the categories and quantities of bio-medical wastes handled during the preceding year. It is to be completed by reference to Form 11, as found in the Rules.

Maintenance of Records:

Records are to be maintained relating to the generation, collection, reception, storage, transportation, treatment, disposal and any form of handling of bio-medical waste in accordance rules. They shall be subject to inspection and verification.

Accident Reporting:

Where any accident occurs at any institution or facility then the authorised person shall report the accident to the prescribed authority.

[18] A form for the information may be found in Schedule IV of the Act, which will allow for ease of completion

Table 9: Methods of Disposal of Bio-Waste as Required by the Rules

Category	Waste Category	Treatment and Disposal[19]
I	**Human Anatomical Waste** (human tissues, organs, body parts)	Incineration/Deep Burial
II	**Animal Waste** (animal tissues, organs, body parts carcasses, bleeding parts, fluid, blood and experimental animals used in research, waste generated by veterinary hospitals colleges, discharge from hospitals, animal houses)	Incineration/Deep Burial
III	**Microbiology & Biotechnology Waste** (wastes from laboratory cultures, stocks or specimens of micro-organisms live or attenuated vaccines, human and animal cell culture used in research and infectious agents from research and industrial laboratories, wastes from production of biologicals, toxins, dishes and devices used for transfer of cultures)	local autoclaving/micro-waving/incineration
IV	**Waste sharps** (needles, syringes, scalpels, blades, glass, etc. that may cause puncture and cuts. This includes both used and unused sharps)	disinfection (chemical treatment/auto claving/micro-waving and mutilation/
V	Discarded Medicines and Cytotoxic drugs (wastes comprising of outdated, contaminated and discarded medicine)	
	Items contaminated with blood and	incineration/destruction and drugs

[19] Note: The technical specifications for the disposal of waste have been established in the Rules. For ease they have been reproduced as Annex VII

	body fluids including cotton, dressings, soiled plaster casts, lines, beddings, other material contaminated with blood	destroyed in landfill
VI	Waste generated from disposable solid items other than waste sharps such as tubings, catheters, intravenous sets etc	Incineration/autoclaving/microwaving
VII		Disinfection by chemical Treatment/autoclaving/microwaving and mutilation/shredding

9. The E-Waste (Management and Handling Rules) 2010

The new set of rules concerning electronic waste, drafted this year, were intended to tackle the problematic situation of disposal of electronic waste in India. This refers to waste generated in India as well as the vast amount of waste that is illegally imported into India for disposal. The rules are scheduled to come into force on January 1, 2012.

The rules establish a number of rules for various persons dealing with electronic waste.

Electronic waste as electrical and electronic equipment and which are intended to be discarded. It includes, but is not confined to, equipment listed in the Rules and scraps and rejects from the manufacturing process. The list in the Rules has been reproduced as Annex XI.

Obligations of the Producer

A host of important obligations are placed on the producer. The definition of a 'producer' is laid down in the rules. It is an extensive definition which stretches to any person who (i) manufactures and offers to sell electrical and electronic equipment under his own brand; or (ii) offers to sell, under his own brand, the assembled electrical and electronic equipment produced by other manufacturers or suppliers; or (iii) offers to sell imported electrical and electronic equipment

The rules, have thus adopted a wide definition of this central actor. A consequence of this is that the below obligations will affect a large number of persons, particularly commercial retailers.

The first obligation placed on producers is the collection of e-waste generated during the manufacture of electrical and electronic equipment and ensuring they are sent for recycling or disposal. The same applies to waste that is collected from producers from electronic waste generated by products that have reached their 'end of life.' The rules expressly mention the principle of 'Extended-Producer responsibility'. As its name implies, this means that a producer's responsibility extends not only throughout the lifetime of the product, but also to the proper disposal of the product.

Collection centres are to be set up for electronic waste generated. Furthermore, producers are to finance or organize a system, to meet the costs of an environmentally sound management of e-waste generated from the 'end-of-life' of its products. The rules establish that the financing must be transparent. This is an important obligation and producers are to take note of this. The possibility of a collective scheme for waste disposal is established and this may be a favourable option.

An important innovation is the placing of the obligation on the producer to create awareness through awareness, publications, advertisements, posters concerning the hazardous constituents in electrical waste as well as information on the hazards of improper handling of the waste and instructions for the handling of the equipment after its use.

The producer is bound to obtain an authorization from the concerned State Pollution Control board.

Procedure for obtaining authorisation

Every producer must apply within three months of the entry into force of the rules. This must be done by filling in Form 1 and submitting it to the State Pollution Control Board or the Pollution Control Committee. Persons authorised under the provisions of the Hazardous Wastes (Management, Handling and Transboundary Movements) Rules, 2008, shall not require to make an application for authorization till the period of expiry of such authorization.

Every person authorized under these rules shall maintain the record of e-waste handled by them in Form 2 and prepare and submit to the State Pollution Control Board or Pollution Control Committee, an annual return containing the details specified in Form 3 on or before 30th day of June following to the financial year to which that return relates.

An application for the renewal of an authorization shall be made in Form 1 at least two months (60 days) before its expiry and the State Pollution Control Board or Pollution Control Committee. The violation of any conditions in the previous grant of authorization will disallow the granting of the authorization.

Responsibilities of the Dealers

Dealers, as producers, are responsible for the collection of e-waste by providing consumers with a suitable means of disposal whether box, bin or a demarcated area.

Dealers are similarly required to register with the concerned State Pollution Control Boards or Pollution Control Committees. This is done by means of completing Form 4. The Form is found in the Rules.

The registered dealer is required to submit details of e-waste collected to the concerned State Pollution Control Board or Pollution Control Committees on yearly basis and the failure to supply these details would result in the cancellation of the registration

Any e-waste collected is to be transported back to the producer or to the authorised collection centre as the case may be.

Dealers shall file annual returns to the concerned State Pollution Control board or Pollution Control Committee before the 30th of June of every year. They shall do this by completing Form 3

Dealers shall maintain records of the e-waste handled in Form 2.

Responsibilities of Refurbishers

Refurbishers are defined as persons who repair used electrical and electronic equipment to be put back to original use and selling the same in the market. They are thus concerned with repair and restoration of electronic products.

Refurbishers are similarly bound to collect e-waste generated during the process of refurbishing and ensure that it is channelled to an authorised collection centre.

They are to apply for authorization by completing and submitting Form 4 to the concerned State Pollution Control Board or Pollution Control Committee.

Refurbishers are to file annual returns by completing Form 3 as found in the Rules on or before the June 30, every year.

Responsibilities of Collection Centres

Collection centres are the focal point where waste variously collected from various distributors is channelled. They are not responsible for the proper disposal of the waste. They are to ensure however, that e-waste collected by them is stored in a secure manner till these are sent to producers or refurbishes or registered dismantlers or recyclers as the case may be. They are also bound to ensure that the waste, when transferred, is transferred in a safe manner and that no damage is caused to the environment during storage and transportation of e-waste.

Persons operating a collection centre are bound to obtain authorisation from the State Pollution Control Board or Pollution Control Committee by completing Form 1, as found in the rules.

Obligations, similar to those placed on other actors, are imposed in the filing of annual returns in Form 3 to the concerned State Pollution Control Board or Pollution Control Committee on or before June 30, every year.

Records are to be maintained of e-waste handled as per required in Form 2.

Responsibilities of Bulk Consumers

Bulk consumers of electrical waste, are bulk users of electrical and electronic equipment such as Central or State Government Departments, public sector undertakings, banks, private companies, educational institutions multinational organizations and others.

They are to ensure that electronic waste is auctioned to or deposited with the dealer or authorised collection centre or refurbisher or registered dismantler or recyclers or avail themselves of services offered by producers.

They have the obligation to file annual returns by completing Form 3 and submitting it to the concerned State Pollution Control Board or Pollution Control Committee on or before the 30th day of June following to the financial year to which that return relates.

Responsibilities of the Dismantler

Dismantlers refer to persons who are engaged in the dismantling of used electrical and electronic equipment into their components.

They are bound to obtain registration from the Central Pollution Control Board (not the State Board).

In this case, the procedure is somewhat more complicated.

Form 5 must be completed within a period of three months starting from the date of commencement of the rules. It must be completed in triplicate to the Member Secretary of the Central Pollution Control Board along with the following documents:

(i) Consent to establish granted by the State Pollution Control Board under the Water Pollution Act and the Air Pollution Act (see below)
(ii) Certificate of registration issued by the District Industries Centre or any other government agency authorised in this regard
(iii) proof of installed capacity of plant and machinery issued by the District Industries Centre or any other government agency authorized in this behalf
(iv) In case in case of renewal, a certificate of compliance of effluent and emission standards, treatment and disposal of hazardous wastes as applicable from the State Pollution Control Board or Committee of the UT or any other agency designated for this purpose; and

Where any person is registered under the provisions of the Hazardous Waste Rules 2008 described above, then no application shall be necessary until the expiration of the said registration.

Responsibilities of the Recycler/Reprocessor

Recyclers and Reprocessors are persons who are engaged in the processing of e-waste for the recovery of useful materials or re-use.

They are bound to obtain authorization in the same manner as Dismantlers above and ensure that their facilities will follow the guidelines published by the Central Pollution Control Board.

They are also to ensure that residue generated thereof is disposed of in a hazardous waste treatment storage disposal facility.

They must also file annual returns dictated in Form 3, to the State Pollution Control Board or Committee of the Union Territory as the case may be on or before the 30th June following to the financial year to which the returns relate.

Prohibition on Import

None of the above persons shall import e-waste for the purpose of disposal in India.

Transport of E-Waste

Where e-waste is being transported for dismantling or for recycling or for final disposal to a facility existing in a State other than the State where the waste is generated/collected, the transporter shall obtain a 'No Objection Certificate' from the State Pollution Control Board of the State of Transit. In case of transportation of e-waste through a State other than the State of Origin, the transported shall intimate the concerned State Pollution Control Board beforehand.

Accident Reporting

Where an accident occurs at the facility processing e-waste or during transportation, then the producer, transporter, dismantler, refurbisher or recycler as the case may be, shall report immediately to the State Pollution Control Boards about the accident completing the details in Form 5.

Liability

The producer, collection centre, transporter, dismantler and recycler, as the case may be, based on their respective responsibilities defined earlier shall be liable for any damages caused to the environment or the human health including third parties due to improper handling and disposal of e-waste. He shall then undertake to reinstate or restore damaged or destroyed elements of the environment at his cost, failing which they shall be liable to pay the entire cost of remediation or restoration of the environment.

10. The Water (Prevention and Control of Pollution) Act, 1974, amended 1988

The introductory provisions of the Act explain that the legislation was introduced to provide for the prevention and control of water pollution and the maintaining or restoring of wholesomeness of water. It also provides for the establishment of boards for the control of water pollution. Some important definitions arise from the Act and are central to the understanding of the Act. It is useful to have a basic understanding of these definitions.

'Pollution' in the Act is defined as contamination of water or the alteration of the physical, chemical or biological properties of water or such discharge of any sewage or trade effluent or any other liquid, gas or solid 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 organisers.

Prohibition on Pollution

Company officials must be aware of the prohibitions on pollution contained in the Act. In the first place disposal of polluting matter (as defined by the state board standards) into streams, wells or sewers- or on land is prohibited. Furthermore it is prohibited to allow activity which impedes the proper flow of water or in any manner that is likely to lead to a substantial aggravation of pollution whether it is caused directly by this substance or it a consequence thereof. Similarly, the Act lays down that it is illegal without the prior consent of the board to establish any new form of operation which is likely to discharge sewage into a stream or well or sewer on land.

Thus it is important to note that any new outlet for the discharge of sewage must obtain prior authorisation of the board. In order to obtain said authorization an application must be made to the State Board.

If, consent is granted in this regard, then such consent is granted to a number of conditions as regards the point of discharge of the sewage and other factors such as temperature, volume and rate of discharge and the duration of the consent given.

State boards are empowered to review consent given as well as any condition established and in this regard, may vary or revoke the condition or consent. An appeal from such a variation or revocation is possible.

Penalties

Companies should also be aware of the penalties laid down for offences in the Act. Failure to provide information to the Central Board, where requested, is subject to imprisonment for a term of up to three months or a fine of up to ten thousand rupees. It is relevant to note that the fine established for a continuing offence may extend to 5,000 rupees for every day during which the failure continues.

Failure to comply with an immediate order restraining or prohibiting the persons concerned with polluting, or any other order made by the Court (upon application of the Board) as well

as an order made by the Board in the exercise of its functions is subject to imprisonment for a term of between one year and six months and six years together with a fine. For the continuing nature of an offence, an additional fine which may extend to five thousand rupees for every day may be levied. Should this state of offence continue for a period of more than one year, the offender shall be punishable with imprisonment for a term of between two and seven years and a fine.

It becomes clear, therefore, that failure to comply with the Act may lead to rather hefty fines and significant prison terms.

Contravention of the main prohibition on pollution contained in Section 24 is liable to a term of imprisonment of not less than one year and six months and not more than seven years, along with a fine.

It is also useful to note that this Act similarly contains provisions on the lifting of the company veil. This thus eliminates the protection offered by the separate legal personality provisions of a company, to officers of the company who knowingly and maliciously use the company to avoid personal prosecution.

11. The Water (Prevention and Control of Pollution) Cess Act, 1971

This Act binds consumers who are carrying on an industry that falls within the list[20] contained in the Annex VIII, to affix meters[21] for the purpose of assessing the quantity of water used in the Act. By amendment in 2003[22], industry has also now come to include operations or processes or treatment and disposal systems which consume water or give rise to sewage effluent.

Rate Payable

The rate levied is payable according to the use for which the water is drawn as defined in Annex IX.[23] The Annex shows the rate payable by every person and authority as explained by section (2) of Section 3. The Annex also shows the rate payable by persons who establish any industry or process of discharge or effluence or sewage without the authority of the State Board. These are shown separately in the Annex.

> a) Establish or take any steps to establish any industry, operation or process, or any treatment and disposal system or an 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

[20] The list is contained in Schedule II of the Act. It is reproduced as an Annex to this paper.
[21] water meters, venturi meters or Orifice meters with integrators and recorders in conformity with the standards laid down by the Indian Standards Institution and where no standards have been laid down by that institution, in conformity with standards as may be laid down by the board.
[22] THE WATER (PREVENTION AND CONTROL OF POLLUTION) CESS (AMENDMENT) ACT, 2003 of 13th March 2003
[23] In this regard, one must take note of the Amendment to the applicable rates laid down in Act No. 19 of 2003, [17/3/2003] - The Water (Prevention and Control of Pollution) Cess (Amendment) Act, 2003.

(b) Bring into use any new or altered outlets for the discharge of sewage; or

(c) Begin to make any new discharge of sewage;

It is also important to note that, in terms of Rule 3 of the rules, separate meters must be affixed for the following separate purposes contained in the Act. In this regard therefore, separate meters must be affixed for the following purposes: (i) industrial cooling, spraying in mine pits, or boiler feeds, (ii) domestic purposes, (iii) processing whereby water gets polluted and the pollutants are easily biodegradable and are toxic (iv) processing whereby water gets polluted and pollutants are not easily biodegradable and are toxic.

The meters are to be affixed in a place at the entrance of any premise and are to be made accessible for maintenance and inspection.

Payment

Before the 5th day of every month each consumer shall be bound to submit a form detailing the level of consumption together with a form relating to payment. The relevant form is found at the end of the Act and should duly be taken note of by the companies.

Offences

Importantly, Companies should take note of the offences as contained under the Act and rules. In the first place, any amount due to the Cess which is left unpaid shall be due in arrears and may be recovered by the Central Government following an opportunity to be heard. Further any person carrying on a specified industry who fails to pay the Cess as required shall be liable to pay interest on the amount at two percent on the amount, for every month or part thereof.

Of interest to commercial entities may be the provision concerning rebates. In terms of the rules, a rebate may be available where a consumer of water 'installs any plant for the treatment of sewage or trade effluent' as long as the plant continues to function successfully. This being said, any entitlement to a rebate will cease if the person consumes water in excess of the maximum quantity specified the Schedule to the Act and if he fails to comply with the provisions of the Act.

Lifting of the Corporate Veil:

Where offences are committed by a company, it persons who were, at the time of commission, in charge of and responsible to the company for the conduct of business, as well as the company, that shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accordingly. This being said, any person who proves that the offence was committed without his or her knowledge and that all due diligence was exercised, shall not be proceeded against.

Furthermore, where any offence is shown to have been committed by a company and it is proved to have been committed with the consent or connivance of any director, secretary or other officer then the said person shall be deemed to be guilty of that offence and shall be proceeded against and punished accordingly.

12. Air (Prevention and Control of Pollution) Act 1981, Amended 1987 and the Air (Prevention and Control of Pollution) Rules, 1982

This Act was established to prevent, control and abatement air pollution and for the establishment of Boards with the power to implement the Act.

In the Act, an 'air pollutant' is defined as any solid, liquid or gas, 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;

In the first place, it is important to note that the Central Board for the Prevention and Control of Water Pollution constituted under the Water (Prevention and Control of Pollution) Act, 1974, shall also exercise the powers and perform the functions of the Central Board for the Prevention and Control of Air Pollution. Similarly any State Board constituted for the same purpose shall also be recognised as exercising the same functions.

Furthermore, in any State where the Water (Prevention and Control of Pollution) Act is not in force, or where it is in force and the state board has not been constituted, then a State Board for the Prevention and Control of Air Pollution is to be established.

Air Pollution Control Areas:

The Act provides for 'Air Pollution Control Areas' to be established by State Government after consultation with the State Board. Notification will be published in the Government Gazette. These may be varied or altered, extended or reduced in the same manner.

The State Government may prohibit the use of fuel other than that approved by the State Board. This will be published in the Government Gazette. This is done in order to reduce the threat and effect of pollution. Similarly, the State Government may prohibit the use of any appliance other than 'approved appliances' by the State Board. In this regard, appliances are taken as equipment or gadgets used in the combustion of material, the generation and consumption of fumes and gases of a particulate matter. Similarly, the State Government may prohibit the burning of any material (not being fuel) in any air pollution control area if it may cause or is likely to cause air pollution.

Persons or enterprises connected with these areas in any way must ensure that they keep abreast of the developments in this regard.

Use of Certain Industrial Plants:

Any person operating or wishing to establish an industrial plant in any air pollution control area must obtain consent from the State Board. An application for consent is to be accompanied by such fees as may be prescribed.

Where a person or enterprise is operating an industrial plant in any air pollution control area immediately before the declaration of any area as an air pollution control area, then the said person shall make the application under this sub-section within the period established. He

shall then be deemed to be operating such industrial plant with the consent of the State Board, until the consent applied for has been refused.

Where consent is granted to a person- then the following conditions must be complied with, namely:

(i) Any control equipment of such specifications as the State Board may approve shall be installed and operated in the premises where the industry is carried on or proposed to be carried on; if the Board so directs, then it shall be altered or replaced. Furthermore, the control equipment shall be kept, at all times, in good running condition.
(ii) Chimneys following the specifications as established by the State Board and as approved in this regard, shall be erected
(iii) The conditions indicated above shall be complied with in the time-period indicated by the board.

Furthermore, where the State Board is of the opinion that all or any of the conditions referred to above require variation, then the State Board shall vary all or any of such conditions and any person operating shall be bound to comply with the conditions as they have been varied. Any consent given to a person who transfers his interest in the industry to another person, shall be deemed to have been given to another person and he shall be bound to comply with all the conditions subject to which it was granted.

Allowable Emissions of Pollutants

No person operating a plant is to allow emissions in excess of those established by the State Board. The State Board shall set these standards having regard to the standards for the quality of air laid down by the Central Board. For ease of reference, these standards have been reproduced in Annex

Furnishing of Information

Where the limitations on emissions in any air pollutant area are emitted in excess of the standards laid down by the State Board, the person in charge of the premises from where the emission occurs shall inform the State Board of the occurrence. The State Board, together with such relevant agencies and authorities as may be required shall then take, as early as is practicable, remedial action to be taken to mitigate the pollution from the emissions.

Any expenses incurred by the State Board, authority or agency in the action undertaken to mitigate the pollution, together with expenses at the rate as may be established by the State Government, may be recovered by the Board, authority or agency from the person concerned as arrears of land revenue or of public demand.

Assistance to Power to Entry

The State Board, and persons authorised in this regard, have a right at all reasonable times to enter any place for the purpose of performing the various functions of the Board.

It is important to note that there is a positive obligation on operating any control equipment or any industrial plant in an air pollution control area, shall be bound to render all assistance to the person above. Failure to do so, without any reasonable cause or excuse, shall render the person guilty of an offence under the Act. Further, any wilful delay or obstruction of the person in completion of his functions is an offence under the Act.

Penalties

Once again, a number of penalties are laid down in the Act. Any company must be aware of these penalties.

Where a person fails to comply with the provisions on the use of plants and the conditions attached to the consent granted by the Board, or exceeds the amount of emissions allowed by the Board or fails to comply with any directions given by the State Board relating to the closure, prohibition or regulation of any industry shall be punishable with imprisonment for a term between one year and six months and a maximum of six years, along with a fine. In case the failure continues, an additional fine which may extend to `5,000 for every day during which such failure continue after the conviction for the first such failure. If the failure continues for more than one year after the date of the conviction, the offender shall be punishable with imprisonment for a term which shall not be less than two years, but may extend up to seven years along with a fine.

Furthermore, penalties for the following acts are laid down.

Thus, any person who,

(a) destroys, pulls down, removes, injures or defaces any pillar, post or stake fixed in the ground or any notice or other matter put up, inscribed or placed, by or under the authority of the Board, or

(b) obstructs any person acting under the authority of the board and exercising powers or functions under the Act

(c) damages any works or property belonging to the Board;

(d) fails to furnish information to the Board or any other officer or employee as required

(e) fails to notify the Board of the occurrence of the emission of air pollutants into the Atmosphere in excess of the Standards laid down by the Board

(f) when giving information which is required, under the Act, makes a statement which is false in any material particular.

(g) makes a false statement for the purpose of obtaining any consent.

Any person who is convicted of the above offences shall be punishable with imprisonment for a term which may not extend to three months or with a fine of up to `10,000, or both.

Finally, a blanket provisions covers penalties for contraventions of provisions of the Act. Thus, for any contravention for which no penalty has been elsewhere provided, imprisonment for a term which may extend up to three months or a fine of up to `10,000 or both may be levied. In the case of continuing contravention, an additional fine which may extend up to `5,000 for every day during which the contravention continues may be levied.

Annexures

Annex I: List of Ozone Depleting Substances as contained in Schedule I of the Ozone Depleting Substances (Regulation) Rules, 2000

Sl.No.	Name of Ozone Depleting Substance	Chemical Composition of Ozone Depleting Substance	Group	Ozone Depleting Potential
(1)	**(2)**	**(3)**	**(4)**	**(5)**
1.	CFC-11	Trichlorofluoromethane ($CFCl_3$)	I	1.0
2.	CFC-12	Dichlorodifluoromethane (CF_2Cl_2)	I	1.0
3.	CFC-113	Trichlorotrifluoroethane ($C_2F_3Cl_3$)	I	0.8
4.	CFC-114	Dichlorotetrafluoroethane ($C_2F_4Cl_2$)	I	1.0
5.	CFC-115	Chloropentafluoroethane (C_2F_5Cl)	I	0.6
6.	Halon-1211	Bromochlorodifluoromethane (CF_2BrCl)	II	3.0
7.	Halon-1301	Bromotrifluoromethane (CF_3Br)	II	10.0
8.	Halon-2402	Dibromotetrafluoroethane ($C_2F_4Br_2$)	II	6.0
9.	CFC-13	Chlorotrifluoromethane (CF_3Cl)	III	1.0

10.	CFC-111	Pentachlorofluoroethane (C_2FCl_5)	III	1.0
11.	CFC-112	Tetrachlordifluoroethane ($C_2F_2Cl_4$)	III	1.0
12.	CFC-211	Heptachlorofluoropropane (C_3FCl_7)	III	1.0
13.	CFC-212	Hexachlorodifluoropropane ($C_3F_2Cl_6$)	III	1.0
14.	CFC-213	Pentachlorotrifluoropropane ($C_3F_3C_5$)	III	1.0
15.	CFC-214	Tetrachlorotetrafluoropropane ($C_3F_4Cl_4$)	III	1.0
16.	CFC-215	Trichloropentafluoropropane ($C_3F_5Cl_3$)	III	1.0
17.	CFC-216	Dichlorophexafluoropropane ($C_3F_6Cl_2$)	III	1.0
18.	CFC-217	Chloroheptafluoropropane (C_3F_7Cl)	III	1.0
19.	Carbon tetrachloride	Tetrachloromethane (CCl_4)	IV	1.1
20.	Methyl chloroform	1, 1, 1-Trichloroethane ($C_2H_3Cl_3$)	V	0.1
21.	HCFC-21	Dichlorofluoromethane ($CHFCl_2$)	VI	0.04
22.	HCFC-22	Dichlorodifluoromethane (CHF_2Cl)	VI	0.055
23.	HCFC-31	Chlorofluoromethane	VI	0.02

		(CH_2FCl)		
24.	HCFC-121	Tetrachlorodifluoroethane ($C_2HF_2Cl_4$)	VI	0.04
25.	HCFC-122	Trichlorodifluoroethane ($C_2HF_2Cl_3$)	VI	0.08
26.	HCFC-123	2, 2-dichloro-1, 1, 1-trifluoroethane ($C_2HF_3Cl_2$)	VI	0.06
27.	HCFC-123a	1.2-dichloro-1, 1, 2-trifluoroethane ($CHCl_2CF_3$)	VI	0.02
28.	HCFC-124	2-chloro-1, 1, 1, 2-trifluoroethane (C_2HF_4Cl)	VI	0.04
29.	HCFC-124a	2-chloro-1, 1, 2, 2-trifluoroethane ($CHFClCF_3$)	VI	0.022
30.	HCFC-131	Trichlorofluoroethane ($C_2H_2FCl_3$)	VI	0.05
31.	HCFC-132	Dichlorodifluoroethane ($C_2H_2F_2Cl_2$)	VI	0.05
32.	HCFC-133	Chlorotrifluoroethane ($C_2H_3F_3Cl$)	VI	0.06
33.	HCFC-141	Dichlorofluoroethane ($C_2H_3FCl_2$)	VI	0.07
34.	HCFC-141b	1, 1-dichloro-1-fluoroethane (CH_3CFCl_2)	VI	0.11
35.	HCFC-142	Chlorodifluoroethane ($C_2H_3F_2Cl$)	VI	0.07
36.	HCFC-142b	1-chloro-1, 1-difluoroethane (CH_3CF_2Cl)	VI	0.065

37.	HCFC-151	Chlorofluoroethane (C_2H_4FCl)	VI	0.005
38.	HCFC-221	Hexachlorofluoropropane (C_3HFCl_6)	VI	0.07
39.	HCFC-222	Pentachlorodifluoropropane ($C_3HF_2Cl_5$)	VI	0.09
40.	HCFC-223	Tetrachlorotrifluoropropane ($C_3HF_3Cl_4$)	VI	0.08
41.	HCFC-224	Trichlorotetrafluoropropane ($C_3HF_4Cl_3$)	VI	0.09
42.	HCFC-225	Dichloropentafluoropropane ($C_3HF_5Cl_2$)	VI	0.07
43.	HCFC-225ca	1, 3-dichloro-1,2, 2,3,3-pentafluoropropane ($CF_3CF_2CHCl_2$)	VI	0.025
44.	HCFC-225cb	1-3-dichloro-1,2,2,3,3-pentafluoropropane (CF_2ClCF_2CHClF)	VI	0.033
45.	HCFC-226	Chlorohexafluoropropane (C_3HF_6Cl)	VI	0.10
46.	HCFC-231	Pentachlorofluoropropane ($C_3H_2FCl_5$)	VI	0.09
47.	HCFC-232	Tetrachlorodifluoropropane ($C_3H_2F_2Cl_4$)	VI	0.10
48.	HCFC-233	Trichlorotrifluoropropane ($C_3H_2F_3Cl_3$)	VI	0.23
49.	HCFC-234	Dichlorotetrafluoropropane ($C_3H_2F_4Cl_2$)	VI	0.28

50.	HCFC-235	Chloropentafluoropropane ($C_3H_2F_5Cl$)	VI	0.52
51.	HCFC-241	Tetrachlorofluoropropane ($C_3H_3FCl_4$)	VI	0.09
52.	HCFC-242	Trichlorodifluoropropane ($C_3H_3F_2Cl_3$)	VI	0.13
53.	HCFC-243	Dichlorotrifluoropropane ($C_3H_3F_3Cl_2$)	VI	0.12
54.	HCFC-244	Chlorotetrafluoropropane ($C_3H_3F_4Cl$)	VI	0.14
55.	HCFC-251	Trichlorofluoropropane ($C_3H_4FCl_3$)	VI	0.01
56.	HCFC-252	Dichlorodifluoropropane ($C_3H_4F_2Cl_2$)	VI	0.04
57.	HCFC-253	Chlorotrifluropropane ($C_3H_4F_3Cl$)	VI	0.03
58.	HCFC-261	Dichlorofluoropropane ($C_3H_5FCl_2$)	VI	0.02
59.	HCFC-262	Chlorodifluoropropane ($C_3H_5F_2Cl$)	VI	0.02
60.	HCFC-271	Chlorofluoropropane (C_3H_6FCl)	VI	0.03
61.	BFC-21B2	Dibromofluoromethane ($CHFBr_2$)	VII	1.00
62.	HBFC-22B1	Bromodifluoromethane (CHF_2Br)	VII	0.74

63.		Bromofluoromethane (CH_2FBr)	VII	0.73
64.		Tetrabromofluoroethane (C_2HFBr_4)	VII	0.8
65.		Tribromodifluoroethane ($C_2HF_2Br_3$)	VII	1.8
66.	HBFC-123B2 HBFC-123aB2	Dibromotrifluoroethane ($C_2HF_3Br_2$)	VII	1.6
67.	HBFC-124B1	Bromotetrafluoroethane (C_2HF_4Br)	VII	1.2
68.		Tribromofluoroethane ($C_2H_2FBr_3$)	VII	1.1
69.		Dibromodifluoroethane ($C_2H_2F_2Br_2$)	VII	1.5
70		Bromotrifluoroethane ($C_2H_2F_3Br$)	VII	1.6
71.		Dibromofluoroethane ($C_2H_3FBr_2$)	VII	1.7
72.	HBFC-124B1	Bromodifluoroethane ($C_2H_3F_2Br$)	VII	1.1
73.	HBFC-124B1	Bromofluoroethane (C_2H_4FBr)	VII	0.1
74.		Haxabromofluoropropane (C_3HFB_6)	VII	1.5
75.		Pentabromodifluoropropane ($C_3HF_2Br_5$)	VII	1.9
76.		Tetrabromofluoropropane	VII	1.8

		($C_3HF_3Br_4$)		
77.		Tribromotetrafluoropropane ($C_3HF_4Br_3$)	VII	2.2
78.		Dibromopentafluoropropane ($C_3HF_5Br_2$)	VII	2.0
79.		Bromohaxafluoropropane (C_3HF_6Br)	VII	3.3
80.		Pentabromofluoropropane ($C_3H_2FBr_5$)	VII	1.9
81.		Tetrabromodifluoropropane ($C_3H_2F_2Br_4$)	VII	2.1
82.		Tribromotrifluoropropane ($C_3H_2F_3Br_3$)	VII	5.6
83.		Dibromotetrafluoropropane ($C_3H_2F_4Br_2$)	VII	7.5
84.		Bromopentafluoropropane ($C_3H_2F_5Br$)	VII	1.4
85.		Tetrabromofluoropropane ($C_3H_3FBr_4$)	VII	1.9
86.		Tribromodifluoropropane ($C_3H_3F_2Br_3$)	VII	3.1
87.		Dibromotriflvoropropane ($C_3H_3F_3Br_2$)	VII	2.5
88.		Bromotetrafluoropropane ($C_3H_3F_4Br$)	VII	4.4

89.		Tribromofluoropropane ($C_3H_4FBr_3$)	VII	0.3
90.		Dibromodifluoropropane ($C_3H_4F_2Br_2$)	VII	1.0
91.		Bromotrifluoropropane ($C_3H_4F_3Br$)	VII	0.8
92.		Dibromofluoropropane ($C_3H_5FBr_2$)	VII	0.4
93.		Bromodifluoropropane ($C_3H_5F_2Br$)	VII	0.8
94.		Bromofluoropropane (C_3H_6FBr)	VII	0.7
95.	Methyl bromide	(CH_3Br)	VIII	0.6

Annex II: Hazardous Substances Requiring a Permit for Recycling and Reprocessing

1. Brass Dross
2. Copper Dross
3. Copper Oxide
4. Copper Reverts, Cake and Residue
5. Waste Copper and Copper Alloys in Dispersible Form
6. Slags from Copper Processing for Further Processing or Refining
7. Insulated Copper Wire Scrap/Copper with PVC Sheathing including IRSI-code material namely 'Druid'
8. Jelly filled Copper Cables
9. Spent Cleared Metal Catalyst containing Copper
10. Spent Catalyst containing Nickel, Cadium, Zinc, Copper, Arsenie, Vanadium and Cobalt
11. Zinc Dross-Hot dip Galvanisers SI.AB
12. Zinc Dross-Bottom Dross

13. Zinc ash/skimmings arising from galvanizing and die-casting operations
14. Zinc ash/skimming/other zinc bearing wastes arising from smelting and refining
15. Zinc ash and residues including zinc alloy residues in dispersible form
16. Spent cleared metal catalyst containing zinc
17. Lead acid battery plates and other lead scrap/ashes/residues not covered under the Batteries (Management and Handling Rules) 2001 [Battery scrap, namely: Lead battery plates covered by ISRI, Code word 'Rails', Battery lugs covered by ISRI, Code word 'Rakes', Scrap drained/dry while intact, lead batteries covered by ISRI, Code word 'Rains'.
18. Components of waste electrical and electronic assembles comprising accumulators and other batteries included on list A, mercury-switches, activated glass cullets, from cathode-ray tubes and other activated glass and PCB-capacitors, or any other component contaminated with Schedule II constituents (e.g. cadium, mercury, lead, polychlorinated biphenyl) to an extent that they exhibit hazard characteristics indicated in Part C of this Schedule.
19. Paint and ink Sludge/residues
20. Used Oil and Waste Oil – As per specifications prescribed from time to time.

Annex III: Categories of Waste as Derived from the Basel Convention

Basel No	Description of Hazardous Waste
A1010	Metal Wastes and Waste consisting of alloys of any of the following: Antimony, Cadium, Tellurium, Lead.
A1020	Waste having as constituents or contaminants, excluding metal wastes in massive forms, any of the following: Cadium or Cadium Compounds, Antimony or Antimony Compounds, Tellurium or Tellurium Compounds, Lead or Lead Compounds
A1040	Wastes having Metal Carbonyls as Constituents

	Galvanic Sludges
A1050	
	Waste Liquors from the Picking of Metals
A1060	
	Leaching Residues from Zinc Processing, Dusts and Sludges
A1070	
	Waste Zinc Residues containing lead and Cadium concentrations sufficient to exhibit hazardous characteristics indicated in Annex VI
A1080	
	Ashes from the Incineration of Insulated Copper Wire
A1090	
	Dusts and Residues from Gas Clearing Systems of Copper Smelters
A1100	
	Spent Electrolytic Solutions from Copper Electro refining and Electrowinning Operations
A1110	Waste Sludges, excluding anode slimes from electrolytic purification systems in copper electrorerefining and electrowinning programmes
A1120	Spent etching solutions containing dissolved paper
A1130	Precious metal Ash from Incineration of Printed Circuit Boards not included in Annex V
A1150	Waste Lead Acid batteries whether whole or crushed
A1160	Unsorted Waste batteries

A1170	Waste Electrical and Electronic Assembles or scrap containing components such as accumulators and other batteries, Mercury Switches, Activated Glass Cullets from Cathode Ray Tubes and Othetr Activated Glass and PCB Capacitors or contaminated with hazardous substances to the point that they exhibit hazard characteristics indicated in Annex VI.
A1180	Activated Glass Cullets from Cathode Ray Tubes and other activated glasses
A2010	Waste catalysts but excluding waste specified in List B of Schedule 3 found in the Rules
A2030	Waste from the production or processing of Petroleum coke and Bitumen
A3010	Waste Mineral Oils unfit for their original intended use
A3020	Waste from production, formulation and use of resins, latex plasticisers or glues/adhesives excluding such wastes specified in Annex V
A3050	Waste Phenol, Phenol Compounds including chlorophenol in the form of liquids or sludges
A3070	Waste ethers not included in Annex V
A3080	Fluff: Light fraction from Shredding
A3120	Waste organic phosphorous compounds
	Waste non-halogenated organic solvents but excluding such wastes specified in Annex V

A3130	Waste halogenated or unhalogenated non-aqueous distillation resides arising from organic solvent recovery operations
A3140	Waste arising from the production of aliphantic halogenated hydrocarobs (such as chloromethanes, dichloroethane, vinylchloride, vinylidene chloride, allyl chloride and epichloryhdrin
A3160	Wastes from the production and preparation and use of pharmaceutical products but excluding such wastes specified in Annex V
A3170	Wastes from the manufacture formulation and use of wood preserving chemicals
A4010	Waste from the production, formulation and use of inks, dyes, pigments, paints, lacquers, varnish excluding those specified in Annex V
A4040	Wastes of an explosive material excluding such wastes specified in Annex V
A4070	Waste acidic or basic solutions excluding those specified in Annex V
A4080	Waste from Industrial Control Devices for use in cleaning of industrial off-gases excluding such wastes specified in Annex V
A4090	Waste that contain, consist of or are contaminated with peroxides
A4110	Waste packages and containers containing any of the constituents mentioned in Schedule 2 to the Rules to the extent of concentration limits specified therein.
A4120	Waste consisting of or containing off specification or out-dated chemicals containing any of the constituents mentioned in Schedule 2 to the Rules.

A4130	Waste Chemical Substances arising from research and development or teaching activities which are identified and/or new and whose effect on human health and/or the environment are not known
A4140	Spent activities Carbon not included on Annex V
A4150	
A4160	

Annex IV: Materials That Require Different Permits as Specified.

B1 Metal and metal-bearing wastes

B1010	Metal and metal-alloy wastes in metallic, non-dispersible form: • Precious metals (gold, silver, the platinum group, but not mercury)** • Iron and steel scrap ** • Copper scrap ** • Nickel scrap ** • Aluminium scrap ** • Zinc scrap ** • Tin scrap** • Tungsten scrap** • Molybdenum scrap** • Tantalum scrap **

	• Magnesium scrap** • Cobalt scrap** • Bismuth scrap** • Titanium scrap ** • Zirconium scrap ** • Manganese scrap ** • Germanium scrap ** • Vanadium scrap ** • Scrap of hafnium, indium, niobium, rhenium and gallium ** • Thorium scrap • Rare earths scrap • Chromium scrap **
B1020	Clean, uncontaminated metal scrap, including alloys, in bulk finished form (sheet, plate, beams, rods, etc), of: • Antimony scrap **** • Cadmium scrap • Lead scrap (but excluding lead-acid batteries) **** • Tellurium scrap ****
B1030	Refractory metals containing residues ****
B1031	Molybdenum, tungsten, titanium, tantalum, niobium and rhenium metal and metal alloy wastes in metallic dispersible form (metal powder), excluding such wastes as specified in list A under entry A1050, Galvanic sludges ****
B1040	Scrap assemblies from electrical power generation not contaminated with lubricating oil, PCB or PCT to an extent to render them hazardous **
B1050	Mixed non-ferrous metal, heavy fraction scrap, not containing Annex I materials in concentrations sufficient to exhibit concentrations as specified in

	Schedule 2 of the Act **
B1060	Waste selenium and tellurium in metallic elemental form including powder ****
B1070	Waste of copper and copper alloys in dispersible form, unless they contain ***
B1080	Zinc ash and residues including zinc alloys residues in dispersible form unless containing constituents as specified in Schedule 2 to the Rules and to the required constituents ***
B1090	Waste batteries conforming to a specification, excluding those made with lead, cadmium or mercury ****
B1100	Metal-bearing wastes arising from melting, smelting and refining of metals: • Hard zinc spelter ** • Zinc-containing drosses: ** - Galvanizing slab zinc top dross (>90% Zn) - Galvanizing slab zinc bottom dross (>92% Zn) - Zinc die casting dross (>85% Zn) - Hot dip galvanizers slab zinc dross (batch)(>92% Zn) - Zinc skimmings • Aluminium skimmings (or skims) excluding salt slag** • Slags from copper processing for further processing or refining not containing arsenic, lead or cadmium • Wastes of refractory linings, including crucibles, originating from copper smelting • Slags from precious metals processing for further refining ** • Tantalum-bearing tin slags with less than 0.5% tin ****
B1110	Electrical and electronic assemblies: • Electronic assemblies consisting only of metals or alloys ****

	• Waste electrical and electronic assemblies or scrap[24] (including printed circuit boards) not containing components such as accumulators and other batteries included on list A, mercury-switches, glass from cathode-ray tubes and other activated glass and PCB-capacitors, or not contaminated with Annex I constituents (e.g., cadmium, mercury, lead, polychlorinated biphenyl) or from which these have been removed, to an extent that they do not possess any of the characteristics contained in Schedule 2 to the Rules**** • Electrical and electronic assemblies (including printed circuit boards, electronic components and wires) destined for direct reuse, and not for recycling or final disposal

B1120	Spent catalysts excluding liquids used as catalysts, containing any of:		
	Transition metals, excluding waste catalysts (spent catalysts, liquid used catalysts or other catalysts) on list A:	Scandium Vanadium Manganese Cobalt Copper Yttrium Niobium Hafnium Tungsten	Titanium Chromium Iron Nickel Zinc Zirconium Molybdenum Tantalum Rhenium
	Lanthanides (rare earth metals):	Lanthanum Praseodymium Samarium Gadolinium Dysprosium Erbium Ytterbium	Cerium Neodymium Europium Terbium Holmium Thulium Lutetium
B1130	Cleaned spent precious-metal-bearing catalysts		
B1140	Precious-metal-bearing residues in solid form which contain traces of inorganic cyanides		

[24] This entry does not include scrap from electrical power generation.

B1150	Precious metals and alloy wastes (gold, silver, the platinum group, but not mercury) in a dispersible, non-liquid form with appropriate packaging and labelling
B1160	Precious-metal ash from the incineration of printed circuit boards (note the related entry on list A A1150)
B1170	Precious-metal ash from the incineration of photographic film
B1180	Waste photographic film containing silver halides and metallic silver
B1190	Waste photographic paper containing silver halides and metallic silver
B1200	Granulated slag arising from the manufacture of iron and steel
B1210	Slag arising from the manufacture of iron and steel including slags as a source of TiO_2 and vanadium
B1220	Slag from zinc production, chemically stabilized, having a high iron content (above 20%) and processed according to industrial specifications (e.g., DIN 4301) mainly for construction
B1230	Mill scaling arising from the manufacture of iron and steel**
B1240	Copper oxide mill-scale***

B2 Wastes containing principally inorganic constituents, which may contain metals and organic materials

B2010	Wastes from mining operations in non-dispersible form: • Natural graphite waste • Slate waste, whether or not roughly trimmed or merely cut, by sawing or otherwise • Mica waste • Leucite, nepheline and nepheline syenite waste • Feldspar waste

	• Fluorspar waste • Silica wastes in solid form excluding those used in foundry operations
B2020	Glass waste in non-dispersible form: • Cullet and other waste and scrap of glass except for glass from cathode-ray tubes and other activated glasses
B2030	Ceramic wastes in non-dispersible form: • Cermet wastes and scrap (metal ceramic composites) • Ceramic based fibres not elsewhere specified or included
B2040	Other wastes containing principally inorganic constituents: • Partially refined calcium sulphate produced from flue-gas desulphurization (FGD) • Waste gypsum wallboard or plasterboard arising from the demolition of buildings • Slag from copper production, chemically stabilized, having a high iron content (above 20%) and processed according to industrial specifications (e.g., DIN 4301 and DIN 8201) mainly for construction and abrasive applications • Sulphur in solid form • Limestone from the production of calcium cyanamide (having a pH less than 9) • Sodium, potassium, calcium chlorides • Carborundum (silicon carbide) • Broken concrete • Lithium-tantalum and lithium-niobium containing glass scraps
B2050	Coal-fired power plant fly-ash, not included on list A (note the related entry on list A A2060)
B2060	Spent activated carbon resulting from the treatment of

	potable water and processes of the food industry and vitamin production
B2070	Calcium fluoride sludge
B2080	Waste gypsum arising from chemical industry processes not included in Schedule 2 to the Rules
B2090	Waste anode butts from steel or aluminium production made of petroleum coke or bitumen and cleaned to normal industry specifications (excluding anode butts from chlor alkali electrolyses and from metallurgical industry)
B2100	Waste hydrates of aluminium and waste alumina and residues from alumina production excluding such materials used for gas cleaning, flocculation or filtration processes
B2110	Bauxite residue ("red mud") (pH moderated to less than 11.5)
B2120	Waste acidic or basic solutions with a pH greater than 2 and less than 11.5, which are not corrosive or otherwise hazardous (note the related entry on list A A4090)
B2130	Bituminous material (asphalt waste) from road construction and maintenance, not containing tar[25] (note the related entry on list A, A3200)

B3 Wastes containing principally organic constituents, which may contain metals and inorganic materials

B3010	Solid plastic waste: The following plastic or mixed plastic materials, provided they are not mixed with other wastes and are prepared to a specification: • Scrap plastic of non-halogenated polymers and co-polymers, including but not limited to the following[26] - ethylene - styrene

[25] The concentration level of Benzol (a) pyrene should not be 50mg/kg or more.
[26] It is understood that such scraps are completely polymerized.

	- polypropylene - polyethylene terephthalate - acrylonitrile - butadiene - polyacetals - polyamides - polybutylene terephthalate - polycarbonates - polyethers - polyphenylene sulphides - acrylic polymers - alkanes C10-C13 (plasticiser) - polyurethane (not containing CFCs) - polysiloxanes - polymethyl methacrylate - polyvinyl alcohol - polyvinyl butyral - polyvinyl acetate • Cured waste resins or condensation products including the following: - urea formaldehyde resins - phenol formaldehyde resins - melamine formaldehyde resins - epoxy resins - alkyd resins - polyamides • The following fluorinated polymer wastes[27] - perfluoroethylene/propylene (FEP) - perfluoro alkoxyl alkane - tetrafluoroethylene/per fluoro vinyl ether (PFA) - tetrafluoroethylene/per fluoro methylvinyl ether (MFA) - polyvinylfluoride (PVF) - polyvinylidenefluoride (PVDF)
B3130	Waste polymer ethers and waste non-hazardous monomer ethers incapable of forming peroxides
B3140	Waste pneumatic tyres, excluding those destined for Annex IVA operations

[27] Post-consumer wastes are excluded from this entry:

- Wastes shall not be mixed
- Problems arising from open-burning practices to be considered

B4 Wastes Which May Contain Either Inorganic or Organic Constituents

B4010	Wastes consisting mainly of water-based/latex paints, inks and hardened varnishes not containing organic solvents, heavy metals or biocides to an extent to render them hazardous (note the related entry on list A A4070)
B4020	Wastes from production, formulation and use of resins, latex, plasticizers, glues/adhesives, not listed on list A, free of solvents and other contaminants to an extent that they do not exhibit characteristics such as water-based, or glues based on casein, starch, dextrin, cellulose ethers, polyvinyl alcohols (note the related entry on list A A3050)
B4030	Used single-use cameras, with batteries not included on list A

Annex V: List of Characteristics, if Present, Require the Consent of the Central Government Before Imported or Exported

Code	Characteristic
H1	**Explosive** – An explosive substance or waste is a solid or liquid substance or waste (or mixture of substances or wastes) which is, in itself capable by chemical reaction of producing gas at such a temperature and pressure and at such speed as to cause damage to the surroundings
H3	**Flammable Liquids –** Has the same meaning as inflammable. These are liquids or mixtures of liquids or liquids containing solids in solution or suspension (for example paints, varnishes, lacquers etc but not including substances or wastes otherwise classified on account of their dangerous characteristics) which give off a flammable vapour at temperatures of not more than 60.5C, closed-cup test, or not more than 65.5C, open cup test.

H 4.1	**Flammable Solids** –Solids or Waste Solids, other than those classed as explosives, which under conditions encountered in transport are readily combustible, or may cause or contribute to fire through friction.
H4.2	**Substances or wastes liable to Spontaneous Combustion –** Substances or wastes which are liable to spontaneous heating under normal conditions encountered in transport or to heating up on contact with air, and then being liable to catch fire.
H 4.3	**Substances or wastes which, in contact with water emit flammable gases** – Substances or wastes which, by interaction with water, are liable to become spontaneously flammable or to give off flammable gases in dangerous quantities.
H 5.1	**Oxidizing** – Substances or wastes which, while in themselves not necessarily combustible, may generally by yielding oxygen cause or contribute to, the combustion of other materials.
H 5.2	**Organic Peroxides** – Organic Substances or wastes which contain the bivalent –O-O- structure are thermally unstable substances which may undergo exothermic self-accelerating decomposition.
	Poisons (Acute) Substances or wastes liable either to cause death or serious injury or to harm health if swallowed or inhaled or by skin contact.

H 6.1	**Infectious Substances** – Substances or wastes containing visible micro organisms or their toxins which are known or suspected to cause disease in animals or humans.
H 6.2	**Corrosives** – Substances or wastes which, by chemical action, will cause severe damage when in contact with living tissue, or in the case of leakage, will materially damage or even destroy other goods or the means of transport; they may also cause other hazards.
H 8	**Liberation of toxic gasses in contact with air or water** – Substances or wastes which, by interaction with air or water, are liable to give-off toxic gases in dangerous quantities.
H 10	**Toxic (Delayed or Chronic)** Substances or wastes which, if they are inhaled or ingested or if they penetrate the skin, may involve delayed or chronic effects, including carcinogenicity.
H 11	**Ecotoxic** Substances or wastes which if released present or may present immediate or delayed adverse impacts to the environment by means of bioaccumulation and/or toxic effects upon biotic systems.
H 12	**Capable** by any means, after disposal, of yielding another material, which possesses any of the characteristics listed above.

H 13	

Annex VI: Technical Specifications for Disposal and Treatment of Bio-Waste

STANDARDS FOR TREATMENT AND DISPOSAL OF BIO-MEDICAL WASTES

Standards for Incinerators:

All incinerators shall meet the following operating and emission standards

A. Operating Standards

1. Combustion efficiency (CE) shall be at least 99.00%.

2. The Combustion efficiency is computed as follows:

$$CE = \frac{\%CO_2}{\%CO_2 + \%\ CO} \times 100$$

3. The temperature of the primary chamber shall be 800 ± 50 deg. C°.

4. The secondary chamber gas residence time shall be at least I (one) second at 1050 ± 50 C°, with minimum 3% Oxygen in the stack gas.

B. Emission Standards

Parameters	Concentration mg/Nm^3 at (12% CO_2 correction)
(1) Particulate matter	150
(2) Nitrogen Oxides	450
(3) HCI	50

(4) Minimum stack height shall be 30 metres above ground
(5) Volatile organic compounds in ash shall not be more than 0.01%

Note:

• Suitably designed pollution control devices should be installed/retrofitted with the incinerator to achieve the above emission limits, if necessary.

• Wastes to be incinerated shall not be chemically treated with any chlorinated disinfectants.

• Chlorinated plastics shall not be incinerated.

• Toxic metals in incineration ash shall be limited within the regulatory quantities as defined under the Hazardous Waste (Management and Handling Rules,) 1989.

• Only low sulphur fuel like L.D.0dLS.H.S.1Diesel shall be used as fuel in the incinerator.

Standards for Waste Autoclaving:

The autoclave should be dedicated for the purposes of disinfecting and treating bio-medical waste,

(I) When operating a gravity flow autoclave, medical waste shall be subjected to:

(i) a temperature of not less than 121 C' and pressure of 15 pounds per square inch (psi) for an autoclave residence time of not less than 60 minutes; or

(ii) a temperature of not less than 135 C° and a pressure of 31 psi for an autoclave residence time of not less than 45 minutes; or

(iii) a temperature of not less than 149 C° and a pressure of 52 psi for an autoclave residence time of not less than 30 minutes.

(II) When operating a vacuum autoclave, medical waste shall be subjected to a minimum of one pre-vacuum pulse to purge the autoclave of all air. The waste shall be subjected to the following:

(i) a temperature of not less than 121 C° and pressure of 15 psi per an autoclave residence time of not less than 45 minutes; or

(ii) a temperature of not less than 135 C° and a pressure of 31 psi for an autoclave residence time of not less than 30 minutes;

(III) Medical waste shall not be considered properly treated unless the time, temperature and pressure indicators indicate that the required time, temperature and pressure were reached during the autoclave process. If for any reasons, time temperature or pressure indicator indicates that the required temperature, pressure or residence time was not reached, the entire load of medical waste must be autoclaved again until the proper temperature, pressure and residence time were achieved.

(IV) Recording of operational parameters

Each autoclave shall have graphic or computer recording devices which will automatically and continuously monitor and record dates, time of day, load identification number and operating parameters throughout the entire length of the autoclave cycle.

(V) Validation test

Spore testing:

The autoclave should completely and consistently kill the approved biological indicator at the maximum design capacity of each autoclave unit. Biological indicator for autoclave shall be Bacillus stearothermophilus spores using vials or spore Strips; with at least $1X10^4$ spores per millilitre. Under no circumstances will an autoclave have minimum operating parameters less than a residence time of 30 minutes, regardless of temperature and pressure, a temperature less than 121 C° or a pressure less than 15 psi.

(VI) Routine Test

A chemical indicator strip/tape the changes colour when a certain temperature is reached can be used to verify that a specific temperature has been achieved. It may be necessary to use more than one strip over the waste package at different location to ensure that the inner content of the package has been adequately autoclaved

Standard for Liquid Waste:

The effluent generated from the hospital should conform to the following limits

PARAMETERS	PERMISSIBLE LIMITS
PH	63-9.0
Susponded solids	100 mg/l
Oil and grease	10 mg/l
BOD	30 mg/l
COD	250 mg/l
Bio-assay test	90% survival of fish after 96 hours in 100% effluent.

These limits are applicable to those, hospitals which are either connected with sewers without terminal sewage treatment plant or not connected to public sewers. For discharge into public sewers with terminal facilities, the general standards as notified under the Environment (Protection) Act, 1986, shall be applicable.

Standards of Microwaving:

1. Microwave treatment shall not be used for cytotoxic, hazardous or radioactive wastes, contaminated animal car casses, body parts and large metal items.

2. The microwave system shall comply with the efficacy test/routine tests and a performance guarantee may be provided by the supplier before operation of the limit.

3. The microwave should completely and consistently kill the bacteria and other pathogenic organisms that is ensured by approved biological indicator at the maximum design capacity of each microwave unit. Biological indicators for microwave shall be Bacillus Subtilis spores using vials or spore strips with at least 1 x 101 spores per milliliter.

Standards for Deep Burial:

1. A pit or trench should he dug about 2 meters deep. It should be half filled with waste, then covered with lime within 50 cm of the surface, before filling the rest of the pit with soil.

2. It must be ensured that animals do not have any access to burial sites. Covers of galvanised iron/wire meshes may be used.

3. On each occasion, when wastes are added to the pit, a layer of 10 em of soil shall be added to cover the wastes.

4. Burial must be performed under close and dedicated supervision.

5. The deep burial site should be relatively impermeable and no shallow well should be close to the site.

6. The pits should be distant from habitation, and sited so as to ensure that no contamination occurs of any surface water or ground water. The area should not be prone to flooding or erosion.

7. The location of the deep burial site will be authorised by the prescribed authority.

8. The institution shall maintain a record of all pits for deep burial.

Annex VII: List of Industries Requiring Meter to Measure Water Consumption

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 (including cotton synthetic and semi-synthetic fibres manufactured from these fibres);
11. Paper industry
12. Fertilizer industry
13. Coal (including coke) industry

14. Power (thermal, diesel) and [Hydel] generating industry
15. Processing of animal or vegetable products industry (including processing of milk, meat, hides and skins, all agricultural products and their wastes)
16. Engineering industry

Annex VIII: Rates Chargeable for Water According to Use

Purpose for which water is consumed	Maximum rate under sub-section (2) of section 3[28]	Maximum rate under Sub-section (2A) of Section 3[29]
1. Industrial cooling, spraying in mine pits or boiler feeds	Five paise per kilolitre	Ten paise Per kilolitre.
2. Domestic purpose	Two paise per kilolitre	Three paise per kilolitre.
3. Processing whereby water gets polluted and the pollutants are – a) easily biodegradable ; or b) non – toxic; or c) both non toxic and easily bio degradable.	Ten paise per kilolitre	Twenty paise per kilolitre.
4. Processing whereby water gets polluted and the pollutants are – a) not easily biodegradable; or b) toxic; or c) both toxic and not easily biodegradable.	Fifteen paise per kilolitre	Thirty paise per kilolitre."

5 - Any person or authority making use of the water for the specified purpose.

6 – Any person who takes step to:

(a) establish or take any steps to establish any industry, operation or process, or any treatment and disposal system or an 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 outlets for the discharge of sewage; or

(c) begin to make any new discharge of sewage;

Annex IX: Allowable Emissions Standards as Established under the Air (Prevention and Control of Pollution) Act, 1981

S. No.	Pollutant	Time Period	Concentration in Ambient Air		
			Industrial, Residential or Other Areas	Biologically Sensitive Area (notified by Central Government)	ethods of easurement
(1)	(2)	(3)	(4)	(5)	(6)
1	Sulphur Dioxide (SO_2) µg/m^3	Annual* 24 hours **	50 80	20 80	Improved waste and Gacke Ultraviolet Flourescence
2	Nitrogen Dioxide (NO_2) µg/m^3	Annual* 24 hours **	40 80	30 80	Modified Jacob & Hochheiser (NA-Arsenite) Chemiluminescence
3	Particulate Matter Size less than 10 µgm^3 or PM_{10} µgm^3	Annual* 24 hours **	60 100	60 100	Gravimetric TOEM Beta Attenuation
4	Particulate Matter Size less than 10 µg/m^3 or $PM_{2.5}$ µgm^3	Annual* 24 hours **	40 60	40 60	Gravimetric TOEM Beta Attenuation
5	Ozone (O_3) µg/m^3	8 hours** 1 hour**	100 180	100 180	UV Photometric Chemilminescence Chemical Method

6	Lead (Pb) µg/m^3	Annual* 24 Hours**	0.5 1.0	0.50 1.0	AAS/ICP method after sampling or equivalent filter paper ED-XRF using Teflon Filter
7	Carbon Monoxide (CO) mg/m^3	8 hours** 1 hour**	02 04	02 04	Non-Dispersive Infra-Red (NDIR) Spectroscopy
8	Ammonia (NH_3)) µg/m^3	Annual* 24 hours**	100 400	100 400	Chemilumines-cence Indophenol Blue Method
9	Benzene (C_6H_6)	Annual*	05	05	Gas Chromatography based continuous analyser Adsorption and Desorption followed by GC Analysis.
10	Benzo(a)Pyrene BaP – particulate phase only, ng/m^3	Annual*	01	01	Solvent Extraction followed by HPLC/GC analysis
11	Arsenic (As), ng/m^3	Annual*	06	06	AAS/ICP method after sampling on EPM 2000 or equivalent filter paper
12	Nickel (Ni) ng/m^3	Annual*	20	20	AAS/ICP method after sampling on EPM 2000 or equivalent filter paper

* Annual arithmetic means 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.

** 24 hours, 8 hours or 1 hour monitored values as applicable, shall be complied with 98% of the time in a year. 2% is the allowed margin to be exceeded but not on two consecutive days of monitoring. If the latter is exceeded, it shall be considered adequate reason to institute regular or continuous monitoring and further investigation.

Annex X: List of Electronic Waste as Contained in the E-Waste (Management and Handling Rules), 2010

Sr. No.	E-waste Categories
1.	**IT and telecommunication equipment :** Centralised data processing: Mainframes, Minicomputers Personal computing: Personal Computers (CPU with input and output devices) Laptop (CPU with input and output devices) Notebook, Notepad etc., Printers including cartridges Copying equipment Electrical and electronic typewriters Pocket and desk calculators And other products and equipment for the collection, storage, processing, presentation or communication of information by electronic means User terminals and systems Facsimile Telex Telephones Pay telephones Cordless telephones Cellular telephones Answering systems And other products or equipment of transmitting sound, images or other information by telecommunications
2.	**Consumer electrical and electronics:** Television sets (including LCD & LED), Refrigerator, Washing Machine, Air-conditioners