(1) Heavy vehicle traffic should be immediately diverted to the outskirts of the city. The establishment of ring roads is already in the plan of the government.

(2) A proper traffic management must be done to reduce traffic congestion by installing traffic signals and by introducing one-way road systems for traffic movement, which also reduces emissions by diminishing idling of vehicles, accelerating and decelerating and fuel consumption.

(3) Road traffic should be restricted from unnecessary blowing of horns, for which Decibel Meter should be installed along road crossings and highways. Heavy vehicle drivers should be instructed not only for exceeding speed limits, but also not to exceed the noise level of 82dB.

(4) Parking facilities should be done in the area for easy movement and proper traffic management.

(5) Road quality should be immediately improved which is generally damaged by heavy vehicular traffic, rainfall and digging of roads for laying down pipe lines or telephone wires or other purposes.

(6) Heterogenous traffic is another problem for traffic management into the concerned area, so for this purpose, separate lanes should be made for the movement of slow and fast running vehicles.

(7) Good quality of fuel should be used in the motor vehicles and gen-
REMEDIAL RECOMMENDATION

This chapter includes remedial measures for the air, water, noise and household municipal wastes in the Varuna area of Varanasi, where potential adverse effects of air pollutants like SPM, NO\textsubscript{X}, SO\textsubscript{2}, CO & HC has been studied. Besides these studies, water analysis of river Varuna has been done to find out different pollutants present in the water due to contamination of agricultural run off, domestic, sewage and effluents coming from nearby different industries as well as automobile washing stations. Further, the standards of noise generated from traffic vehicles passing through main roads adjoining areas of river Varuna including excessive use of generators due to long power cuts during day and night, producing high level of sound in the concerned area have also been measured. They also create pollutional hazards. A survey of household municipal wastes has been done to get an idea about its disposal mechanism. Here, following remedial measures have been suggested to improve the environment quality in the Varuna area of Varanasi-

**Remedies for Air and Noise Pollution**

Air & noise pollution in the concerned area is due to fuel combustion in vehicles and gen-sets. For reducing these pollution, in this area following remedial recommendations must be immediately implemented-
sets, which reduces both air and noise pollution.

(8) Emission reducing devices like catalytic converters should be attached at automobile and gen-set exhausts.

(9) Quality of diesel fuel should be improved by reducing the sulphur content in diesel fuel and such better quality diesel i.e. use of more volatile diesel fuel should be encouraged in public.

(10) For maintaining better quality of diesel, continuous monitoring of sulphur content of market diesel should be done.

(11) For the improvement of gasoline fuel quality, leaded petrol should be banned and in its place unleaded petrol should be used. TEL in the petrol should be replaced by alternative octane boosters in future use.

(12) Fuel quality can also be improved by the use of 'low-smoke' lubricating oil or mandating the use of 'smokeless' lubricating oils such as polyisobutene. Though the prices of such oils are higher than the prices of lubricating oils currently in use, but the use of these lubricating oils reduces about 100% emission of white smoke from two-stroke engines (two and three wheelers) (Urban Air Quality Management Strategy in Asia)

(13) The fuel quality can also be improved by mixing 20% ethanol or 15% methanol with gasoline fuel which reduces CO\textsubscript{2} emission by 4-7.5%. Use of such reformulated fuels also reduce the emmision
of CO, SO₂, lead except NOₓ. (Surya Prakash P.V. and B.J. Alappat, 1999). A reduction of HC emissions occurs by 11% if about 3% methanol is mixed with gasoline (IJEP, 1997) as compared to conventional fuel.

(14) 20% vegetable oil mixed with 80% diesel which is known as B20 also reduces the emissions of CO, particulate matter and HC by 20-40% (Nadis, 1996) but it has enhanced slightly the NOₓ level. It has also improved the combustion efficiency by 10% such fuels are called biofuel.

(15) Bio eggs, a fuel saving device which, when inserted through the fuel tank, reduces pollutant emissions by about 60% by reducing the density of exhaust gases. (Telegrapha, 1998). This improves the mileage up to 20% and increases engine life by about 30%. The bio eggs are made up of special ceramics, comprising of a porous activating catalyst made up of a material composed of stratified siliceous compound which induces de-oxidation but does not chemically react with the fuel (Surya Prakash P.V. and B.J. Alappat, 1999). The bio egg technology was developed by cosmo material company Ltd. Japan. The cost of bio egg is about Rs. 385/- for two wheelers and Rs. 985/- for four wheelers (Telegraph, 1998). It is a low cost technology compared to the catalytic converters, which cost about Rs. 20,000/- to 30,000/-.

(16) About 50% cuts in pollution level can be achieved by recycling of
lubricating oil 6-10 times. Where a pyramid of discs are heated upto 16°C, bringing the oil temperature to 120°C, so that oil trickles over the discs to evaporate. When it comes in contact with water and diesel fuel it is fed into a chamber where it is separated. Magnetic fuel device and electric vehicles are now being in use in foreign countries, which may be used in India also in future.

(17) For controlling air as well as noise pollution in city CNG (Compressed Natural Gas) buses, taxis and autorickshaws should be introduced, which will reduce pollution level and it will also help the daily travellers by improving their health and financial conditions. Such CNG buses and taxis are already being used in some of the Metro cities like Mumbai and Delhi.

(18) Fast running vehicle drivers should be punished strictly by Government authorities to control the road accidents.

(20) For quick check of air and noise pollution in concerned area, new registration of any vehicle should be stopped for a certain period of time by R.T.O. Varanasi.

(21) Fitness of older vehicles, should be strictly checked and then certified by government authorities.

(22) Plantation, to control air pollution along road sides, especially at site II & site III, must be done both by Government and Non-Government organisations. Dust collecting plants like Pepal (Ficus religiosa), Pakur (Ficus infectoria), Banyan (Ficus Benghalensis),
Teak (*Tectona grandis*), Sal (*Shoria robusta*), Neem- (*Azadirachta indica*) or (*Melia indica*), Mango (*Magnifera indica*), etc. must be planted and sprinkling of water from tankers must be done on the road on daily bases to stop dust pollution. Green belt of Ashok or Neem trees also absorb the noise.

(23) Use of loud speakers or any high pitched sound equipment making noise pollution should be banned for religious and house hold activities because amplified sound causes irritation. Under section 62 of the control of pollution Act 1974 certain ristuction for the use of loudspeaker in the public domain has been laid down to ban to use loudspeaker from 9pm to 8am. Under section 80, Explosive Act 1875 it is a offence to throw or use fireworks on the streets of public places because the setting off of fireworks creating sudden noise impact on the human being and other animal causes health effects.

(24) Regular power supply must be maintained, for which both Government and public supports should be taken to minimize the excessive use of gen-sets and in its place, battery operated high power inverter should be taken into use, from which a major control of air and noise pollution will occur.

(25) Noise producing machinery like generator should be covered with insulating materials.

(26) Hospitals, school and college buildings should be established away
from congested area, road traffic and highways.

(27) Any religious gathering or noisy operation should be conducted in open fields, far off from any residential colony.

Remedies for Water Pollution

For the control of water pollution in the concerned area, a continuous monitoring of water of river Varuna should be done periodically. Continuous monitoring is difficult because of many hurdles coming in the way due to meagre funding, use of impure reagents and other experimental errors occurring during investigation and monitoring. Therefore, a new easy method called TBI method using different indicator species must be used in place of usual conventional methods.

The quality of water in river Varuna can be found out from observing large invertebrate fauna, used as indicators. Wu, Jiunn-Tzong (1999) reported a generic index (GI) of diatom assemblage as bioindicator of population in the Keelung River of Taiwan which is a heavily polluted by domestic, industrial and agricultural wastes. A generic index (GI)- the ratio of abundance of Achnanthes, Cocconies and Cymbella to that of Cyclotella, Melosira and Nitzschia was used to measure changes the diatom composite river water quality index and species richness of insects. GI was more indicative of organic pollution than of eutrophication. Beside this, Nematodes also work as indicators of heavy metal pollution (Gyedu-Ababio, T.K. et.al. 1999). The following
five point scale for water pollution studies using presence or absence of indicator species can be taken into account which is used by Philip Harris and Griffin water pollution study packs. This pack shows different coloured photographs of indicator species. They also include black and white diagrams of a wider range of indicator organisms as well as procedure for calculating the Trent Biotic Index (TBI) and other pollution indicator tests (Green, N.P.O. et.all., 1990).

The five point scale is given in the following table:

**Table- 37 Five Point Scale for Water Pollution Studies using Presence and Absence of Indicator Species**

<table>
<thead>
<tr>
<th>Level of Pollution</th>
<th>Oxygen Concentration</th>
<th>Indicator Organism</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A) Clean water or very low pollution levels</td>
<td>High</td>
<td>Stonefly nymph</td>
</tr>
<tr>
<td></td>
<td></td>
<td>mayfly nymph</td>
</tr>
<tr>
<td>(B) Low pollution levels</td>
<td></td>
<td>Caddis fly larva</td>
</tr>
<tr>
<td></td>
<td></td>
<td>fresh water strimp</td>
</tr>
<tr>
<td>(C) High pollution levels</td>
<td></td>
<td>Water louse, blood worm</td>
</tr>
<tr>
<td>(D) Very high pollution levels</td>
<td>Low</td>
<td>Sludge worm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>rat tailed maggot</td>
</tr>
<tr>
<td>(E) Extreme pollution levels</td>
<td>No Oxygen</td>
<td>No apparent life</td>
</tr>
</tbody>
</table>

*Source* - The Biology of polluted water by N.P.O et.all., 1990.

In U.K. schemes like Trent Biotic Index (TBI) and Chandler Biotic
Score (CBS) are being used. The TBI gives the idea about the presence or absence of key species together with species richness but it does not include abundance estimates for different species, where as in CBS, the each individual species is weighted according to five levels of abundance (Green, N.P.O. et all. 1990). The details of these methods can be seen in C.F. Mason (1981), Biology of fresh water pollution, Longman. Table of TBI and the procedure for knowing TBI is given below :-
Table 38 Showing Bioindicator Species.

<table>
<thead>
<tr>
<th>Indication species</th>
<th>Total no. of groups present</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0-1</td>
</tr>
<tr>
<td>Trent Biotic Index</td>
<td></td>
</tr>
<tr>
<td>Clean</td>
<td>Plecoptera nymph</td>
</tr>
<tr>
<td></td>
<td>present</td>
</tr>
<tr>
<td></td>
<td>one species only</td>
</tr>
<tr>
<td></td>
<td>Ephemeroptera nymph</td>
</tr>
<tr>
<td></td>
<td>present</td>
</tr>
<tr>
<td></td>
<td>One species only</td>
</tr>
<tr>
<td></td>
<td>Trichoptera larva</td>
</tr>
<tr>
<td></td>
<td>present</td>
</tr>
<tr>
<td></td>
<td>one species only</td>
</tr>
<tr>
<td></td>
<td>Gammarus</td>
</tr>
<tr>
<td></td>
<td>present</td>
</tr>
<tr>
<td></td>
<td>Asellus present</td>
</tr>
<tr>
<td></td>
<td>Tubificid warms</td>
</tr>
<tr>
<td></td>
<td>and/or red chironomid</td>
</tr>
<tr>
<td></td>
<td>larvae present</td>
</tr>
<tr>
<td></td>
<td>All above types absent</td>
</tr>
<tr>
<td></td>
<td>such as Eristalis</td>
</tr>
<tr>
<td></td>
<td>Heavily</td>
</tr>
<tr>
<td></td>
<td>Polluted</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

organisms in order to tendency to disappear as degree of pollution increases.
The term 'group' denote the limit of identification like each known sp. of platyhelminthes (flatworm), Annelida (worms) excluding genus Nais, each known sp. of Hirudinae (leeches), each known sp. of Molluscs (snails), each known group of crustacea, (Asclls, shrimps), each known sp. of plecoptera (stone-fly), each known genus of Ephemeroptera (may-flies) excluding bactis rhodani, each family of Trichoptera (caddis-fly). Each sp. of Neuroptera (alder-fly), family chironomidae (midge larvae) except chironomous thummi (blood worm). Family Simulidae (black-fly larvae), each known sp. of other fly larvae, each of Coleoptera (beetles and beetle larvae), each of sp. of Hydracarina (water wires) etc.

The Biotic indices varies out of ten with zero representing virtually lifeless heavily polluted water. For finding out TBT highest indicator species like caddisfly, Trichoptera is taken into account after knowing which indicator species is present in how much number of group i each sample starting from the top of the list. The group number is noted down from the top and read off TBI. For example highest indicator animal Trichoptera, number of indicator species more than one, total number of group 7, so TBI will be 6 (Green N.P.O. et.al., 1990).

a, b), who have worked on the river Varuna. The river Varuna which is a tributary of river Ganga and its confluent belt is seen at Rajghat which is one of the major sources of pollution of river Ganga in Varanasi city. So government agencies and NGOs must pay attention on the quality of water of river Varuna along with Ganga water also. The CWC, Varanasi is active in analysing some parameters of Ganga water at different levels of different district, but Varuna river is neglected. In different foreign countries like UK, USA etc. a new way of monitoring of river water quality is being done by the presence and absence of indicator species by using TBI method (Green N.P.O., et al. 1990). This method is easy and highly economical which can easily be done by making regular observation of indicator species both in river water as well as in nearby areas to get an idea about pollution level. The following remedial measures should be taken in order to improve the quality of river water:

(1) The district administration must be given full chance to look into the control measures of water pollution besides central as well as state pollution control boards. They should give proper advice to the respective governments on the pollution level and its control measures. They should publish technical and statistical data so that general public get awareness about it. They should provide time to time training and seminar organization on water pollution, so that the scientific development may be communicated between other members of the society so that they may provide technical
assistance to other fellow members.

(2) A ban must take place for washing utensils and clothes in the river water.

(3) Different industries should develop at some distances from the source of water and their effluents must be purified before being thrown into the river.

(4) The excessive toxic wastes of the industries must be used after recycling in some other purposes or they may be done at a protected place.

(5) Biofertilizers and hormonal control of insect pests must be taken into use in place of chemical fertilizers and pesticides.

(6) The effluents of domestic sewage must be treated first in sewage treatment plants and then utilized in irrigation purpose and not throwing directly in the river water.

(7) The State Pollution Control Board authorities must provide necessary guidance to the students and teachers regarding control measures and how to maintain a healthy environment.

(8) The expansion of Varanasi city in North West direction in the trans Varuna areas must take place in a well organized way whose responsibility must lie on the shoulders of the Avas-Vikas Parishad and Nagar Mahapalika, Varanasi.

(9) Both Central, as well as, State Pollution Boards must educate people
of different industries about using effective water control measures
during their water consumption process during manufacturing of
different items.

(10) They should evolve effective and efficient methods of disposal of
sewage and industrial wastes.

(11) They should make periodical survey of rivers from time to time to
get idea about water pollution.

(12) The Pollution Control Board personals must develop public opinion
by using mass media communication networks like Radio, T.V.
Newspaper etc. and highlight better uses of water.

(13) The industrial plants should be designed as such, to recycle their
effluents, so that the natural water may not be contaminated with
their toxic effects.

(14) The slum dwellers must be provided with low cost houses with
proper electricity, water and sanitation facilities to check the open
field night soil activities and throwing of garbage here and there
in and around slum areas as has been done in some areas of Mumbai
where they have been provided with low budget flats.

(15) The household garbage must be thrown at specific sites not near
river banks which must be collected and transported by municipal
personals immediaitely to the dumping sites to form compost which
can be utilized for agricultural purpose.
(16) By removal of excess sand, clay and silt from bottom of river during summer month in order to improve the flow of river water.

**Remedies for Household Wastes (HW) -**

Various management methods have been adopted to minimize the impact of household wastes (HW) which are of variable nature like toxic, corrosive, reactive, explosive ignitable etc. Following methods are made for proper disposal of HW by EPA with our certain modifications:

(1) **Consumer Education** - This is necessary because public should know where to throw or dump household toxic wastes or garbages etc. So public awareness programmes must be run from time to time which should focus on:

(a) Buy less toxic products and use substitutes like septic tank pumpage or baking soda-vinegar water mixture to unclog the drain.

(b) Household wastes must be properly stored and handled safely.

(c) Apply stringent rules and regulations on the ways of disposal of HW which create pollution problems.

(d) A network programme along with consumer Education programme with co-operation of local people, Government bodies and other volunteer groups about reuse/recycling of HW must be made.

(2) **Collection and Disposal of HW -**


In different countries many programmes have been used for collection and disposal of HW. Following suggestions may be made for the successful implementation of such programmes:

(a) By getting community support from local and state government organisation, citizen groups and other service organization for collection and disposal sites.

(b) A time-frame programme should be made to maximize participation and lower the cost per unit of waste disposal.

(c) Make Radio, T.V. announcements about the collection spot and what HW is not acceptable and the form of packaging required for acceptable waste.

(d) Necessary grants must be raised from various government and non-government agencies.

(e) By providing contract to different private concerns for collection and disposal of HW.

(f) Awareness must be done in various Educational Institutions about this.

(g) Advices and help must be taken from various people and organizations who are aware and working in this field.

3. Use Incinerator for Proper Treatment of HW -

With the help of incinerators, various toxic household wastes
wastes are burnt which reduces long term risk but this requires a large fund for purchasing an Incinerator and cost of transportation of HW from the site of collection to the disposal site where incinerator is installed. Another drawback of using incinerator is that it adds CO₂, CO and air pollution to atmosphere which may again lead to air pollution.

Another useful method for disposal of HW is Land fill disposal method. Here HW disposal is done by throwing wastes at a low area land but here again HW is not treated so this is also not a good method as this may cause pollution risks by the occurrence of different diseases in the adjoining local population. It is good to dispose HW after treatment at dumping site.

Some other suggestions are also given here for controlling pollution by HW

1. Street sweeping is not done on Sundays and other holidays. So sweepers must be asked to sweep roads and lanes daily.

2. Number of sweepers must be raised to cover all the area of the city and must be given certain ranges of roads like 1:100 meters/sweepers/day to 5 km/sweepers/day.

3. Sweepers must be provided with adequate tools and in sufficient numbers.

4. Sweeping of roads and lanes must be done before 6:30 am so that public may remain safe from dust pollution when market opens
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after 9:00 am.

(5) Public should be trained to throw their household wastes in paper bags not in plastic bags, as plastic bags are not easily biodegradable whereas paper bags are biodegradable.

(6) Plastic bags must be banned by making laws.

(7) For loading of household wastes, manual handling is done which takes a lot of time and energy. So manual handling must be replaced by automatic handling by using Hydraulic vehicles.

(8) For Hydraulic vehicles, proper trained staff must be there and vehicles must be maintained regularly.

(10) Number of vehicles must be increased for transportation of household wastes.

(11) Monitoring of vehicles must be done on a regular basis.

(12) Wastes should be segregated into different categories like Hospital waste, Industrial Hazardous waste, House of waste having papers, plastics etc.

(13) Sanitation supervisors must be appointed in more numbers to supervise the activities of the sweepers.

(14) Open dumping of waste attracts many breeds of flies, rodents, pests and even streets dogs.

(15) Public Health Engineers/Civil Engineers Health Officers etc. should
be entrusted with responsibilities of supervising the work (Table 39).

(16) Laws should be made for punishing people who throw away their household wastes in open.

**Mandatory Recommendations for HW**

(1) No waste should be thrown on the streets, footpaths, open spaces, drains or water bodies.

(2) Two bins/bags are taken for storing wastes at the source of waste generation, one for food waste/bio-degradable waste and another for recyclable wastes such as papers plastics, glasses etc.

(3) Toxic wastes like used batteries containers of chemicals and pesticides, discarded medicines and other toxic and hazardous household wastes, if and when produced should be kept separately from the above two streams of wastes Table- 39.

(4) The local bodies should direct household shops and establishments not to mix recyclable wastes with domestic food/bio-degradable wastes and instead keep recyclable/non-bio-degradable wastes in a separate bag at the source of waste generation.

(5) The domestic, trade and institutional food/bio-degradable wastes should be collected from the doorstep or from community bins on a daily basis.

(6) The recyclable waste material/non bio-degradable waste other than toxic and hazardous waste should be collected from the source of
Table- 39 Organisation Chart for a City Having 30 Lacs Population

Municiple Commissioner/Chief Execution-

Chief of Solid Wastes Management (SWM) department- Superintending Engineer

Central workshop
Executive engineer

Executive engineer
(Collection)

ASST. EX. E.
A.E. A.E.

ASST. EX. E
A.E. A.E.

ASST. EX. E
A.E. A.E.

ASST. EX. E. TRANS.
A.E. A.E. A.E.

Administrative officer

Executive engineer
(transportation- processing and disposal)

ASST. EX. E.
A.E. A.E. A.E.

Table 40 Flow Chart of Municipal Solid Waste

HH + Shops + Establishments

- MS building/com. complex/community bin
  - Organic/food Waste etc.
    - Deposit in hand Cart/tricycle
      - Temporary Waste storage depot
        - Compost Plant
          - Final Product
            - Market
          - Rejects
            - Land fill
        - Secured Land fill
          - NGO/Co-operative Middlemen Traders
            - Wholesaler
              - Recycling Industry
                - Market
          - Handover to Rag picker
          - Fill low lying area or use as cover material at land fill site
  - Domestic Hazardous Waste
  - Recyclable Waste
    - Silt and Construction & Demolition Waste

Source: Recommendations for the modernization of solid waste management practices in class 1 cities in India, Report of commitee, Supreme Court of India March 1999.
waste generation at the frequency and in the manner, notified by
the local body from time to time.

(7) Domestic hazardous/toxic waste material should be deposited by
waste procedures in special bins that may be provided by the local
bodies at various places in the city for depositing such wastes.

(8) All public roads, streets, lanes and bye-lanes having habitation or
commercial activities on one or both sides of road sides should be
cleaned on a daily basis, assigning clearly demarkated area to each
sweeper and street sweepings should be deposited in the container
placed at the temporary, waste storage depot established in the
city.

(9) Adequate numbers of litterbins should be placed at different areas
of the city to prevent the littering of the street and public places.

(10) All open waste storage sites should be abolished expeditiously
and all dustbins made of cement pipes, metal rings, masonry
construction should also be replaced in a phased manner by
temporary waste storage facilities in the form of a neat, mobile,
closed body large container, or a parked vehicle, for temporary
storage of waste, from the doorstep and/or from the community
bin for onward transportation of wastes in a cost effective manner.

(11) Transportation of wastes must be done on regular basis before
the container/trolleys and dustbins start overflowing. The system
of transportation of wastes must synchronise waste with bulk
storage of waste at the temporary waste storage depot. Multiple and manual handling of wastes must be avoided.

(12) All organic/bio-degradable wastes collected from household shops, markets, hotels and other establishment should be first composted by suitable method of composting with or without power generation as deemed appropriate. Only rejects and domestic hazardous wastes should be carefully landfilled.

(13) Bio-medical wastes should be deposited of as per the bio-medical waste (management and handling) rules, 1998.

(14) The local body should take adequate measures for institutional strengthening through induction of professional, decentralization of administration, deligation of powers, human resources development, private sectors and NGOs participation.

Suggestions for Improving the Condition of Slum Dwellers

Following suggestions are made for improving the condition of slum dwellers -

(1) The rural - urban migration must be controlled and tackling the uncontrolled urban growth.

(2) Improvement of substandard localities must be done with appropriate town planning.

(3) New places of rehabilitation must be developed with proper facilities.
(4) To educate people about the hygiene and pollution.

(5) To provide proper job opportunities.

(6) Legalization must be made about the slum which must get to priority in urban planning.

The Varanasi municipal corporation have done much in this direction by making different schemes to improve the slum condition of Varanasi but still much has to be done in this direction.

**Environmental Acts**

For protection of environment many national as well as international laws have be made which has considerably helped to improve the quality of air, water and noise because who so ever violates these laws is liable for strict punishment.

At the **National level** many environmental protection acts have be made which are as follows :-

(1) Bengal smoke nuisance Act 1905.

(2) Motor Vehicle Act 1908.


At the International level following Acts have been made to control the environment pollution:-
(1) Refuse Act, USA, 1889.

(2) River and Harbour Act, 1898.

(3) Food, drug and cosmetic Act, USA, 1938.

(4) Water Pollution Control Act, 1948.

(5) Air Pollution Control Act, 1955.


(7) Hazardous Substances Act, 1960 (Amended 1966)


(9) Water Quality Act, USA, 1965


(11) National Environmental Policy Act (NEPA) USA, 1969

(12) Occupational safety and Health Act (OSHA), USA, 1970


(15) Safe Drinking Water Act, USA 1974

(16) Hazardous Materials Transportation Act, 1975

(17) Resource Conservation and Recovery Act (RCRA), 1976
(18) Toxic Substances Control Act (TSCA) 1976


(20) International Environmental Protection Act, 1983

(21) Emergency Planning and Community Right to-know Act, 1986

(22) Alternative Motor Fuels Act, 1988

(23) Medical Waste Tracking Act, 1988

(24) National Environmental Education Act, 1990

(25) Oil Pollution Act, 1990

(26) Pollution Prevention Act, 1990

(27) United Nations Environment Programme (UNEP), 1992

(28) Climate Change Action Plan, 1993

(29) Food Quality Protection Act of 1996