Chapter – 2

The Regulation of Hazardous Substances: International Efforts

Hazardous substances are conventionally divided into two groups, hazardous wastes and hazardous chemicals. This chapter presents an overview of the existing legal regime pertaining to hazardous wastes in the first section at the international level. Hazardous chemicals are taken up in the second section.

1 - Hazardous Waste

The modern legal response to the problem of hazardous waste basically includes a two pronged programme, one aimed at minimisation and the other at disposal, which may be indicated with the help of the following table:

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2.1 Minimising Generation of Waste

Generation of certain volume of waste is inevitable in the process of production. However, prevention is better than cure. International policy seems to follow the pattern to prevent the generation of waste in the first place. Any national or international policy ought to focus on the prevention or reduction of generation of waste at source whenever feasible. Once the waste is generated an attempt ought to be made to recycle it in an environmentally
sound manner and to dispose of or release pollutants into the environment only as a last resort. The basic instrument is the Basel Convention at the international level.

2.1.1 *Basel Convention*

The Basel Convention\(^1\) was the culmination of a process which started with the UNEP following the Stockholm Conference.\(^2\) The UNEP had organised a Conference at Montevideo which took up minimisation as a priority subject for legal action.\(^3\) Subsequently, the Governing Council of UNEP adopted certain guidelines in 1987, called ‘Cairo Guidelines’\(^4\) and these guidelines finally resulted in the adoption of Basel Convention.

The Basel Convention established a comprehensive legal regime at the international level. It principally deals with regulation of the transboundary movement of hazardous wastes and their disposal, but it also formulates as the forefront the principle of minimisation of waste.\(^5\) The Convention established three basic principles and regulatory regime. The basic principles are:

- minimisation of waste;
- disposal at the most proximate place; and
- return of illegally exported waste.

The Convention established a regulatory regime composed of total prohibition in five instances and regulation in others. The total prohibition was imposed on the export of hazardous wastes:

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2. 11 I.L.M. 1416 (1972).
i) from OECD to non-OECD countries;

ii) from any party state to Antarctica;

iii) to a state not a party to the Convention;

iv) to a state not a party to a treaty establishing equivalent standards; and

v) to parties which have banned the import of hazardous wastes.

In other cases, a regulatory regime requiring prior informed consent (PIC) from the state of import and transit was incorporated.

2.1.2 Agenda 21

A more detailed programme for minimisation of waste was developed in Agenda 21. Programme of action for sustainable development is commonly referred to as ‘Agenda 21.6 Chapter 20 of Agenda 21 dealing with ‘environmentally sound management of hazardous wastes, including prevention of illegal international traffic in hazardous wastes’ provides that effective control of the generation, storage, treatment, recycling and reuse, transport, recovery and disposal of hazardous wastes is of paramount importance for proper health, environmental protection, natural resource management and sustainable development. This requires cooperation and active participation of the international community, governments and industry.

Chapter 20 of Agenda 21 included ‘promoting the prevention and minimisation of hazardous waste’ (programme area ‘A’) as the top priority in the management of hazardous waste. The proposed activities to be undertaken by the governments in this regard include the following:

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• change in industrial processes and consumer patterns through pollution prevention and cleaner production strategies;
• enhancement of knowledge and information on the economics of prevention and management;
• recovery of hazardous wastes and transforming them into useful materials;
• establishing cost effective policies and low-waste technologies;
• encouraging the industry to invest in preventive and/or recycling technologies;
• establishing domestic facilities to handle hazardous wastes of domestic origin;
• increase in financial support for cleaner technology and the use of biotechnologies;
• developing cleaner production awareness campaigns and inventories of hazardous waste production;
• promoting the transfer of environmentally sound, clean and low-waste production technologies from developed to developing countries;
• including in national planning and legislation an integrated approach to environmental protection taking into account the 'polluter pays' principle; and
• developing and strengthening national procedures for environmental impact assessment and application of cradle to grave approach.

2.1.3 OECD, UNEP and EC

OECD is an international institution often known as a ‘rich-nations’ club, since its membership consists only of industrialised nations. It is an
intergovernmental organisation, established in 1960, which has 26 members with advance economies including Italy, Japan, U.K and U.S. It has been responsible for the development of many key features of international environmental law and policy like polluter-pays principle, the precautionary principle, principles of consultation, non-discrimination and equal access to justice.

The OECD has numerous specialist committees and subsidiary groups. The Secretariat is comprised of various disciplinary experts organised into Directorates and Divisions. The supreme authority is the Council which approves its programme of work and uses a consensus approach to reach two distinctive types of agreement e.g. Council Decisions, which are legally binding on members, and Council Recommendations, which are not legally binding and are expressions of political goodwill.

In 1970, the OECD established an Environment Policy Committee (EPOC) to promote integration of environmental and economic policies, reduce pollution, assess environmental performance, develop environmental protection tools and improve international data and information on environmental issues. The UN initiative influenced the OECD to adopt a waste management policy in 1976. The policy lays key emphasis on principle of reduction of waste at the source. Further, it proposes measures concerning the design and marketing of products and their rational use, changes in manufacturing process, the reuse of products or their reclamation and recycling, and the application of ‘polluter-pays’ principle to encourage waste prevention and recycling. It also focuses on administrative arrangements for waste management, reduction in the types and

quantities of wastes to be disposed of, promotion of research on minimal-

cycle technology and creation of markets for recycled products

UNEP gave further impetus to waste management policies. It exhorts states to take measures to promote the prevention, recycling and processing of waste. Further it aims to establish or designate competent authorities that can plan, organise, and supervise the operations for eliminating wastes. UNEP included the limiting of production of hazardous waste as a priority subject in its legal action programme. The issue was then referred to a group of experts which subsequently adopted Cairo Guidelines on December 10, 1985. These Guidelines were endorsed by the Governing Council of UNEP. Cairo Guidelines eventually resulted into the adoption of Basel Convention. The Guidelines recognised the differences among various countries. It then focussed on establishment of an administrative framework for the good management of hazardous wastes, especially in developing countries. The states were asked to take legislative and other measures to ensure the protection of human health and the environment against dangers posed by the production of hazardous wastes. It focussed on the use of technologies that produce minimum waste. Principle 7 of the Cairo Guidelines also insisted on prevention i.e. reducing production of wastes to a minimum.

The Basel Convention contributed to the development of the policy of the EC Commission, as it adopted the following priorities in relation to waste management.

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8 supra note 3
9 supra note 4
10 Carol Annette Petsonk, Recent Developments in International Organizations: The Role of UNEP in the Development of International Environmental Law, 5 AM U J Int’l & Poly, 351, 373 (1990)
11 A Community Strategy for Waste Management, SEC (89) 934 Final. 18 September, 1989
• prevention;
• recycling and reuse;
• optimisation and final disposal;
• regulation of transport; and
• remedial action.

Article 4 of the Framework Directive 75/442/EEC\(^\text{12}\) (the main Directive governing waste management) requires Members States to ‘take necessary measures to ensure that waste is recovered or disposed of without endangering human health and without using processes or methods which could harm the environment, and in particular:

• without risk to water, air, soil and plants and animals,
• without causing a nuisance through noise or odours,
• without adversely affecting the countryside or places of special interest’.

The above sequence was re-adopted in Council’s Resolution of 7 May, 1990 on waste policy\(^\text{13}\) which stated:

The production of waste should, where possible, be prevented or reduced at source, particularly by the use of clean or low waste technologies and products;...Waste that can not be recycled or reused has to be disposed of in the most environmentally safe manner;...it is important for the Community as a whole to become self sufficient in waste disposal and it is desirable for Member States individually to aim at such self-sufficiency.

The EC issued Landfill Directive (99/31/EC) in July 1999 with the object to bring about a reduction in the amount of methane producing, biodegradable household and municipal waste which is disposed of in landfill sites. Article 5

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of the Directive has set the following reduction targets based on 1995 waste arisings:

(a) a 25 percent reduction by 2006;
(b) a 50 percent reduction by 2009; and
(c) a 65 percent reduction by 2016.

Therefore, according to the waste hierarchy, prevention is the preferred option.

2.1.4 The U.S. Strategy

The Stockholm spirit also led to action in United States. The U.S. Congress enacted the Pollution Prevention Act in 1990 (PPA). A year after the adoption of PPA, EPA published its Pollution Prevention Strategy which states:

Air pollution control devices or industrial waste water treatment plants prevent wastes from going into the air or water, but the toxic ash and sludge that these systems produce can become hazardous waste problems themselves. Wastes disposed of on the land or in deep wells may contaminate ground water, and evaporation from ponds and lagoons can convert solid or liquid wastes into air pollution problems... While cross-media connections are complex and difficult to manage, part of the solution should be to reduce or even eliminate pollution at source. Prevention reduces emissions, discharges or wastes released to all parts of the ecosystem, thereby eliminating a potential cross-media 'shell game'.

The brief review of international developments reveal a policy of gradual development. States and governments are merely required to take appropriate measures to encourage the prevention or reduction of waste including the development of clean technologies to avoid over exhaustion of natural resources. The lack of mandatory waste prevention measures at international level explains the worldview that human welfare today is more closely

14. 42 U.S.C, SS.13101-13109.
associated with the continuation of the existing high levels of economic and technological production than protection of nature. However, this high consumption life pattern is responsible for most of the world’s environmental problems. In view of the desire for increased production it is unlikely that firm steps will be taken to prevent waste from arising. The principle of waste minimisation is probably unattainable since basic laws of physics indicate that production necessarily creates waste, but the lack of firm and principled policy contributes to the delusion of outcomes.

2.2 Reducing Harmful Effects

Although it is difficult in modern days to reduce the quantity of waste, it is possible at least to reduce its harmful effects. For example, Article 4 of the Directive 75/442/EEC requires Member States to take necessary measures to ensure that waste is recovered or disposed of without endangering human health and without using processes or methods that could harm the environment. In *Ministere Public v. Taren*, the ECJ observed that Member States should have due regard to the objectives mentioned in Article 4 of the Directive 75/442/EEC and they have the freedom to organise the supervision of the waste disposal and recovery as they wish. In addition, under EC law Directive 75/439/EEC on the Disposal of Waste Oils, Directive 91/157/EEC on Batteries and Directive 94/62/EC on the Packaging of Waste contain several measures to reduce the harmful effects of waste.

2.3 Recycling & Reuse

Recycling and reuse are considered efficient methods of dealing with waste. There are minimum secondary environmental harms associated with these

options. These methods may prove ecologically beneficial. Waste objects may be collected and redistributed for recycling and reuse. Reuse may be defined as putting materials back into use. Recovery may involve recycling, for example, the reuse of glass from bottles. The term 'recovery' in the context of waste, includes both material recycling and energy recovery. Energy can be recovered through the process of incineration. Waste can be burnt and the resultant heat used to create electricity. For example, under EC Law, Article 3 of Directive 75/442/EEC requires Member States to encourage, *inter alia*, the use of waste as a source of energy.

Article 3 of Directive 91/156/EC requires Member States to take ‘appropriate measures’ to ‘encourage’, *inter alia*, the recovery of waste by reuse. Similarly Article 5 of the Packaging Waste Directive 94/62/EC permits Member States to encourage reuse systems of packaging in an environmentally sound manner. Packaging must be designed, produced and commercialised in such a way as to permit its reuse (or recovery, including recycling).

Recommendations of OECD waste management policy relating to the reuse and recycling of beverage containers\(^\text{17}\) and to waste paper recovery\(^\text{18}\) are of great significance. OECD estimated that its member countries recycled, recovered or reused some 12 to 16 million tons of waste in 1984, about 4 to 5 percent of the total quantity of waste produced.\(^\text{19}\)

The initial stage of recycling is the segregation of waste materials at source, separating out the recyclables, for example, clean paper products, glass, metals and plastic. Certain waste materials like waste food, drink, blood and guts from slaughter houses, waste lime, lime sludge from cement manufacturing,

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dredging of inland waters, textile waste, sludge from biological treatment plants and tannery effluent sludge are capable of being reused to improve agricultural land. Faecal matter is especially suitable for reuse on land. Similarly, soil, rock and crushed building material can also be directly reused.

Pulp as well as paper and paper-based products are principally manufactured from virgin fibre. The reuse of waste paper in manufacturing paper and board products may save substantial amount of energy and fresh water and reduce reliance on virgin fibre. It will produce fewer effluents and less atmospheric pollution. Therefore, appropriate steps should be taken to encourage the recovery of waste by means of recycling, reclamation, reuse or any other process with a view to exploiting the secondary raw materials. For example, the reuse or recovery including recycling of the packaging waste collected may be a step towards most appropriate waste management.

The reuse and recycling and the recovery of useful materials from waste, for example, energy will inevitably contribute to sustainable development. The development of clean technology and waste minimisation procedures should be encouraged. Different techniques may contribute to these developments including internal alterations to operating plants' design and processes, reuse and recycling of material and energy within a plant, redesigning and modification of products to produce environmentally sound products and creation of markets for consumption of recycled products. Care must be taken in the development of such techniques to ensure that environmental harm actually decreases.

2.4 Waste Disposal

Waste disposal is generally put at the bottom of waste management priorities. At present, landfill and incineration are the two techniques generally employed for the disposal of waste.
2.4.1 Landfill

Landfill, as a waste disposal method, has gained popularity primarily because of cost considerations. This reduces the pressure of dumping of waste at sea. However, this method of disposal has its share of problems. Much of the landfill waste is biodegradable (destroyable by nature) which produces leachate components, e.g., fatty acids and gas products. Landfill adversely affects the surrounding geology and ground water. The surface water may also become contaminated. Pollutants that arise from landfills include gases, e.g., carbon dioxide and methane (both greenhouse gases); volatile fatty acids, e.g., acetate, propionate, butyrate; and heavy metals, e.g., zinc, cadmium, chromium and iron. There are several cases where landfill leachate has caused major health problems to the people exposed to leachate.

The NIMBY (not in my back yard) philosophy is one of the major problems in the development of new sites for landfills. Presently, landfill has become more problematic as the amount of waste is increasing and the land available for landfill is decreasing. As a waste disposal option, the disadvantages associated with landfilling may be summarised as under.

- even in well engineered sites contaminants may leach into the ground causing pollution of ground waters;
- it adversely affects the amenity of people living nearby because of foul smell, noise, traffic, vermin, flies and litter associated with the operation of a landfill;
- there is a risk of methane buildup and explosion;
- methane is a greenhouse gas which contributes to global warming; and
- landfilling generates public concern due to its impact on man and environment

Because of the problems associated with landfilling, the U.S. Congress, for example, felt that certain classes of land disposal facilities are not capable of assuring long term containment of certain hazardous waste. It proposed that reliance on land disposal should be minimised or eliminated, and land disposal, particularly landfill and surface impoundment, should be the least favoured method for managing hazardous waste. The Congress further noted that improper hazardous waste management requires expensive, complex and time consuming corrective action. Hazardous waste management practices should be conducted in a manner that protects health and the environment, reduces the need for corrective action and minimises hazardous waste generation and land disposal of hazardous waste through treatment and other means.

2.4.2 Incineration

The environmental problems associated with landfilling especially production of greenhouse gases and ground water and surface water contamination, have led to incineration as a favoured waste disposal technique. It is an efficient method of waste destruction. Only non-combustible materials remain after incineration. There is a considerable reduction in the volume of waste. Incineration has some advantages over landfill. Unlike landfill, it does not produce leachate and is able to dispose of some hazardous wastes which are unsuitable for landfilling. Moreover, incineration produces electricity as a by-product of the process. However, incineration is more expensive than landfill.

20. See Hazardous and Solid Waste Amendments (HSWA) of 1984
Incineration plants are costly and full incineration requires difficult operating conditions. For municipal waste and chemical waste incineration, temperatures of 850°C and 1200°C respectively must be achieved, with sufficient contact time and mixing to ensure total combustion of waste. Due to operational deficiencies in some plants, these conditions may not be met, resulting in incomplete combustion and emission of pollutants like polychlorinated biphenyls, dioxins, and heavy metals. Many of these compounds are toxic and bioaccumulative causing environmental and health problems. Dioxins are among the most toxic chemicals known to man. Moreover, incinerators produce residues, such as bottom ashes and liquid effluents which require careful disposal. Air pollution is the most significant problem associated with incineration of waste. In these conditions, environmentalists prefer recycling over incineration.

2.4.3 Composting

Composting (organic recycling) is another method of waste disposal by which the use of landfill or incineration may be avoided. It is an aerobic microbial process involving a community of micro-organisms. Composting reduces the volume of waste and produces useful soil enrichment products. However, there are several problems associated with composting organic waste. Technical difficulties may arise since the feedstock is likely to be highly variable and, therefore, the product may be of variable quality. The composted material may be difficult to utilise in horticulture due to potential contamination of urban waste with toxins and heavy metals. Considerable heat is generated during composting although the excess heat can be used as energy to power the composting plant.
Therefore, in any waste management regime, waste reduction, reuse and recycling should be preferred. The policy should be directed towards reducing the waste to a minimum. Waste disposal should be seen as the least attractive option since no benefits come from the disposal of materials and considerable cost may be involved in ensuring that the disposal is environmentally sound. Different sustainable development strategies should be adapted to address the issue of waste management, for example, better housekeeping in industry, better product design, waste reduction through changing consumer consumption patterns, the use of integrated pollution control to minimise pollution, furnishing information about ways to reduce waste, energy recovery from waste and creation of markets for the sale of waste by-products. An attempt should be made to reconcile the competing claims of economic development that secure higher standards of living and the protection and enhancement of the environment. This undoubtedly requires careful setting of targets, careful assessment of these targets and a careful cost-benefit analysis.

2.5 The U.K. Strategy

So far as the proper handling and management of hazardous waste is concerned, the National Waste Strategy of U.K. deserves a special mention. The Government of U.K. published A Way with Waste- A Draft Waste Strategy for England and Wales in July 1999\(^\text{21}\) setting out seven commitments for future waste management. These are:

(1) substantial increase in recycling and energy recovery;

(2) engagement of the public in reuse and recycling of household waste;

\(^\text{21}\) This was preceded by the consultation document Less Waste More Value – A Consultation Paper on the Waste Strategy for England and Wales, 1998.
(3) a long term framework with challenging targets and realistic programmes;

(4) a strong emphasis on waste minimisation;

(5) using the waste hierarchy as a guide, not a prescriptive set of rules;

(6) creative use of economic incentives such as the landfill tax; and

(7) increased public involvement in decision making.

The above stated strategy has now been replaced by a new Waste Strategy i.e. *Waste Strategy 2000 for England and Wales* published by the Department of Environment, Transport and the Regions on 25 May 2000 (Cmnd 4693). This strategy is based on the waste management plan as required under the EC Waste Framework Directive 75/442, the EC Hazardous Waste Directive 91/689, the EC Packaging Waste Directive 94/62 and Article 5 of the Landfill Directive 99/31. The strategy is to be reviewed every five years and annual monitoring of its implementation is to be undertaken by the Waste Strategy Monitoring Group which will produce an annual report. The key messages of the strategy are as under:

- Each year over 100 million tons of waste from households, commerce and industry is produced. Most of this waste is landfilled. Landfill can be a wasted opportunity and produces greenhouse gases. Therefore, the amount of waste sent to landfill should be reduced.

- Waste and resources should be managed better. Waste must be tackled reducing quantity of waste produced and breaking the link between economic growth and increased waste.

- Waste must increasingly be put to good use- through recycling, composting or using it as a fuel.
The target is to reduce the amount of industrial and commercial waste landfilled to 85 percent of 1998 levels by the year 2005. In meeting this target, focus must be on recovering value and reducing environmental impact. This means not only putting waste materials to better use, but tackling any growth in waste.

It is important to manage household waste more sustainably. At present, just 9 percent is recycled and a further 8 percent has energy recovered from it. The government has set challenging targets to increase the recycling of municipal waste i.e. to recycle or compost at least 25 percent of household waste by 2005; at least 30 percent by 2010 and at least 33 percent by 2015. Local authorities shall contribute in meeting these statutory standards and to improve waste management services. Governments will work with local authorities to pilot schemes encouraging householders to reduce waste, and participate in recycling schemes.

For more sustainable waste management, there is a need to develop new and stronger markets for recycled materials. Waste and Resources Action Programme\(^\text{22}\) should be set up to deliver more recycling and reuse, help develop markets and end uses for secondary materials, and promote an integrated approach to resource use.

Public procurement can also play an important role in strengthening the demand for recycled products. Public procurement of certain recycled products be made mandatory. Increasingly, producers must arrange for recovery of their products.

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22. The Waste and Resources Action Programme (WRAP) has now been established in order to promote the development of markets for recycled materials. Its web site is at: www.wrap.org.uk.
• Landfill tax would increase by £ 1 per year, with a review in 2004. This provides waste producers and local authorities with a strong incentive to send less waste to landfill and a clear basis for planning future waste management.

• Tradeable permits be introduced restricting the amount of biodegradable municipal waste that local authorities can send to landfill. In some cases, authorities will need to introduce energy recovery facilities. The opportunities for incorporating Combined Heat and Power technology should always be considered.

• The progress towards the achievement of goals should be monitored and periodically reviewed.

One of the basic concerns of the strategy is to reduce use of landfill and to ensure better use of natural resources through waste reduction, reuse, recycling, composting and energy recovery. Substantial amount of valuable materials are currently buried in landfill sites and the strategy emphasises that 'society can not afford to continue wasting these resources, many of which are available in limited quantities in the environment, or are difficult or environmentally damaging to extract'. The strategy calls upon business and industry to reduce waste by redesigning their products and processes, and consumers to influence waste reduction through their purchasing decisions, by avoiding over- shopping and choosing products that create less waste. It also seeks to encourage the reuse of products, recycling and composting. Where it is not possible to recycle waste, consideration should be given to use it as a fuel. Use of waste as a fuel can reduce reliance on more polluting virgin fuels and help to reduce the emissions of carbon dioxide into the atmosphere.
2.6 Dumping at Sea

On the issue of waste, international law has basically focussed on two areas e.g. dumping of waste in the high seas and transboundary movements of hazardous waste. The main reason for the inability of international law to exert effective controls over hazardous waste movement and disposal relates to the issue of sovereignty of states. However, uniform national controls would enhance the overall legal certainty of regimes and promote greater economic efficiency.

The major sources of marine pollution are land based sources and airborne depositions with additional contributions from dumping at sea. Sewage, industrial waste and agricultural run-off are the most common types of pollutant which enter the sea from land, mostly through rivers. Some of these substances are directly toxic to marine life and humans and others contribute to oxygen depletion, resulting in loss of marine life.\(^{23}\)

Pollution by dumping at sea amounts to approximately 10% of overall marine pollution.\(^{24}\) It is addressed by two main international conventions:

1) Convention on the Prevention of Marine Pollution by Dumping of Waste and Other Matter, 1972 (London Dumping Convention);\(^{25}\) and

2) Convention on the Law of the Sea, 1982 (UNCLOS).\(^{26}\)

2.6.1 London Dumping Convention

The London Dumping Convention was the result of initiatives taken by the U.N. Conference on the Human Environment which was held at Stockholm in

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24. MAURICE SUNKIN, DAVID MONG, ROBERT WIGHT, SOURCEBOOK ON ENVIRONMENTAL LAW 344 (2d ed. 2001)
25. 11 I.L.M (1972) 1294.
June, 1972. Principle 7 of this Conference provided that 'states shall take all possible steps to prevent pollution of the seas by substances that are liable to create hazards to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea'. The Stockholm Conference is considered to be the foundation stone of modern international environmental law. It led to the globalization of environmental news and unique and open style of international environmental negotiation.

London Dumping Convention came into force on 30 August 1975 and by 1999 had 77 parties, including at least 38 developing countries. It is regarded as being successful in generating an international consensus on the development of policy for dumping at sea, both at international and national levels.

The London Dumping Convention recognised that marine environment and the living organisms which it supports are of vital importance to humanity. The capacity of the sea to assimilate waste and render it harmless, and its ability to regenerate natural resources, is not unlimited. The states have the sovereign right to exploit their own resources pursuant to their own environmental policies, but they also have the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other states or of areas beyond the limits of their national jurisdiction. The Convention wished that international action to control pollution of the sea by dumping should be taken without delay to improve protection of the marine environment.

27. 11 ILM (1972) 1416
28. As revised in 1993 and 1996.
The London Dumping Convention applies to all marine waters other than internal waters. Territorial waters, Exclusive Economic Zones (EEZs) and Continental Shelves of States' parties are included within its scope. States' parties are under an obligation to take all practicable steps to prevent the pollution of the sea by dumping of waste and other matter that is liable to create hazards to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea.

'Dumping' is defined as

i. any deliberate disposal at sea of wastes or other matter from vessels, aircraft, platforms or other man made structures at sea,

ii. any deliberate disposal at sea of vessels, aircraft, platforms or other man made structures at sea

'Wastes or other matter' are defined as 'material or substance of any kind, form or description'. The Convention provides for rules prohibiting or regulating the dumping of wastes. There are three different categories listed in Annexes I, II, and III. The dumping of highly hazardous waste substances listed in Annex I (black list) is prohibited, 'special care' substances and wastes listed in Annex II (grey list) require a prior 'special' permit and the dumping of all other wastes requires a prior 'general' permit. Both 'special' and 'general' permits are issued by designated national authorities of the state.

29 Article 3 (3)
30 Article 1
31 Article 3 (1)(a)
32 Article 3 (4)
33 Article 4 (1) (a)
34 Article 4(1)(b)
35 Article 4 (1) (c)
party. These authorities are required to keep records of all matter permitted to be dumped.\textsuperscript{37}

Annual consultative meetings of the parties are to be held\textsuperscript{38} to monitor progress, review implementation, make amendments (by a two-thirds majority), receive national reports and disseminate relevant scientific and technical information.

The widespread ratification of London Dumping Convention implies that ‘dumping at sea’ has now become a subject of global regime which is based on the adoption of minimum international standards by all states leaving no place for double standards. Different categories of pollutants have been distinguished and the dumping or incineration at sea of industrial, radioactive, and other environmentally hazardous waste has been prohibited, subject only to limited exceptions for warships and emergencies. Only a limited range of largely harmless matter may now be dumped and that too under permit. Dumping is subject to supervision by an international forum i.e. the London Convention Consultative Meeting in addition to regional bodies. The Consultative Meeting has been successful in generating international consensus on the development of policy for dumping at sea. It has facilitated the adoption of stringent standards and has enabled the states, which are not involved in this activity, and a number of Non Governmental Organisations (NGOs) to apply pressure on those who are involved to moderate or abandon practices which pose a risk to the marine environment. London Dumping

\textsuperscript{36} Article 6 (1) (a) & (b).
\textsuperscript{37} Article 6 (1) (c).
\textsuperscript{38} Article 14.
Convention is widely regarded as successful\(^3\) and is a stringent application of the precautionary principle of environmental law.

2.6.2 *United Nations Convention on the Law of the Sea*

Under UNCLOS, 1982 'dumping' has been defined\(^4\) in the same way as in London Dumping Convention. Part XII of the Convention, dealing with the 'protection and preservation of the marine environment', provides that states should take all measures to minimise the release of toxic, harmful or noxious substances, especially those which are persistent, from land- based sources, from or through the atmosphere or by dumping.\(^5\) States are required to adopt laws and regulations and to take other measures to prevent, reduce and control pollution of the marine environment by dumping. They have to ensure that dumping is not carried out without the permission of the competent authorities of states. Global and regional rules, standards, recommended practices and procedures to prevent, reduce and control such pollution are required to be established and are to be revised from time to time. National laws should also be made effective. Dumping within the territorial sea and the EEZ or on to the continental shelf is not be carried out without the express prior approval of the coastal state, which has a right to permit, regulate and control such dumping.\(^6\) Laws and regulations adopted in accordance with the Convention have to be enforced by the coastal state, flag state with regard to vessels flying its flag or vessels or aircraft of its registry and by any state loading wastes or other matter within its territory or at its off-shore terminals.\(^7\)

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40. *See* Article 1 (5) (a).
41. Article 194 (3) (a).
42. Article 210.
43. Article 216.
The London Dumping Convention and UNCLOS, 1982, ensure that no state is free to undertake dumping unilaterally without having regard to the prescribed procedures. The interest of other states has to be protected. Today, dumping may be permitted only if there are no alternatives and it is proved that environment is not going to be adversely affected.

2.7 Transboundary Movement

In international law, hazardous waste is now subject to strict transportation restrictions. In the 1970s and early 1980s large quantities of hazardous waste were shipped to developing countries which accepted them for disposal or storage in return for badly needed foreign currency earnings. Waste was less expensive to dispose of in developing countries. Nevertheless, the environmental and human health risks posed by the global movement of hazardous wastes are brought out by a series of highly publicised incidents involving rejected waste shipments. The fear led to new controls on international movement of hazardous waste. The principal results are:

- The 1989 Lome IV Convention.
- The 1991 Bamako Convention.

National and international attention towards the hazards posed by transboundary movement of hazardous wastes gained momentum with the first international agreement promulgated by OECD regarding international trade in hazardous waste in 1984. Its Decision and Recommendation on

44. supra note 1.
Transfrontier Movements of Hazardous Waste\textsuperscript{47} required member states to provide 'adequate and timely' information to competent authorities of countries affected by the shipment of hazardous waste. The other guidelines included the principle of prior consent from the importing and any transit states for intra-OECD shipments of waste; providing of information by the exporter to the importing country regarding the origin, nature, composition and quantity of waste to be shipped as well as environmental risks involved in transport; and the responsibility of generator if an importer could not safely dispose of the waste. In 1986, OECD prohibited both the export of hazardous waste to non-OECD countries without prior consent from the receiving country or notice to transit nations, and the export of hazardous waste to non-OECD states that lack proper disposal facilities.\textsuperscript{48}

In 1987, the UNEP's Governing Council adopted 'Cairo Guidelines', a non-binding agreement on environmentally sound management of hazardous waste, and also agreed to commence international negotiations on a legally binding instrument to govern the transboundary movements of hazardous waste. As noted earlier, the 'Cairo Guidelines' eventually resulted into the adoption of the Basel Convention. The decisions and recommendations of OECD as well UNEP action served as a basis for Basel Convention negotiations and provided an example of how legal developments in one international organisation can result in a more far reaching agreement in another forum.

\textsuperscript{47} C (83) 180, February 13, 1984.
\textsuperscript{48} Council Decision on Exports of Hazardous Waste from the OECD Area, C (86) 64, June 5, 1986.
2.7.1 *Basel Convention*

There are three basic approaches governing the issue of transboundary movement of hazardous waste:

(i) Outright ban on import or export of hazardous wastes. Many developing countries follow this approach and Greenpeace International has counted some eighty nine such countries.\(^{49}\)

(ii) Regulating the trade in wastes on a case-by-case basis. For example, several African countries adopted the Convention that bans the import of hazardous wastes into Africa but permits trade in such wastes among themselves, subject to certain controls (the Bamako Convention).

(iii) Allowing the hazardous waste trade to continue, subject to several requirements, particularly notification by the exporting country to the importing country, and either express or implied consent by the importing country.

The lack of uniformity in the regulations coupled with the concern about the dumping of hazardous wastes in countries with insufficient resources to enforce ban on imports, prompted UNEP to convene a conference to draft a Convention on transboundary movement of hazardous waste. The Basel Convention, adopted in March 1989, entered into force on May 5,1992. It represents a compromise between different approaches addressing the issue of transboundary shipment of hazardous wastes. The Basel Convention is intended to establish a global regime and the rules are designed to regulate

trade in hazardous wastes, rather than prohibit it, which is essentially a laissez-faire approach. It is recognised as the key global legal instrument dealing with the issue of hazardous waste management and its Secretariat provides advice and circulates information to countries all over the world. As of August 2001, 148 countries were party to the Basel Convention.

Although the proposal to completely ban international hazardous waste movements was rejected, Basel Convention still recognised in the Preamble that every state has a sovereign right to ban the entry or disposal of foreign hazardous wastes and other wastes in its territory and that there is an increasing desire for the prohibition of transboundary movements of hazardous wastes and their disposal in other states, especially developing countries. In this regard, the Conference of the Parties is required to evaluate the effectiveness of the Convention periodically, and to consider the adoption of a complete or partial ban in the light of latest scientific, environmental, technical and economic information.\(^{50}\) The Convention also confirms the sovereign right of states to ban imports, either on an individual, bilateral or regional basis, provided the exercise of this right is notified to other parties through its Secretariat.\(^{51}\)

'Wastes' are defined as substances which are subject to disposal.\(^{52}\) The disposal operations are those listed in Annex IV.\(^{53}\) 'Disposal' includes landfill, incineration or release into a water-body as well as recycling operations. The inclusion of recycling operations in the definition of 'disposal' has been criticised on the ground that the requirements for recycling should have been

\(^{50}\) Article 15 (7).
\(^{51}\) Article 4 (1)(a).
\(^{52}\) Article 2 (1).
\(^{53}\) Article 2(4).
made less burdensome to encourage an environmentally preferable alternative to final disposal.

A waste is included in the scope of the Convention if it is subject to transboundary movement and belongs to one of the following two categories:\(^{54}\)

a) hazardous wastes e.g. wastes covered by Annexes I and III, or defined as hazardous by the national legislation of one or more of the parties involved; and

b) ‘other wastes’, which means household wastes and residues arising from their incineration.

Radioactive wastes subject to other international controls e.g. under the International Atomic Energy Agency (IAEA) and wastes derived from the normal operations of ships covered by other international instruments e.g. International Convention for the Prevention of Pollution from Ships (MARPOL Convention) have been excluded from the purview of Basel Convention.\(^{55}\)

The Convention has adopted the principle of minimising the generation of hazardous waste and promoting disposal at source. The development and implementation of low-waste technologies\(^{56}\) and availability of disposal facilities within their jurisdiction\(^{57}\) have to be ensured by the parties. Exports have to be minimised\(^{58}\) and hazardous wastes may be exported only if the state of export itself does not have the capacity or facilities to dispose them of in an

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54. Article I, Annexes I to III
55. Article 1 (3) & (4).
56. Article 10 (2) (c).
57. Article 4 (2) (b).
58. Article 4 (2) (d).
environmentally sound manner,\textsuperscript{59} or where the wastes are required as a raw material for recycling in the state of import.\textsuperscript{60} The primary obligation is to manage the transboundary movement of hazardous wastes in an environmentally sound manner.\textsuperscript{61} In this regard, the basic responsibility lies with the generating state which can not be transferred to the state of import or transit.\textsuperscript{62} The generating state has to ensure that hazardous wastes are not exported to countries, particularly developing countries, which have either prohibited by their legislation all imports of waste, or if it has reason to believe that the waste in question will not be managed in an environmentally sound manner in the state of import.\textsuperscript{63} Likewise, a state has to prevent the import of hazardous wastes into its territory if it has reason to believe that they would not be managed in an environmentally sound manner.\textsuperscript{64} Parties are also obliged to re-import wastes under certain circumstances where the wastes can not be managed in an environmentally sound manner in the receiving country and in instances of illegal traffic.\textsuperscript{65}

The expression ‘environmentally sound management’ has been defined as ‘taking all practicable steps to ensure that hazardous wastes or other wastes are managed in a manner which will protect human health and the environment against the adverse effects which may result from such wastes.’\textsuperscript{66} The task of defining the expression more specifically was delegated to the Conference of the Parties at its first meeting.\textsuperscript{67} For environmentally sound management of hazardous wastes, each party is required to establish an authorisation system

\begin{itemize}
\item 59. Article 4 (9) (a).
\item 60. Article 4 (9) (b).
\item 61. Article 4 (8).
\item 62. Article 4 (10).
\item 63. Article 4 (2) (e).
\item 64. Article 4 (2) (g).
\item 65. Articles 8 and 9 (2).
\item 66. Article 2 (8).
\item 67. Article 4 (2) (e) and (8).
\end{itemize}
for persons handling hazardous wastes, and to ensure that every hazardous waste movement is accompanied by a movement document from the point at which the movement commences until the point of disposal. The movement document should contain information specified in Annex V (B) and be signed by each person who takes charge of the wastes. Parties must also ensure that packaging, labeling and transport is in conformity with generally accepted, recognised and relevant international rules, standards and practices.

A party should not permit hazardous wastes or other wastes to be exported to a non-party or to be imported from a non-party. However, transit of wastes through non-party states is not prohibited if carried out in accordance with the relevant provisions of the Convention. Moreover, parties have a right to enter into bilateral, multilateral, or regional agreements or arrangements regarding transboundary movement of hazardous or other wastes with parties or non-parties provided such agreements or arrangements do not derogate from the principle of environmentally sound management and are not less environmentally sound than those provided for by this Convention. The Secretariat of the Basel Convention must be informed about any such agreement. Exports to Antarctica have been strictly prohibited.

The transboundary movement of hazardous and other wastes which is not prohibited and which is in conformity with the general obligations, has to be carried out according to the Convention's regulatory system. This system is

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68. Article 4 (7) (a)
69. Article 4 (7) (c); Article 6 (9).
70. Article 4 (7) (b).
71. Article 4 (5).
72. Article 7.
73. Article 11.
74. Article 4 (6).
75. Articles 4 (1) (c) and 2 (f).
known as the *prior informed consent procedure* (‘PIC procedure’)\(^{76}\) and establishes a global written notice and consent regime. State parties are required to designate competent authorities to administer PIC procedure and inform one another through the Secretariat. The state of export has to give notice in writing of any intended transboundary movement containing detailed information to the prospective states of import and transit to enable them to assess the nature and the risks involved in the intended movement. The written consent of the importing state and all the transit states is needed before the movement actually commences. The transit states which are not parties to the Convention have the same right as importing states. The verification of the contents of the contract concluded between the exporter and the disposer is a mandatory requirement to ensure environmentally sound disposal.

Any transboundary movement of hazardous or other wastes without following the PIC procedure has been declared as ‘illega traffic’\(^{77}\) which would be a criminal offence\(^{78}\). If illegal traffic is the result of conduct on the part of exporter or generator, the state of export must ensure that the wastes in question are either ‘taken back’ or if this is not practicable, are otherwise disposed of in accordance with the provisions of the Convention, within 30 days from the time the state of export is informed about illegal traffic. If it is the conduct of importer or disposer which is responsible for illegal traffic, the state of import has to ensure that wastes in question are disposed of in an environmentally sound manner, within 30 days from the time illegal traffic comes to its notice. If the responsibility can not be assigned either to the

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\(^{76}\) Articles 6 & 7 and Annex V (A)

\(^{77}\) Article 9.

\(^{78}\) Article 4 (3)
exporter or generator or to the importer or disposer, the parties concerned or other parties as appropriate, should ensure, through co-operation, the environmentally sound disposal of the wastes. The Convention obliges each party to introduce appropriate national/domestic legislation to prevent and punish illegal traffic. The Secretariat may also be requested to identify cases of illegal traffic.

The Convention directs the parties to co-operate in adopting, as soon as practicable, a Protocol establishing appropriate rules and procedures for compensation for damage resulting from transboundary movement and disposal of wastes.79 The Protocol on Liability and Compensation was signed in 1999 at the fifth Conference of the Parties.80 The parties should co-operate in the dissemination of information, improvements in the environmentally sound management of wastes and prevention of illegal traffic.81 They should also cooperate in the harmonisation of technical standards and practices, monitoring the effects of waste management on human health and environment, development and implementation of low-waste technologies, improvement of existing technologies, development of technical capacity and codes of practice and in assisting developing countries to implement their obligations as set out in Article 4.82 The institutional mechanism for ensuring effective compliance of the provisions includes the establishment of the Conference of Parties83 and a Secretariat.84 The main functions of the Conference of the Parties are continuous evaluation and review of the

79. Article 12.
80. See infra Chapter VII, at ?.
81. Article 4 (2) (h).
82. Article 10.
83. Article 15.
84. Article 16.
provisions and adoption of amendments and protocols. The Secretariat assists in identifying illegal traffic and relays all relevant information to the parties. It basically performs administrative and co-ordinating functions.

Although Basel Convention does not provide a perfect solution to the problem of transboundary movement of wastes, there is a consensus among most of the writers that it does address most of the relevant issues and is, therefore, a step in the right direction. Its effectiveness depends on strict implementation and enforcement by state parties.

It is important to note that originally, the Basel Convention allowed hazardous wastes to be exported from OECD to non-OECD countries for recycling but this ‘recycling loophole’ has now been eliminated. By an amendment in the Convention in 1995 (Decision III/I), the export of hazardous wastes for final disposal or recycling from OECD to non-OECD countries has been banned. The amendment is known as the ‘Basel Ban’. The amendment required member states of the OECD, EU and Liechtenstein to prohibit hazardous wastes intended for disposal to states other than members of OECD, EU and Liechtenstein. In other words, North-South shipments of hazardous waste intended for disposal have been banned. Moreover, shipments of hazardous wastes from the same group of countries intended for recovery or recycling to other states outside this group have also been banned.

The Basel Convention, therefore, emphasised on both notification to, and the consent of the government of the country of import in response to the

85. Article 4A
environmental and public health hazards associated with transboundary shipments of hazardous wastes. This approach has been accepted at international level not only with respect to exports of wastes, but also for hazardous pesticides and industrial chemicals. As regards ‘Basel Ban’, it may be submitted that both business and industry have not objected to the ban on waste intended for disposal but the portion addressing the ban on exports for recycling and recovery has proved to be quite controversial. The ban has eliminated the option of legal hazardous waste transactions between two groups of countries and thereby enhanced the possibility of illegal transactions. The persons who make millions of dollars through illegal traffic are not to be easily deterred by the ban. In this situation, the national mechanisms and infrastructures for the control and prevention of illegal traffic needs to be considerably strengthened, for example, by the adoption of criminal legislations as required by the Basel Convention itself.

2.7.2 Lome IV Convention

The Basel Convention has been criticised by some developing countries on the ground that it does not prohibit international trade in hazardous waste but merely provides a detailed tracking mechanism. Under such terms as ‘prior informed consent’, ‘environmentally sound management’, and ‘adequate disposal facilities’, it has legitimised the international hazardous waste game. Due to its failure to ban the hazardous waste trade, many developing countries sought the protection of additional multilateral treaties, prohibiting the import of waste within their territories. Lome IV banned the direct and indirect export of any hazardous or radioactive waste from EC States to African, Caribbean
and Pacific (ACP) States. ACP States also agreed not to accept waste imports from any other State outside the EC.

The IV Lome Convention adopted at Lome (Togo) on 15 December 1989 is one of a series of conventions negotiated between EC and ACP countries. It entered into force on 1 September 1991. It bans the movement of hazardous wastes from EC to ACP countries.

Article 39 of Lome IV specifically addresses the issue of transboundary movements of hazardous wastes and obliges the contracting parties to make every effort to ensure that international movements of hazardous wastes and radioactive wastes are generally controlled. The definition of ‘hazardous wastes’ under Article 39 (3) is broader in scope than that provided under the Basel Convention since it includes ‘radioactive wastes’ also. The scope of wastes covered under the Lome IV is similar to that of the Bamako Convention.

Lome IV is basically a regional agreement within the meaning of Article 11 of the Basel Convention and is considered to be the first binding agreement between developed and developing countries prohibiting North-South traffic in hazardous and nuclear wastes. It was adopted only months after the Basel Convention but went beyond that so far as the scope of the wastes and stringency of the measures are concerned.

2.7.3 Bamako Convention

The Bamako Convention 1991 establishes a regional treaty regime for the African Continent and prohibits trade in waste. The Bamako Convention was
signed by all 51 members of Organisation of African Unity (OAU), except South Africa which was not a member of OAU at that time, in January 1991 in Bamako, Mali. It entered into force on 22 April 1998. Although to a large extent, the Bamako Convention incorporates a regime similar to the Basel Convention, there are certain important differences between the two. Unlike the Basel Convention which permits trade in hazardous wastes subject to the principles of 'environmentally sound management', and 'prior informed consent', the Bamako Convention prohibits the import of all hazardous wastes into Africa. It states that 'all parties shall take appropriate legal, administrative and other measures within the area under their jurisdiction to prohibit the import of all hazardous wastes, for any reason, into Africa from non-contracting parties. Such import shall be deemed illegal and a criminal act' 87

Although the prohibition is restricted to non-parties, the fact is that the treaty is only open for signature, 88 ratification, 89 and accession 90 by Member States of the OAU. It thus effectively prohibits imports from outside Africa

Bamako Convention adopts a wider definition of hazardous waste than that provided under the Basel Convention. This definition includes 'radioactive wastes' and 'household wastes' including sewage and sewage sludges 91 Basel Convention excludes radioactive wastes and 'household wastes' come under the category of 'other wastes'. However this distinction is of little significance because under the Basel Convention, 'other wastes' are also subject to the same regime as 'hazardous wastes'.

87 Article 4(1).
88 Article 21.
89 Article 22.
90 Article 23.
91 Article 2.
The Bamako Convention incorporates a specific provision for the adoption of 'precautionary principle' through the application of clean production methods, rather than a permissible emissions approach based on assimilative capacity assumptions e.g. assumptions about the capacity of the environment to absorb a certain level of pollution. This is a more progressive approach than that adopted by the Basel Convention which is based on scientifically proven harmful substances only. Moreover, the procedural requirements of notification are much tighter. A specific notification, as against general notifications, is required for each and every shipment, and the transit states are required to disallow transboundary movements until written consent has been received. In case of illegal traffic, the Bamako Convention also requires the exporter or generator, and ultimately the exporting state to ensure the return of waste in question. Like the Basel Convention, the Bamako Convention is administered by its own Conference of Parties and Secretariat.

The Convention bans the import of wastes into African States but permits movements of waste between African States, subject to certain restrictions. Despite its ban on the import of hazardous waste from outside Africa, Bamako does not ban the importation of waste generated in one African State to another African State. Each State has to pass domestic laws requiring generators to report their waste generation and shipments to the Secretariat. There is strict joint and several liability for the release of hazardous wastes.

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92 See Article 4 (3) (f)
93 Article 6 (6)
94 Article 6 (4).
95 Article 9 (3).
96 Article 15.
97 Article 16
98 Article 4(3)(b)
The members of OAU favoured a complete ban on the export of hazardous wastes to developing countries. These states argued that Basel convention had failed to address adequately three important problems,\(^9\) namely:

1. how to control shipments of mixed waste;
2. how to meet the situation where an importing state fails to adequately dispose of the waste; and
3. how to prevent forgery and bribery resulting from Basel’s notice and consent provisions.

For the effective enforcement of the Bamako Convention, following is laid down:

1. Each party must create its own national body to act as a watchdog or ‘Dumpwatch’ as it is termed in the Convention; and
2. Violators of the ban on extra-continental imports of waste and their accomplices who plan, carryout or assist illegal imports are subject to criminal penalties.

It has been estimated that between 300-500 million tons of hazardous waste is generated annually, with over 90 percent originating in industrialised nations.\(^{10}\) There are no accurate figures on the volume of hazardous wastes transported from industrialised nations to emerging and developing economies because of illegal dumping activities and the lack of facilities to monitor transboundary movements of such wastes. The Basel Convention and the Bamako Convention complement one another and seek to prevent illegal dumping. With both Conventions now in force, and with the ‘Basel Ban’,

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\(^{10}\) UNEF Press Release, 27 February 1998.
adequate and effective mechanisms have to be established for their compliance and implementation.

2.7.4 Agenda 21

Chapter 20 of Agenda 21\textsuperscript{101} required the international community to ratify and implement Basel Convention and Bamako Convention as well as related protocols and also to eliminate the export of hazardous wastes to countries which prohibit the import of such wastes such as contracting parties to the Bamako Convention, the IV Lome Convention or other relevant Conventions. Chapter 20 recognised that 'the promotion and strengthening of international cooperation in the management of transboundary movements of hazardous wastes'\textsuperscript{102} and 'prevention of illegal international traffic in hazardous wastes'\textsuperscript{103} are issues of major concern. While concluding, the proposed activities in these areas may be noted since these are of great significance. As regards management of transboundary movements of hazardous wastes, the following are recommended to be undertaken by governments:

- to promote and strengthen international cooperation in the management, control and monitoring and to apply the 'precautionary approach';
- to harmonize the procedures and criteria used in various international and legal instruments;
- to ban or prohibit the export of hazardous wastes to countries that do not have the capacity to deal with those wastes in an environmentally sound way or that have banned the import of such wastes;

\textsuperscript{101} supra note 6.
\textsuperscript{102} Programme area (C).
\textsuperscript{103} Programme area (D).
• to incorporate notification and control procedures under Basel Convention and relevant regional conventions, like Bamako Convention, into national legislation;
• to ratify and implement Basel and Bamako Conventions and related protocols;
• to develop guidelines for identification, recovery, recycling and safety standards including monitoring and surveillance of transboundary movements; and
• to provide financial assistance in case of emergency situation.

The prevention of illegal international traffic in hazardous wastes will benefit the environment and public health in all countries, particularly developing countries. It would also make the Basel Convention and regional international instruments, such as the Bamako Convention and the IV Lome Convention more effective. Illegal traffic may cause serious threats to human health and the environment and impose abnormal burden on the countries that receive such shipments. Effective prevention requires action through effective monitoring and imposition of appropriate penalties. Following activities are recommended at the governments' level:

• to reinforce national capacities to detect and halt any illegal attempt and to strengthen information alert system;
• to assist the countries that suffer the consequences of illegal traffic within the framework of Basel Convention;
• with the cooperation of the United Nations and other relevant organisations, to adopt and implement legislation to prevent illegal import and export of hazardous wastes and to ensure compliance of such legislation; and
• to strengthen institutional and regulatory capacities of developing countries.

2.8 Conclusion

The international, regional and national policies on the control and management of hazardous wastes, as reflected by the London Dumping Convention, the Basel Convention, Chapter 20 of Agenda 21, the Lome IV Convention, Bamako Convention as well as U.S. and U.K. strategies highlight the strong preference for elimination or disposal at source of toxic, persistent or bioaccumulative waste. Where this is not possible, a regime of regulation, monitoring, prior environmental impact assessment or prior consent of the state at risk comes into play. Basically an attempt has been made to balance environmental concerns and economic development by regulation avoiding outright prohibition. In this regard, the special needs of developing countries with respect to industrialisation have also been acknowledged. In the regulation of dumping at sea and the transboundary movement of hazardous wastes a ‘precautionary approach’ has been adopted and implemented at international level. This has led to the greater protection of developing countries which are at the highest risk from these practices. Adoption of clean production technologies and the environmentally sound management of hazardous wastes have been proclaimed. Adoption of clean production technologies is primarily a method of implementing the ‘precautionary principle’. The principle implies a willingness to act in cases of potential harm even though scientific proof is lacking.

The next section seeks to examine the issues relating to regulation of hazardous chemicals in international arena.
II- Hazardous Chemicals

Apart from hazardous waste, the other substance which has received international attention is hazardous chemicals. There are basically two reasons advanced for taking international action on hazardous chemicals. The first concerns the so-called 'level playing field' argument. The differences in regulatory costs confronting industry in different countries favour companies in countries with less rigorous regulatory climates, and incite them to move their production to such countries. The second concerns transboundary effects of chemicals. ‘Releases of chemicals do not respect national borders’.\(^{104}\)

The nature and degree of regulatory control as well as resources available for implementation and enforcement in various countries differ significantly. Developing countries, particularly, have failed to guard themselves against the dangers posed by hazardous chemicals which have been banned or the use of which is severely restricted in developed countries. Many of the developing countries neither have regulatory mechanisms to implement controls nor have the capacity to assess the information relating to a particular pesticide or chemical. The key problem is ignorance.

The lack of regulatory system in developing countries is accompanied by poor handling, unsafe storage practices, use of high-risk techniques, and improper labeling and packaging. Labels that provide warnings and directions for safe use may not contain complete information or may not be read or understood by the workers who handle them. Workers are ill equipped, careless and illiterate and are not familiar with the necessary protective procedures in the

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mixing and application process. Moreover, many developing countries lack medical and other infrastructures to respond to emergencies.

2.9 Role of OECD in Chemicals’ Management

The initial work on chemical management at the international level took place in the OECD. It has an Environmental Health and Safety Division within which the OECD Chemicals Programme is located. A Chemicals Group was first established in 1971 and its work was expanded in 1978 with the creation of a Special Programme on the Control of Chemicals. The programme developed harmonised chemical testing and hazard assessment procedures. However, with the appeal of United Nations Conference on Environment and Development (UNCED) for greater activity and co-ordination of risk management of chemicals, at Rio de Janeiro in 1992, the work moved outside the OECD to the International Programme on Chemical Safety (IPCS), the International Forum on Chemical Safety (IFCS) and UNEP, since the Governing Council approved in May 1995 the commencement of negotiations to develop a convention on prior informed consent for trade in toxic chemicals.

2.10 FAO Code of Conduct

Simultaneously the problem of pesticides has been picked by another international institution, the United Nations Food and Agricultural Organization (FAO). In International arena the FAOs ‘International Code of Conduct on the Distribution and Use of Pesticides’, 1985\(^{105}\) (the FAO Code of Conduct) is considered to be the first international code adopted to reduce the

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hazards associated with the international use of pesticides. Though only voluntary, it was designed to aid countries and provide interim protection until they implement national regulations on the use of pesticides. It provided the first global standard for the sale and use of pesticides.

Under the Code, voluntary responsibilities are allocated among government, industry and the public. It provides that ‘Governments’ have the overall responsibility and should take the specific powers to regulate the distribution and use of pesticides in their countries.' Manufacturers and distributors of pesticides should follow Code provisions in the manufacture, distribution, labeling and advertising of pesticides, especially in countries without legislation or regulation, and should take special care to ensure safe and effective use of the product world wide. To assess compliance with the Code, the FAO issued a questionnaire in 1988. The results were distressing. Of the 115 responding countries (mostly developing), ‘half did not have legislation to control pesticides, and 84 percent were unable to control potentially hazardous pesticides according to international standards.’

The principle of ‘prior informed consent’ (PIC) gives the importing countries an opportunity to refuse shipments of pesticides banned or severely restricted in exporting countries. Early drafts of the Code had provided for PIC for each and every shipment, but pressure from industry and a number of producing countries resulted in its deletion. The U.S and the U.K in the early 1980s were opposed to the concept of PIC. Developing countries voiced their

107. Article 3.
disappointment regarding the lack of PIC procedures. In response to these concerns, the FAO adopted a resolution in November 1987 that PIC should be incorporated into the Code within two years. In November 1989, the FAO amended the Code to adopt the principle of PIC. It provided that:

Pesticides that are banned or severely restricted for reasons of health or the environment are subject to the Prior Informed Consent procedure. No pesticide in these categories should be exported to an importing country participating in the PIC procedure contrary to that country's decision made in accordance with the FAO operational procedures for PIC.109

The Code provides an eight step process in which FAO plays a central organisational role. According to these steps, exporting and importing states should participate in the PIC process. A designated national authority is required to report pesticide bans, refused registrations or severe restrictions to the FAO. In response, FAO issues a "PIC Decision Guidance Document" which includes information on the chemical and physical composition of the pesticide as well as its uses, possible source of exposure, its toxicity and regulatory status in other countries. The document is then sent to participating countries, which have ninety days to decide whether to ban imports of the pesticide. The status quo is maintained if the importing country does not respond within 90 days. A database is then maintained from which countries can monitor the import status of chemicals in each country.

However, FAO Code of Conduct was criticised by developing countries on the ground that it was too weak, non-binding and voluntary, with no enforcement mechanisms and no provisions for technical assistance to developing countries for monitoring or enforcement. Its PIC procedure applies only to pesticides

109. Article 9 (7).
that have been banned or severely restricted in five or more countries and so many potentially toxic chemicals were not reviewed. In spite of these shortcomings, both industry and many signatories to the Code regarded it only as a first step, and the next development i.e. the London Guidelines, explicitly sought to address these shortcomings.110

2.11 London Guidelines

The United Nations Environment Programme (UNEP) is an autonomous unit within the United Nations Secretariat which was established after the U.N. Conference on Human Environment, 1972 held at Stockholm.111 It is located in Nairobi, Kenya. It was ineffective at international arena during its first decade and the pace of progress since Stockholm Conference and its adopted Plan of Action was criticised.112 Whatever may be the reasons for its ineffectiveness during the first decade, UNEP became much more activist in the mid 1980s, and since then it has been increasingly involved in global standard setting and policy initiatives. It was central to the Vienna Convention for the Protection of the Ozone Layer, 1985; Montreal Protocol on Substances that Deplete Ozone Layer, 1987; the Basel Convention, 1989 and the United

110. DAVID HUNTER, JAMES SALZMAN, DURWOOD ZAFLKE, INTERNATIONAL ENVIRONMENTAL LAW AND POLICY 872, 873 (2d ed. 2001).
111. 11 I.L.M. 1416 (1972). The Conference adopted an Action Plan of 109 recommendations and a Declaration of 26 principles. UNEP was constituted to ensure implementation of these principles. Principle 6 of the conference is worth mentioning. It provides that 'the discharge of toxic substances or of other substances and the release of heat, in such quantities or concentrations as to exceed the capacity of the environment to render them harmless, must be halted in order to ensure that serious or irreversible damage is not inflicted upon ecosystem...'
112. The annual core budget of UNEP is only about $ US 20 million. It receives another $ US 50 million from extra budgetary sources, but that depends upon the generosity and priorities of member states. In 1994, UNEP had a total budget of only about $ US 75 million. See BRANISLAV GOSOVIC, THE QUEST FOR WORLD ENVIRONMENTAL CO-OPERATION: THE CASE OF THE UN GLOBAL ENVIRONMENTAL MONITORING SYSTEM 236-43 (1992).
The purpose of Guidelines was to allow countries access to information on hazardous chemicals in order to facilitate informed choices regarding their importation, handling and use. The Guidelines apply to hazardous chemicals, including pesticides. The Guidelines specifically excluded pharmaceuticals, radioactive materials, small quantities for research and personal use, and food additives. They are non-binding, merely establishing a minimum set of standards that countries should attempt to achieve. The Guidelines call on states of export and import to work with UNEP and FAO in creating a formal mechanism of information exchange on chemicals involved in international trade.

The U.S., U.K. and Germany kept PIC out of London Guidelines, but as a result of Pesticides Action Network lobbying within G-77, the UNEP

Governing Council pledged that PIC would be added at the next scheduled council meeting in May, 1989 and this was done. Voluntary PIC procedure was added in 1989 to control the import of chemicals that have been banned or severely restricted. A chemical that is banned or severely restricted in an exporting country because of its threat to human health or the environment should not be shipped to an importing country over that country’s objection. Like the FAO Code, the PIC procedure reinforces state sovereignty in determining its own analysis of the risks and benefits associated with chemicals it chooses to allow into the country. The U.S., recognising that the introduction of PIC was inevitable, played an active role in developing the concept further. UNEP played the lead role.

The International Register of Potentially Toxic Chemicals (IRPTC) was established by UNEP in 1976 in Geneva. It is considered to be the first institution to collect and process information on hazardous chemicals. It also administers the PIC procedure. It now operates a global network for the exchange of information on chemicals between countries, regions and international organisations. The network consists of 138 members from 129 countries. Its purpose is to make it easier for countries to obtain existing information on the production, distribution, release, disposal and adverse effects of chemicals.

The PIC procedures under the amended London Guidelines are essentially the same as under the FAO Code of Conduct. A country seeking to participate in the PIC procedure notifies UNEP and FAO of the import restrictions it

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114. See also UNEP’s Code of Ethics on the International Trade in Chemicals, 1994 which is said to be complementary to the amended London Guidelines. The original document can be found in W.P. 5.1 or WW 6.0.
wishes to place on a specific chemical. Once UNEP, through IRPTC identifies the chemical as 'banned' or 'severely restricted' under the FAO Code and the amended London Guidelines, a 'decision guidance document' is circulated to other participating countries, who may then notify IRPTC and FAO of their decisions concerning the import of the chemical. The country's decisions are then compiled and disseminated to all participating governments. IRPTC also maintains chemical data profiles of nearly 10,000 chemicals based on their effects on human health and the environment. The data profiles contain information on a particular chemical’s production and consumption, environmental and toxicological aspects as well as risk management information.

The FAO Code of Conduct and London Guidelines assisted countries in developing their own national rules and procedures. Their main aim was to promote transparency in the management of potentially hazardous chemicals through the exchange of information and to encourage shared responsibility between exporting and importing states for the management of industrial chemicals and pesticides. In 1989, both the FAO Code of Conduct and London Guidelines were amended to incorporate PIC Procedure. The amendment required the participating countries to exchange information through the implementing agency, as opposed to the previous bilateral exchange of information between countries. This provided the process with a degree of formality, enabling better control over the flow of information.

The amended FAO Code and London Guidelines, therefore, provided detailed requirements for PIC procedures, but as noted above, entirely on the voluntary basis. There was a demand for a binding legal instrument in this regard, although it was doubtful whether formalising PIC would help the developing
countries more than the voluntary PIC process did. Many of them lacked an accountable domestic policy process to govern the import and distribution of chemicals. The London Guidelines might have been 'soft law' PIC, but at least they required a designated National Authority to be named, adding transparency to decisions and opening them up for contestation by environmental groups and agencies. It was a political rather than a legal accountability process which would perhaps function better without the 'chilling effects' of a legal convention.\textsuperscript{115}

However, UNEP decided otherwise and began negotiations to develop a legally binding PIC instrument. The mandate provided by Chapter 19 of Agenda 21 required that the PIC procedure as applied to chemicals under the voluntary joint UNEP/FAO mechanism should be brought into a legally binding form\textsuperscript{116} The negotiation process in this regard took place under the joint responsibility of UNEP and FAO. Both these organisations established the International Negotiation Committee (INC) for an International Legally Binding Instrument for the Application of the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade. This negotiating group held five sessions between March 1996 and March 1998. Some 100 countries as well as a number of intergovernmental and non-governmental organisations active in the area of chemicals management participated in the negotiations. Finalised at the 5\textsuperscript{th} meeting of the INC, the Convention was formally adopted and opened for signature at a Conference of Plenipotentiaries convened by UNEP and FAO and held in Rotterdam, Netherland on 10 and 11 September, 1998, at the invitation of the

\textsuperscript{116} Chapter 19(38).
The Government of the Netherlands\textsuperscript{117} It is known as 'the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade'\textsuperscript{118} (Rotterdam Convention) It provides more complete information to importing countries on the health and environmental risks associated with the use of hazardous chemicals and pesticides

\section*{2.12 International Programme on Chemical Safety}

Prior to discussion on the provisions incorporated in the Rotterdam Convention, it is important to note that the International Programme on Chemical Safety (IPCS) was established in the backdrop of Stockholm Conference, 1972 In 1980, the World Health Organization (WHO), International Labour Organization (ILO) and UNEP agreed to co-operate to allow IPCS to co-ordinate work on health, labour and environmental aspects of chemicals However, there are intense bureaucratic rivalries in the international chemicals arena When WHO and ILO tried to establish IPCS without the cooperation of industry and FAO, the project floundered\textsuperscript{119} WHO and ILO had tried to use IPCS to dilute FAO's authority over pesticides\textsuperscript{120} WHO was included in PIC negotiations and retained a strong preference for expanding the competence and reach of IPCS to reduce the special status of pesticides and threaten FAO's claim to lead pesticide regulation\textsuperscript{121}

IPCS has worked closely with the OECD and provides evaluated data which are intended to form a basis on which relevant national authorities can establish policy These include Environmental Health Criteria (EHC)


\textsuperscript{119} ROBERT BOARDMAN, \textit{PESTICIDES IN WORLD AGRICULTURE: THE POLITICS OF INTERNATIONAL REGULATION} 126-8 (London, 1986)

\textsuperscript{120} supra note 115, at 328

\textsuperscript{121} \textit{Id} at 328-9
documents which are hazard statements to assist risk evaluation for human health and the environment at the national level. EHCs have been completed for many chemicals including a number of metals. IPCS Health and Safety Guides are short documents summarising toxicity information in non-technical language and providing advice on safe handling and storage, first aid and so on. There has been long standing cooperation between IPCS and scientific bodies such as the International Life Sciences Organisation, the chemicals industry, professional scientific and technical societies and workers' federations and associations.

2.13 United Nations Conference on Environment & Development

The international agenda on hazardous chemicals was given an added impetus in 1992 by the United Nations Conference on Environment & Development (UNCED), which in Principle 12 noted that environmental standards applied by some countries might be inappropriate in other countries, especially developing countries. UNCED, therefore called for trade and environmental policies which are mutually supportive, transparent and compatible with international obligations. Principle 14 of the UNCED provides that 'states should effectively cooperate to discourage or prevent the relocation and transfer to other states of any activities and substances that cause severe environmental degradation or are found to be harmful to human health.'

2.14 Agenda 21

The UNCED adopted Agenda 21 as a programme for action. Chapter 19 of Agenda 21 dealing with 'Environmentally Sound Management of Toxic Chemicals, Including Prevention of Illegal International Traffic in toxic and

123. supra note 6.
Dangerous Products', stated that risk management activities are primarily the responsibility of national governments but international action is needed for problems which have international implications. Chemical risks do not respect national boundaries. It identified the following programme areas for environmentally sound management of chemicals:

(a) Expanding and accelerating international assessment of chemical risks;
(b) Harmonization of classification and labeling of chemicals;
(c) Information exchange on toxic chemicals and chemical risks;
(d) Establishment of risk reduction programmes;
(e) Strengthening of national capabilities and capacities for management of chemicals;
(f) Prevention of illegal international traffic in toxic and dangerous products.

Chapter 19 provides that successful implementation of above stated programmes depends upon intensive international work and coordination as well as identification and application of technical, scientific, educational and financial means. Collaboration on chemical safety between UNEP, ILO and WHO in the IPCS should be the nucleus for international cooperation. The work of the OECD, FAO and the European Union should be coordinated. Intergovernmental mechanisms should also be established where ever appropriate. Of the six programme areas proposed in the Chapter, the assessment is intended to progress at the international level while management of chemicals is intended to occur at national level. In view of General Assembly Resolution 44/226 of 22 December, 1989, each regional commission should contribute to the prevention of illegal traffic in toxic and dangerous products.
In addition, Chapter 19 of Agenda 21 recommended the adoption of London Guidelines, PIC procedures, precautionary principle, General Agreement on Tariffs and Trade (GATT) framework and Awareness and Preparedness for Emergencies at Local Level (APELL) programme of UNEP by the governments. The role of IPCS should also be enhanced. OECD member countries should establish or strengthen national risk reduction programmes and that governments should ‘undertake concerted activities to reduce risks for toxic chemicals, taking into account the entire life cycle of the chemicals.’ National capabilities and capacities should be strengthened through adequate legislation, information gathering and dissemination, capacity for risk assessment and interpretation, establishment of risk management policy and its implementation and enforcement, rehabilitation of contaminated sites and poisoned persons, effective education programmes and capacity to respond to emergencies.

2.15 Intergovernmental Forum on Chemical Safety

The recommendation that intergovernmental mechanisms should be established was given effect by the establishment of Intergovernmental Forum on Chemical Safety (IFCS). Sweden was elected president and an intercessional group was established with 26 members. The IFCS was expected to identify priority actions in order to carry out the UNCED strategy. Specified actions were to be completed by the time of 1997 UN General Assembly special session, held to review the results of UNCED. On an interim basis the Secretariat of IFCS was located along with the IPCS and administered through WHO. The Commission on Sustainable Development,

established to oversee implementation of Agenda 21, gave IFCS strong support and called for a close association between IPCS and IFCS. It was considered very important that IPCS’s work should be the best possible science and that IFCS should work on policy considerations. Every attempt was made to keep the technical work separate from policy work. This was done to ensure the outside world that IPCS’s technical evaluations were independent and uninvolved with commercial considerations.

2.16 The Rotterdam Convention

As noted earlier, the FAO Code and amended London Guidelines developed and incorporated a voluntary system for the enforcement of the concept of PIC. A voluntary system inherently lacks a strong mechanism for monitoring compliance or enforcing the commitments of the parties. This system was eventually transformed into the existing legally binding system through the instrumentality of Rotterdam Convention. Through the Rotterdam Convention, the management of industrial chemicals and pesticides has been subjected to formal legal regulation at the global level. The object of the Convention is to protect human health, including the health of consumers and workers, and the environment against potentially harmful impacts from certain hazardous chemicals and pesticides in international trade\textsuperscript{125} and to promote shared responsibility, cooperation and exchange of information among parties in international trade to ensure environmentally sound use of hazardous chemicals.\textsuperscript{126}

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\textsuperscript{125} The Preamble of Rotterdam Convention.
\textsuperscript{126} Article I.
To carry out these objectives, the Convention recalls the provisions of Chapter 19 of Agenda 21 and gives effect to the work of UNEP and FAO in the operation of the voluntary PIC procedure as set out in the amended London guidelines and FAO Code of Conduct. The Convention takes into account the special requirements of developing countries, particularly the need to strengthen their national capacities for the management of chemicals through transfer of technology, providing financial and technical assistance and cooperation among Parties. Promotion of good management practices and adequate packaging and labeling during export have to be ensured.

The provisions of Rotterdam Convention apply to:

(a) Banned or severely restricted chemicals; and
(b) Severely hazardous pesticide formulations.

The Convention bans the export of above mentioned chemicals as listed in Annex III, unless the importing country has given its prior consent. Chemicals are listed in Annex III when they have been ‘banned’ or ‘severely restricted’ in the exporting country. Banned chemicals include those that have been refused approval for first time use or ‘withdrawn by industry from the domestic market’ in order to protect human health or the environment. The definition of ‘severely restricted’ includes chemicals with clear evidence of human or environmental concern. A ‘banned’ or ‘severely restricted’ chemical may be added to Annex III if the Secretariat receives at least one notification from each of two designated PIC regions that a particular chemical meets the requirements of Annex I. The composition of PIC regions

127. Article 3.
128. Article 2(b).
129. Article 2(c).
was left to the Conference of the Parties to decide at its first meeting. The Secretariat forwards the matter to Chemical Review Committee to decide on the basis of such notifications and in accordance with the criteria set out in Annex II. The Chemical Review Committee then recommends to the Conference of the Parties to list the chemical in Annex III and make it subject to the PIC procedure.130

The Convention also allows a developing country which is experiencing problems in its territory caused by a severely hazardous pesticide formulation, to propose to the Secretariat the listing of that formulation in Annex III.131 ‘Severely hazardous pesticide formulations’ are pesticides that produce severe environmental or health effects within a short period from the time of exposure.132 Any such proposal by a developing country should contain the information as required by Part I of Annex IV, including formulation’s active ingredients, description of incidents relating to the formulation as well as its adverse effects and measures taken in response to such incidents. The Secretariat shall verify the contents of the proposal and collect additional information as set out in Part 2 of Annex IV,133 including whether other countries have applicator or handling restrictions and whether any incidents have been reported in other countries. The Secretarial shall forward the proposal and the related information to the Chemical Review Committee which shall review the information in accordance with the criteria set out in Part 3 of Annex IV. The Chemical Review Committee then recommends to the Conference of the Parties to list the formulation in Annex III and make it subject to the PIC procedure.130

130 Article 5(5) & (6).
131 Article 6(1).
132. Article 2(d).
133. Article 6(2) & (3).
subject to the PIC procedure. There is a provision for removal of chemicals from Annex III also. If a party submits to the Secretariat information that was not available at the time when the decision to list a chemical in Annex III was taken and that information indicates that its listing may no longer be justified, the Secretariat shall forward this information to the Chemical Review Committee which may recommend the removal of chemical from Annex III.

The Convention requires each Party to implement appropriate legislative or administrative measures to ensure timely decisions and responses with respect to the import and export of chemicals listed in Annex III. These decisions and responses have to be in accordance with the prescribed procedure. There are provisions for export notification and its acknowledgement by the importing Party; information to be accompanied with exported chemicals (with regard to risks or hazards to human health or the environment); exchange of required information among Parties; establishment and strengthening of national infrastructures and institutions for the effective implementation of the Convention; and cooperation in promoting technical assistance to developing countries so as to enable them to implement the Convention. For proper enforcement of the provisions, the Convention establishes a Conference of the Parties and a secretariat to perform the

134. Article 6(4) & (5).
135. Article 9.
136. Article 10.
137. Article 11.
138. Article 12.
139. Article 13.
140. Article 14.
141. Article 15.
142. Article 16.
143. Article 18.
144. Article 19.
functions assigned to them. As of 20 December 2002, 37 Parties had ratified the Convention. \(^{145}\) Fifty states must ratify for the Convention to enter into force.

The above discussion reveals that the development of international law regarding regulation of chemicals, including their transboundary movement, has travelled from non-binding to binding international guidelines. It mainly focuses on the development of PIC procedures. However, simply providing information to some developing countries may not be sufficient to ensure an informed response. Institutional capacity to assess the data is necessary for which it may be submitted that developed countries should provide technical and financial assistance. The industry also should bear some responsibility by helping in building institutional capacity in countries where they operate.

2.17 Right to know

PIC is basically one form of right-to-know laws which require disclosure of chemical hazard information to populations at risk. The right to know is important for two reasons. \(^{146}\)

(1) In any public policy approach, public protection should be predominant. And

(2) Individual and community should have right to autonomy and self-determination.

A right-to-know instrument that is becoming widely adopted is known as a 'pollutant release and transfer registry.' The registry provides a record of industrial releases and emissions. For example, the registry in the U.S. is called

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145 Monocrotophos Added to Rotterdam Convention, 6 UNEP Chemicals Newsletter, 3 (2002)

the Toxic Release Inventory (TRI) and has been remarkably effective in reducing industrial emissions. EPA has listed over 650 chemicals that facilities with ten or more employees must report annually. In 1993, manufacturers reported releases of 2.8 billion pounds of listed chemicals. Almost half of the releases came from the chemical industry. Since the advent of TRI, chemical manufacturers have reduced their TRI emissions by 68%. The TRI programme is generally credited with substantial reduction in emissions because companies are eager to avoid bad publicity from being seen as a 'big polluter'.

2.18 The POPs Convention

The essence of a binding PIC regime, as reflected by the Rotterdam Convention, is to restrict the export of certain listed chemicals and pesticides if the importing country does not give consent. It does not require a complete ban on the trade of certain substances and elimination of their production or use. The possibility of developing an international legal instrument which recommends the phasing out of certain chemicals over time and then their complete elimination, has been achieved by the adoption of the Stockholm Convention on Persistent Organic Pollutants, 2001 (the POPs Convention). The Convention is aimed at reducing and/or eliminating the emissions and discharges of persistent organic pollutants (POPs). It adopts the precautionary

147. See 42 U.S.C. 11023.
149. For details of emissions, see <http://www.epa.gov/triexplorer/>.
150. 40 ILM 532 (2001). For a regional agreement on the issue, see the Convention on Long-range Transboundary Air Pollution (LRTAP) Protocol on POPs. The LRTAP Protocol on POPs was signed on 25 May, 1998 and its provisions played an important role in guiding the shape of the POPs Convention.
approach as set forth in Principle 15 of the UNCED\textsuperscript{151} to carry out the
objective of protecting human health and the environment from POPs.\textsuperscript{152}

POPs are synthetic chemical substances with unique and harmful
characteristics. They pose severe risks to human health and the environment
due to their toxicity, their persistence, their ability to travel long distances on
air and water currents, and their tendency to bioaccumulate in food chains.
They are 'worst of the worst' of toxic substances and are highly toxic to
wildlife and humans. The POPs Convention recognised that POPs possess
toxic properties, resist degradation, bioaccumulate and are transported,
through air, water and migratory species, across international boundaries and
deposited far from their place of release. They accumulate in terrestrial and
aquatic ecosystems and create serious environmental and health concerns. The
Convention recognised the importance of developing and using
environmentally sound alternative processes and chemicals as well as the
contribution that the private sector and NGOs can make in achieving the
reduction and/or elimination targets. It also recalled the pertinent provisions of
Rotterdam Convention, Basel Convention (including regional agreements
developed within the framework of its Article 11) and UNCED and Agenda
21.\textsuperscript{153} Agenda 21 urged governments to 'adopt regulatory and non-regulatory
measures to identify and minimise exposure to toxic chemicals, by replacing
them with less toxic substitutes, and ultimately phasing out the chemicals that
pose unreasonable and otherwise unmanageable risks to human health and the

\textsuperscript{151} Principle 15 of UNCED, 1992 proclaims that 'in order to protect the environment, the
precautionary approach shall be widely applied by states according to their capabilities.
Where there are threats of serious or irreversible damage, lack of full scientific certainty
shall not be used as a reason for postponing cost-effective measures to prevent
environmental degradation.'

\textsuperscript{152} Article 1.

\textsuperscript{153} The Preamble.
environment, and those that are toxic, persistent, and bio-accumulative and whose use cannot be adequately controlled. In 1997, the UNEP Governing Council adopted Decision 19/13c which finally set out the negotiation mandate by providing in Paragraph 4 that 'immediate international action should be initiated to protect human health and the environment through measures which will reduce and/or eliminate, as further elaborated in the Annex to the present decision, the emissions and discharges of the twelve POPs specified in Governing Council Decision 18/32 and, where appropriate, eliminate production and subsequently the remaining use of those POPs that are intentionally produced.' The mandate of UNEP Decision 19/13c actually resulted in the adoption of POPs Convention by the international community. As of 31 December 2002, 151 states had signed the Convention but only 24 had ratified. A minimum of fifty states must ratify for the Convention to enter into force.

The POPs convention regulates the POPs in three categories, namely, pesticides, such as DDT; industrial chemicals (intentional by-products), such as PCBs; and hazardous wastes (unintentional by-products) such as chlorinated dioxins and furans. The Convention requires an immediate prohibition of eight of the 'dirty dozen' chemicals, namely, aldrin, chlordane, dieldrin, endrin, heptachlor, mirex, hexachlorobenzene and toxaphene. It bans the production and use of intentionally and unintentionally produced POPs, where ever possible. As regards DDT, a compromise approach has been resorted to which severely restricts its use with the exemption for developing countries to use the chemical to combat malaria. The restricted use of PCBs in

154. Chapter 19(49).
155. Stockholm Convention- Intergovernmental Negotiating Committee (INC) 6 Proves Decisive, supra note 143.
power generating equipments has been permitted with the desire to find out PCB free alternatives by the year 2025. It also requires the Parties to take steps to reduce the use of, and ultimately eliminate dioxins and furans. The Convention requires the Parties to take legal and administrative measures to eliminate the production and use of chemicals listed in Annex A and restrict the production and use of chemicals listed in Annex B. The import and export of a particular listed chemical is permitted only for the purpose of environmentally sound disposal or under specific exemption granted to a Party, after taking into account relevant international PIC instruments. The export of a chemical to a non-Party is also permitted provided the importing state provides an annual certification and is committed to protect human health and the environment by taking necessary measures to minimise or prevent releases. A Register is to be maintained by the Secretariat for the purpose of identifying the Parties that have specific exemptions to use the chemical listed in Annex A or Annex B. The entries in the Register are subject to review by the Conference of the Parties. The Parties are required to take measures to reduce or eliminate releases from unintentional production e.g. releases from anthropogenic sources of each of the chemicals listed in Annex C. For this purpose, the development of an action plan, the use of best available techniques and best environmental practices have been envisaged. Parties are also required to reduce or eliminate releases from stockpiles and wastes contaminated with chemicals listed in Annexes A, B or C and to ensure that they are managed in a manner protective of human health and the environment. Wastes, including products and articles upon becoming wastes,

156. Article 3.
158. Article 4. The Conference of the Parties is established under Article 19.
159. Article 5.
are to be handled, collected, transported and stored in an environmentally sound manner and are to be disposed of in such a way that POP content is destroyed. When destruction or irreversible transformation does not represent the environmentally preferable option, they are to be disposed of in an otherwise environmentally sound manner in accordance with international rules, standards and guidelines. It is important to note that the Convention does not permit disposal operations that may lead to recovery, recycling, reclamation, direct use or alternative uses of POPs. Each Party has to develop an implementation plan to carry out its obligations under the Convention. The plan is subject to review on a periodic basis and in a manner specified by the Conference of the Parties.

The Convention allows a Party to submit a proposal to the Secretariat for listing a chemical in Annexes A, B and/or C. The proposal ought to contain information specified in Annex D. After verification, the Secretariat is expected to forward the proposal to POPs Review Committee. On the basis of ‘risk profile’ and ‘risk management evaluation’, the Committee may recommend to the Conference of the Parties the listing of the chemical in Annexes A, B and/or C. The Conference of the Parties has to take a decision regarding listing of the chemical in Annexes A, B and/or C, in a precautionary manner and after taking into account the recommendations of the POPs Review Committee. The criteria for listing a chemical in Annexes A, B and/or C has been given in Annexes D, E and F.

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160. Article 6.
161. Article 7.
162. Article 8.
The POPs Convention contains important provisions relating to the exchange of relevant information among Parties to reduce or eliminate the production, use and release of POPs including their alternatives;\footnote{163. Article 9.} promoting and facilitating public information, awareness and education;\footnote{164. Article 10.} encouraging and undertaking appropriate research, development, monitoring and cooperation;\footnote{165. Article 11.} rendering of timely and appropriate technical assistance to developing country Parties and Parties with economies in transition;\footnote{166. Article 12.} and providing financial support and incentives in accordance with national plans, priorities and programmes.\footnote{167. Article 13.} Each Party is required to report, at periodic intervals, to the Conference of the Parties and provide statistical data to the Secretariat regarding the measures it has taken to implement the provisions of the Convention.\footnote{168. Article 15.} The Conference of the Parties has also to evaluate, at periodic intervals, the effectiveness of the Convention.\footnote{169. Article 16.}

The evidence provided by the scientific discoveries with respect to ill effects of 'dirty dozen' on human health and environment led to the adoption of POPs Convention by the international community. POPs resist natural degradation, bio-accumulate and cause serious harm to human health including endocrine disruptions as well as to environment. Arctic ecosystem and indigenous people who live on fish and mammals are particularly vulnerable to harm from POPs. POPs Convention requires the Parties to take effective measures to ultimately eliminate the production and use of these substances and to ensure that their destruction, disposal and transboundary
movement are done in an environmentally sound manner. Parties have to find out alternatives to POPs through the application of relevant science and technology. With regard to the regulation of POPs the 'precautionary principle', has been applied and incorporated in the Preamble itself so that scientific uncertainty can not be made a ground for non-regulation.

2.19 Conclusion

The POPs Convention is a step in the right direction and the required number of states should ratify the Convention as early as possible so that it comes into force without any delay. Sound management of chemicals should be on the top of international agenda and the provisions of FAO Code, amended London Guidelines, Rotterdam Convention and POPs Convention should be effectively enforced. The Plan of Implementation adopted by the World Summit on Sustainable Development on 4th September, 2002 required certain targets to be achieved by 2020. Paragraph 23 requires that chemicals should be used and produced in ways that lead to the minimization of significant adverse effects on human health and the environment; transparent science - based risk assessment procedures and science based risk management procedures should be used; precautionary approach, as set out in Principle 15 of the Rio Declaration, should be taken into account; and developing countries should be supported in strengthening their capacity for the sound management of chemicals and hazardous waste by providing technical and financial assistance.\textsuperscript{170} The major capacity building programmes launched in individual countries, especially developing countries, should be supported by international community and the whole world should work as a 'unit' since

\textsuperscript{170} Report of the World Summit on Sustainable Development, Johannesburg, South Africa, 26\textsuperscript{th} August - 4\textsuperscript{th} September, 2002 (United Nations Publication No. E. 03.11. A.1).
'chemical risks do not respect national boundaries'. A proper network between programmes and organisations charged with monitoring and assessing chemicals in the environment should be established.

The next four chapters are devoted to Indian laws pertaining to hazardous substances. A detailed study of the Indian legal regime is presented to ascertain as to how far India has responded to the global concern against hazardous substances. India, being signatory to many international legal instruments, has responded positively to the global concern and incorporated various provisions of these instruments into national laws. The Constitutional provisions, the general central statutes; the special central enactments as well as the rules made and notifications issued thereunder touch the specific problems associated with hazardous substances. A detailed survey of these laws vis-à-vis judicial response has been presented in the forthcoming chapters.