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MED POL

PLAN FOR THE MANAGEMENT OF HAZARDOUS WASTE INCLUDING INVENTORY OF HAZARDOUS WASTE IN THE MEDITERRANEAN REGION

GEF

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- Curbing Pollution
- Safeguarding Natural and Cultural Resources
- Managing Coastal Areas
- Integrating the Environment and Development

FOREWORD

The riparian States of the Mediterranean Sea, aware of their responsibility to preserve and develop the region in a sustainable way, and recognizing the threat posed by pollution to the marine environment, agreed in 1975 to launch an Action Plan for the Protection and Development of the Mediterranean Basin (MAP) under the auspices of the United Nations Environment Programme (UNEP) and, in 1976, to sign a Convention for the Protection of the Mediterranean Sea against Pollution (the Barcelona Convention). The Convention entered into force in 1978 and was amended in 1995.

Recognizing that pollution from land-based activities and sources has the highest impact on the marine environment, the Contracting Parties to the Barcelona Convention signed in 1980 a Protocol for the Protection of the Mediterranean Sea against Pollution from Land-Based Sources (LBS Protocol). The Protocol entered into force in 1983 and was revised in 1996 to better cover industrial pollution sources and activities and to enlarge the coverage to include the hydrologic basin.

A Strategic Action Programme (SAP MED) to address pollution from land-based activities, which represents the regional adaptation of the principles of the UNEP Global Programme of Action (GPA) to address land-based pollution activities, was adopted by the Contracting Parties to the Barcelona Convention in 1997 as a follow up to the provisions of the revised LBS Protocol. The SAP MED identifies the major pollution problems of the region, indicates the possible control measures, shows the cost of such measures and establishes a work plan and timetable for their implementation.

In order to assist the Mediterranean countries in the long-term implementation of the SAP MED, particularly in the formulation, adoption and implementation of National Actions Plans (NAPs), a three-year GEF Project “Determination of priority actions for the further elaboration and implementation of the Strategic Action Programme for the Mediterranean Sea” was implemented by MAP, and in particular by the MED POL Programme, the MAP Regional Activity Centres and WHO/EURO. The project consists of numerous activities which include, among others, the preparation of regional guidelines and regional plans, whose main aim is to guide and assist countries to achieve the pollution reduction targets specified in SAP MED.

The present document is part of a series of publications of the MAP Technical Reports that include all the regional plans and guidelines prepared as part of the GEF Project for the implementation of the SAP MED.

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ACRONYMS

AMAP	Arctic Monitoring and Assessment Program
CBS	Land based Strategy
CP	Contracting Parties
EA	Executing Agency
FAO	Food and Agricultural Organisation
GEF	Global Environment Facility
GIWA	Global International Waters Assessment
HW	Hazardous Waste
IA	Implementing Agency
IGO	Intergovernmental organisations
IFCS	Inter-Governmental Forum on Chemical Safety
IMHW	Integrated Management of Hazardous Waste
INC	Intergovernmental Negotiating Committee
IOMC	Inter-Organisational Programme for the Sound Management of Chemicals
IPCS	International Programme on Chemical Safety
LRTAP	Long-Range Transboundary Air Pollution Convention
NGOs	Non-Governmental Organisations
OP	Operational Programme
PDF	Project Preparation and Development Facility
POPs	Persistent Organic Pollutants
PTS	Persistent Toxic Substances
RBA	Regionally based assessment
SAP	Strategic Action Plan
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environment Programme
WHO	World Health Organisation

EU-15 B-Belgium (Brussels, Flanders and Walloon region), DK-Denmark, D-Germany, EL-Greece, E-Spain, F- France, IRL-Ireland, I-Italy, L-Luxembourg, NL- Netherlands, A-Austria, P-Portugal, FIN-Finland, S-Sweden, UK-United Kingdom
Phare countries: BG-Bulgaria, CZ- Czech Republic, EE- Estonia, HU-Hungary, LV-Latvia, LT-Lithuania, PL-Poland, RO- Romania, SI-Slovakia, SK- Slovenia
NACE: General Industrial Classification of Economic Activities within the European Communities
OECD: Organisation for Economic Co-operation and Development (Paris)
PHARE: Poland-Hungary: aid for economic restructuring (Community aid programme for central and east European countries)
Eurostat: Statistical Office of the European Communities (European Commission, Luxembourg)
EU: European Union

1. INTRODUCTION

The Strategic Action Programme was elaborated and adopted to facilitate the implementation by the CPs of the LBS protocol. Therefore it is designed to assist parties in taking actions individually, or jointly, within their respective policies priorities and resources which will lead to the prevention, reduction, control and/or elimination of the degradation of the marine environment.

The issue of hazardous wastes is addressed, amongst others, in the SAP as a source of degradation of the marine environment through direct or indirect discharges of raw waste products into the sea or through the releases into the atmosphere or into water of pollutants which may be generated in the process of disposal or treating these waste products.

The SAP proposed targets are:

- *By the year 2025, to dispose all hazardous wastes in a safe and environmentally sound manner and in conformity with the provisions of the LBS Protocol and other international agreed provisions;*
- *Over a period of 10 years, to reduce as far as possible by 20% the generation of hazardous waste from industrial installations;*
- *By the year 2010, to dispose 50% of the hazardous waste generated, in a safe and environmentally sound manner and in conformity with the provisions of the LBS Protocol and other internationally agreed provisions.*

These targets would be reached through a set of regional and national activities on the basis of a regional strategy for the integrated management of hazardous wastes (IMHW) and national strategies and plans of implementation for the management of hazardous waste, both elaborated on the basis of environmentally sound management processes.

These plans would address hazardous wastes with special attention to obsolete chemicals, used lubricating oil, used batteries and accumulated waste.

The proposed regional plan for management of hazardous waste is elaborated on the basis of both assessment of the current status and inventories of hazardous wastes in the Mediterranean region (Annex II), and the regional considerations.

The elaboration and implementation of the national management plans, is the corner stone for the implementation of the regional plan (Annex I).

Mediterranean countries would consider the integration of elements of these plans in their national environmental action plans, if available.

2. REGIONAL AND INTERNATIONAL LEGAL FRAMEWORK ADDRESSING HAZARDOUS WASTE MANAGEMENT

The following are the main legal frameworks addressing hazardous waste management in the region:

2.1 The Barcelona Convention and its Associated Protocols

Most of these protocols have been amended as during as a results of the World summit for environment and development in 1992 and the GPA in 1995. Actually, discussions are going on concerning appropriate rules and procedures to be applied for the determination of liability and compensation for damage resulting from pollution of the marine environment in the Mediterranean Sea. This discussion may result in the establishment of a new Protocol.

The most important legal instrument regarding hazardous waste and the reduction of their inputs into the marine environment is the amended hazardous waste protocol (Izmir protocol). According to article 5 “The Parties shall take appropriate measures to prevent, abate and eliminate pollution of the protocol area which can be caused by the transboundary movements and disposal of hazardous wastes.” The parties shall take all appropriate measures to reduce to a minimum and where possible eliminate the generation of hazardous waste. A list of categories of waste subject to the provisions of the protocol is included as Annex I of the protocol. It is similar to the list set up under the provisions of the Basel Convention for the control of Transboundary Movement of hazardous waste and their disposal.

2.2 EU Directive of 12 December 1991 on Hazardous Waste (91/689/EEC)

The objective of this Directive, drawn up pursuant to Article 2 (2) of Directive 75/442/EEC, is to approximate the laws of the Member States on the controlled management of hazardous waste. The definition of 'waste’ and of the other terms used in this Directive shall be those in Directive 75/442/EEC.

For the purpose of this Directive 'hazardous waste’ means:

- wastes featuring on a list to be drawn up in accordance with the procedure laid down in Article 18 of Directive 75/442/EEC on the basis of Annexes I and II to this Directive, not later than six months before the date of implementation of this Directive. These wastes must have one or more of the properties listed in Annex III. The list shall take into account the origin and composition of the waste and, where necessary, limit values of concentration. This list shall be periodically reviewed and if necessary by the same procedure;
- any other waste which is considered by a Member State to display any of the properties listed in Annex III. Such cases shall be notified to the Commission and reviewed in accordance with the procedure laid down in Article 18 of Directive 75/442/EEC with a view to adaptation of the list.

Under the provisions of this directive member States shall take the necessary measures to require that on every site where tipping (discharge) of hazardous waste takes place the waste is recorded and identified and to require that establishment and undertaking which dispose of, recover, collect or transport hazardous waste do not mix different categories of hazardous waste or mix hazardous waste with non-hazardous waste tacking into consideration articles 4,13,16 and 18 of Directive 75/442/EEC.

The Annexes IA and IB exhibit the type of wastes displaying any of the properties listed in Annex III. Annex II lists the constituents of the wastes in annex IB which render them hazardous when they have the properties described in annex III. And annex III lists the properties of wastes which render them hazardous.

It should be mentioned that the European classification of hazardous waste is different from the one established in Basel and Izmir convention.

2.3 Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal

The Basel Convention strictly regulates the transboundary movements of hazardous wastes and provides obligations to its Parties to ensure that such wastes are managed and disposed of in an environmentally sound manner when moved across national boundaries.

The so-called Ban Amendment to the Basel Convention bans the export of hazardous wastes for final disposal and recycling from Annex VII countries (Basel Convention Parties that are members of the EU, OECD, Liechtenstein) to non-Annex VII countries (all other Parties to the Convention). The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal was adopted in 1989 and entered into force on 5 May 1992.

2.4 The Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade

The Rotterdam Convention on the Prior Informed Consent (PIC) Procedure for Certain Hazardous Chemicals and Pesticides in International Trade was adopted at a Conference of Plenipotentiaries in Rotterdam on 10 September 1998. The Convention enables the world to monitor and control the trade in very dangerous substances and according to the Convention, export of a chemical can only take place with the prior informed consent of the importing party. Under the Rotterdam Convention on PIC, Pesticides that are banned or severely restricted for reasons of health or the environment (and are considered hazardous waste) are subject to the PIC procedure. The Convention covers a list of five industrial chemicals and 22 pesticides, including aldrin, chlordane, DDT, dieldrin, heptachlor, HCB and PCBs.

2.5 The Stockholm Convention on Persistent Organic Pollutants (POPs)

The Stockholm Convention on POPs was adopted and opened for signing on 23 May 2001. The objective of the Convention is to protect human health and the environment from POPs. In 1995 UNEP's Governing Council called for an international assessment of the 12 POPs recognised as being particularly harmful to the environment and human health. The Convention sets out control provisions covering the production, import, export, disposal, and use of POPs as well as obligations of the Parties with respect to minimization of their release. Governments are to promote the best available technologies and practices for replacing existing Pops while preventing the development of new POPs. They will also be required to ensure that appropriate national legislation and regulations are applied, and to develop action plans for carrying out their commitments and obligations. The obligations of the Parties to the Stockholm Convention are laid down in the text as a series of control and general provisions. These provisions relate to the POPs covered by the convention in different ways. Parties are obligated to take measures to reduce or eliminate releases of the POPs covered by the Convention, and to develop an action plan within two years.

The following table elucidates the status of enforcement of the aforementioned legal frameworks in the region as of 5 June 2003.

Country	Basel	Sign PIC	Rat.PIC	Sign POPs	Rat.POPs	Montreal
Albania	29 Oct. 1999 (a)			5 Dec. 2001		8 Oct. 1999 (A)
Algeria	15 Sep. 1998 (a)			5 Sep. 2001		20 Oct. 1992 (A)
Cyprus	17 Sep. 1992 (R)	11 Sep. 1998				28 May 1992 (A)
Egypt	08 Jan. 1993 (a)			17 May 2002	2 May 2003	9 May 1988 (R)
European Union	07 Feb. 1994 (AA)	11 Sep. 1998		23 May 2001		17 Oct. 1988 (AA)
Greece	04 Aug. 1994 (R)	11 Sep. 1998		23 May 2001		29 Dec. 1988 (R)
Italy	07 Feb. 1994 (R)	11 Sep. 1998	27 Aug. 2002	23 May 2001		19 Sep. 1988 (R)
Lebanon	21 Dec. 1994 (R)			23 May 2001	3 June 2003	30 March 1993 (A)
Libyan Arab Jamahiriya	12 July 2001 (a)					11 July 1990 (A)
Malta	19 June 2000 (a)			23 May 2001		15 Sep. 1988 (A)
Monaco	31 Aug. 1992 (a)			23 May 2001		12 March 1993 (A)
Morocco	28 Dec. 1995 (a)			23 May 2001		28 Dec. 1995 (R)
Slovenia	07 Oct. 1993 (a)	11 Sep. 1998	17 Nov. 1999	23 May 2001		6 July 1992 (A)
Spain	07 Feb. 1994 (R)	11 Sep. 1998		23 May 2001		25 July 1988 (A)
Syrian Arab Republic	22 Jan. 1992 (R)	11 Sep. 1998				12 Dec. 1989 (A)
Tunisia	11 Oct. 1995 (a)	11 Sep. 1998		23 May 2001		25 Sep. 1989 (A)
Turkey	22 June1994 (R)	11 Sep. 1998		23 May 2001		20 Sep. 1991 (A)

A Acceptance AA Approval

a Accession R Ratified

3. SPECIFIC REGIONAL CONSIDERATIONS

The following elements are considered as main key policy directives that would induce an overall guidance to establish a sustainable integrated management system of hazardous waste in the region:

1. The Legislative framework of all regional countries regarding hazardous waste management in defined timeframe should address the following waste hierarchy:

   o *Waste prevention / reduction*:
   Minimising the use of resources, and reducing the quantities and / or hazardous characteristics of the wastes generated.

   o *Reuse*:
   Using products or items again for the same or different purposes.

   o *Recycling*:
   Reprocessing of waste materials for use as a feedstock in the manufacture of the same or a different product.

   o *Recovery*:
   Obtaining value from wastes by an appropriate technology such as (incineration with energy recovery) or other technologies.

   o *Waste Treatment and Disposal*:
   The approach to waste treatment and disposal should be as follows: Preferring physicochemical treatment over incineration without energy recovery. Final disposal by land filling. Special attention should be given to the disposal of accumulated waste.

2. Adoption of the principle ***that the hazardous waste management is*** **Generators** ***responsibility*** will be a matured Strategic decision for an integrated waste management approach.

3. The Use of the available national infrastructure industries for hazardous waste reuse/recycling and destruction whenever possible. For example:

   o *Cement-/calcinatory kilns;*
   o *Refineries;*
   o *Used oil recycling facilities;*
   o *Steel-foundries; and*
   o *Power plants using fossil fuels, such as coal.*

4. The Promotion of the interchange of hazardous waste between different generators in each country, within a framework of an administrative / technically / economically and legally acceptable system supported by the competent Authorities whereas possible.

5. The encouragement of Technology transfer between Mediterranean countries.

6. The establishment of a mechanism for financing the destruction of stockpiled hazardous waste and the remediation works of contaminated soil and water. Such policy will require to establish a registration system for the quantities and characteristic of stockpiled (accumulated) hazardous waste and an auditing system for the contaminated sites.

A fund for immediate response should also be established considering the economical-financial- legislative and technical status of regional countries. Finally a priority plan should be elaborated.

7. Taking immediate care of waste streams that are often generated and in substantial amount such as Lead Batteries, used oil and health care waste.

   An advanced appropriate collection system could be developed for the above waste streams and be considered as a source of revenue for waste generators. The revenues are considered a tool to enhance the recycling of these wastes.

8. The establishment in each Mediterranean country of feasible local market oriented towards hazardous waste treatment facilities.

   It should be mentioned that special hazardous waste incineration facilities to treat PCB's or POP's would be an expensive and not a feasible investment for some countries. In such cases the transboundary movement of the above mentioned waste should be facilitated under the provisions of the Hazardous Waste Protocol and the Basel Convention.

9. The set up of Recycling plants, Physicochemical treatment plants, Co- incinerators, and Landfills for disposing hazardous waste.

4. IMPLEMENTING THE REGIONAL PLAN VIA CENTRAL MANAGEMENT

In order to achieve the outlined objectives and for each Mediterranean country to develop an appropriate system for hazardous waste management, it is recommended to establish–or to use the existing–institution to carry out some activities in support of implementation of the regional plan.

4.1 The duties of this institution will include:

- To follow up and audit regionally the application of the relevant laws and regulations;
- To promote the environmental education and raise awareness of each regional country;
- To coordinate the Direct Intra communication between the relevant regional Authorities;
- To assist all member countries to follow the same policies for hazardous waste management;
- To assist all member countries to perform waste analysis in specialized accredited laboratories;
- To assist all member countries which lack local hazardous waste treatment or disposal facilities to develop relevant legislation that allows for the use of established industrial facilities as hazardous waste treatment. such as, Charcoal Power plants, Cement kilns etc. In this case, industrial sectors should be supported in order to operate and treat the hazardous waste in an environmentally sound manner;
- To provide consultation and technical assistance to all countries regarding hazardous waste management services such as:

  - Licensing procedures;
  - Recovery of some useful constituents from raw hazardous waste;
  - Design and install the required feeding systems and or emission control equipment;
  - Procurement and use of proper laboratory equipment;
  - Design and operation of hazardous waste collection network and temporary storage facilities;

- Enhance the treatment of health care waste by suitable technology such as sterilization., incineration and pyrolisis;
- Encourage the use of cleaner production technologies.

4.2 The above-mentioned institution should have:

a. Central management; and
b. National representation.

The Basel Convention Regional Centre for Training and Technology Transfer in Egypt, or other appropriate centre, is the most suitable central management office to carry out the above mentioned duties for the following reasons:

1. The main role of these centres is to assist countries, through capacity building, to achieve the fulfilment of the objectives of the convention.
2. The core function of these centres are: Training, technology transfer, information, consultation and awareness in the domain of hazardous waste.
3. It is a separate legal national entity with a regional role mainly in the area of hazardous waste management.
4. The technical infrastructure is already established.

In order to act rationally and efficiently, the national representatives of the institution can be either the Basel Convention focal points or the national environmental Authorities.

5. PRIORITIZATION OF ACTIONS NEEDED

Assessment of the data and information presented in annex II (inventory of hazardous waste generated in individual Med. Countries) revealed that the main action areas needed are:

- Temporary storage of HW.
- Destruction of HW in some existing facilities.
- Control the transboundary movement of HW according to Basel Convention Regulations.
- Establishment and operation of treatment and disposal facilities.
- Removal and disposal of accumulated waste and rehabilitation of the contaminated sites.

Prioritization of these actions could be as follows:

The highest priority should be given to:

- Design and operation of dedicated storage facilities for the temporary storage of HW thus facilitating the safe collection and eventually repacking of all produced hazardous waste.
- Assisting countries to use the existing cement kilns and / or Charcoal Power plants as hazardous waste treatment facilities.
- Taking the necessary actions towards removal, treatment and/or disposing of the accumulated waste and rehabilitation of the contaminated sites.

High priority (short-term actions):

The transboundary shipment of hazardous waste between all Mediterranean countries should be performed in compliance with the Basel convention in a short period of time. The following actions should be taken:

- Providing awareness programs.
- Assist in rebuilding the institutional structure.
- Assist development of the appropriate legal framework.
- Capacity building programs.

In the medium term, the priority should be given to:

The establishment of local hazardous waste treatment and disposal facilities taking into consideration the need of financing the necessary investments of such kind of structures.

Therefore the following actions should be taken:

- The establishment and/or operation of physicochemical treatment plants for liquid waste.
- The establishment and/or operation of physicochemical treatment plants for solid waste.
- The establishment and/or operation of sanitary landfills for hazardous waste.
- The operation of incinerators.

6. OBJECTIVES AND ACTIONS

The proposed Plan consists of an introduction, a mission statement and a set of operational objectives and actions that may wish to be achieved in the period cover by the Plan, as well as a national Plan (see annex I) to achieve these objectives. The objectives are drawn up using the overall framework of the Basel convention, Mediterranean Hazardous waste protocol and the Strategic action Program for the implementation of the Land Based Sources (LBS) protocol.

The Plan focuses on those activities considered achievable by the Contracting Parties in partnership with the Secretariat of the Basel Convention, the regional centres for Hazardous waste management under the provisions of the Basel convention and other stakeholders within the agreed time frame of **10 years**, taking into account existing regional plans and strategies, and the ongoing process of international environmental governance and sustainable development.

The Plan addresses the development and strengthening of partnerships to achieve the aims of environmentally sound management of hazardous and other wastes.

Although the Plan covers the time-frame of 10 years it is important to emphasis that actions should be initiated within the short term (2003-2004). It is not expected that all actions will necessarily be concluded by all CPs or other stakeholders within the time-frame indicated. Since most of the Mediterranean countries have initiated national action plans for the management of hazardous waste, it is proposed to integrate the objectives and actions of this plan into their owns.

One of the specific objectives is that the Basel Convention Regional Centres will serve as an effective regional mechanism to facilitate coordinated implementation of the Basel Convention and the relevant Mediterranean protocols and programmes.

It is essential that the Plan is developed through a process which is open and transparent, aimed at involving the greatest possible number of CPs and stakeholders and arriving at the widest possible consensus. It is expected that those CPs which have developed their Plans, such as EU countries, would act actively through bilateral or regional agreements for the enhancement and development of other CPs.

6.1 Objectives (as set out in the Basel Declaration, Mediterranean Hazardous Wastes Protocol and the SAP)

Prevention, minimization, recycling, recovery and disposal of hazardous wastes taking into account social, technological, legal and economic concerns;

Elaboration of a concept and a programme for the environmentally sound management of hazardous wastes, with an emphasis on waste prevention and minimization, taking into account the different regional and sectoral capabilities or specificities; promotion of initiatives in all States and at all levels to encourage environmentally sound waste management, in partnership with government authorities at all levels and with stakeholders, including capacity-building, awareness-raising and education.

Promotion of financial and other economic instruments or concepts, with a view to identifying sustainable and self-sufficient solutions for the minimization and environmentally sound and efficient management of hazardous wastes economically viable; and the exchange of information on such instruments and their application.

ACTIONS

i Adequate domestic legislation and policies are in place and a national hazardous wastes management plan is adopted;

ii National capacity for collection and management of data and information is enhanced to facilitate informed policy- and decision-making;

iii National administrative structures, procedures and mechanisms are coordinated and strengthened.

6.2 Active promotion and use of cleaner technologies and production, with the aim of the prevention and minimization of hazardous waste

Cooperation of the regional and subregional centres for training and technology transfer with cleaner production centres and similar institutions having experience and expertise in areas related to the minimization and management of hazardous waste, for the purpose of sharing information and knowledge and streamlining activities;

ACTIONS

i National Programmes for the monitoring of the generation of hazardous wastes are in place;

ii Hazardous waste minimization and prevention strategies with reduction targets at the national level that rely on the concept of the integrated life-cycle management of materials, are in place;

iii National systems for the environmentally sound collection, recovery, recycling, treatment and final disposal of hazardous wastes are strengthened, and management targets are set;

iv Incentives and other measures for the development, access, use and transfer of sound and proven technologies for hazardous waste management are in place;

v Urgent action is taken to protect human health and the environment from the adverse effects of hazardous wastes in critical situations, and emergency contingency plans in case of accidents are in place.

6.3 Further reduction of transboundary movements of hazardous wastes subject to the Basel convention and Mediterranean hazardous protocol, taking into account the need for efficient management and the priority requirement of recovery and recycling

Consistent with the technological needs of the CPs, promotion of initiatives aimed at reducing transboundary movements to the minimum, taking into account the environmentally sound management of the wastes, the protection of human health, the principles of proximity and self-sufficiency and the priority requirement of recovery and recycling.

ACTIONS

i Legal, administrative and other measures are in place to control transboundary movements of hazardous wastes and to prevent, monitor and punish crime involving illegal traffic and illegal disposal;

ii Adequate recycling, recovery, treatment and disposal facilities are available as close as possible to the place of hazardous waste generation.

6.4 Prevention and monitoring of illegal traffic

Continued cooperation with relevant international and regional organizations such as the International Criminal Police Organization (ICPO) and the World Customs Organization (WCO), in particular, in the training of customs and enforcement officers in order to identify, monitor and prevent illegal traffic in hazardous wastes.

Adoption of procedures to address alleged cases of illegal traffic and to assist CPs in preventing, identifying, monitoring and resolving illegal traffic.

Institutional strengthening of the regional and subregional centres for training and technology transfer, to enable Parties to prevent and monitor illegal traffic.

ACTIONS

i Compliance and enforcement measures, including training of enforcement personnel are in effect and applied;

ii Legal, administrative and other measures are in place to control transboundary movements of hazardous wastes and to prevent, monitor and punish crime involving illegal traffic and illegal disposal;

iii Adequate recycling, recovery, treatment and disposal facilities are available as close as possible to the place of hazardous waste generation.

6.5 Improvement and promotion of institutional and technical capacity-building, as well as the development and transfer of environmentally sound and proven technologies through out the region

With regard to capacity-building and assistance in legal and institutional matters, the development and effective implementation of legal instruments, building and strengthening of institutional infrastructures for the environmentally sound management of hazardous wastes and their minimization and the control of their transboundary movements.

With regard to capacity-building and assistance in technical matters, assisting in building and improving installations for the treatment of hazardous wastes and the transfer of know-how and technology; and the advancement and improvement of strategies for the practical implementation of the minimization and environmentally sound management of both domestically generated wastes and wastes subject to transboundary movements that include appropriate tools, measures and incentives especially for use by developing countries and countries with economies in transition, taking into account the needs of small and medium-sized enterprises.

ACTIONS

i Monitoring and enforcement of national capacity is strengthened, including improved access to training and capacity-building;

ii National capacity for collection and management of data and information is enhanced to facilitate informed policy- and decision-making;

iii National administrative structures, procedures and mechanisms are coordinated and strengthened.

6.6 Further development of regional and subregional centres for training and technology transfer and Enhancement of information exchange, education and awareness-raising in all sectors of society

Establishment or strengthening of the activities of regional and subregional centres for training and technology transfer, to ensure their important role in the implementation of the Basel Convention and of minimization methods and the environmentally sound management of hazardous wastes subject to the Basel Convention, aiming at financial self-sufficiency, bearing in mind that the role and activities of different regional centres in information exchange are to be consolidated and made available to all stakeholders and that regional centres should progressively become involved in activities related to training, public awareness and the exchange of information on waste minimization and environmentally sound technology and expertise; Collection and dissemination of information on existing examples, in particular in developing countries and countries with economies in transition, of best practices in waste management.

Facilitation of different partnerships where so required, including partnerships with industry, for the development of minimization methods and environmentally sound waste-management solutions.

ACTIONS

i The Basel Convention Regional Centres (BCRCs) are effective regional mechanisms to facilitate the co-ordinated implementation of the Basel Convention and related regional protocol and programmes;

ii Awareness and outreach of the hazardous waste management is improved through all media;

iii Hazardous waste issues are introduced into national educational curricula;

iv Monitoring and enforcement of national capacity is strengthened, including improved access to training and capacity-building.

6.7 Cooperation and partnership at all levels between countries, public authorities, international and regional organizations, the industry sector, non-governmental organizations and academic institutions

Enhancement of partnership with all stakeholders, to include the various experiences, needs and interests of different regions and sectors for the implementation of the Basel Convention and Mediterranean Hazardous waste protocol; encouragement and provision of incentives to the private and public sectors to cooperate with other stakeholders and to contribute experience and expertise in the management of hazardous wastes subject to the Basel Convention, including the application of cleaner technologies.

Enhancement of cooperation between the secretariat and international organizations active in areas relevant to the implementation of Hazardous waste convention and protocol, bearing in mind that this is to include cooperation with United Nations bodies active in the field of sustainable development, to encourage the incorporation of policies on the environmentally sound management of hazardous wastes in CPs' national environmental management and sustainable development plans and cooperation with the relevant programmes on cleaner production, such as with the joint programme on cleaner production of the United Nations Environment Programme and the United Nations Industrial Development Organization; launching of joint activities and projects in cooperation with organizations such as the United Nations Environment Programme and the Food and Agriculture Organization of the United Nations in areas of common interest, in particular, on persistent organic pollutants, waste pesticides and other chemical wastes.

ACTIONS

i Partnership between the Basel Convention and relevant regional protocols and programmes concerning wastes and chemicals, is in place and actively promoted;

ii The Basel Convention Regional Centres (BCRCs) are effective regional mechanisms to facilitate the co-ordinated implementation of the Basel Convention and related conventions and programmes;

iii The European Union member countries have already developed and applies hazardous waste management plans in compliance with all EU relevant Regulation and Directives. The EU member countries should with bilateral agreement amend/expand existing plans, whereas necessary, in order to consider the situation of the other regional countries;

iv Partnership with industry and business for activities aimed at environmentally sound management of hazardous wastes is enhanced;

v A mutually supportive working relationship between the Basel Convention, IGOs, NGOs and academia is actively promoted;

vi Community, local authority and government partnerships for the environmentally sound management of hazardous are enhanced;

vii Communication and cooperation with NGOs, private sector, academia and other partners are strengthened;

viii Access by civil society to information on hazardous waste issues is improved.

6.8 Development of mechanisms for compliance, monitoring and effective implementation of conventions and programmes

Promotion of the effective implementation of and compliance with the obligations of the Convention and its amendments and the provision of assistance to the CPs as required.

Completion of work on mechanisms designed to facilitate and monitor compliance and implementation of hazardous waste Convention and protocol, bearing in mind that this is to include a mechanism for compliance monitoring, procedures for dispute settlement and guidelines to assist States to prevent, identify and resolve cases of illegal traffic.

ACTIONS

i The protocol for hazardous waste and the amended LBS protocol are entered into force;

ii Compliance and enforcement measures, including training of enforcement personnel are in effect and applied.

6.9 MONITORING, REPORTING AND REVIEW

The SAP is implemented according to the measurable targets and time table. Specific measurable targets and timetables for reporting on the monitoring of the implementation of the SAP are to be established. Mechanisms for periodic assessment of the progress made in the implementation of the SAP are also to be developed.

ANNEX I

ELEMENTS OF NATIONAL PLAN FOR INTEGRATED MANAGEMENT OF HAZARDOUS WASTE (IMHW)

Integrated management of hazardous waste (IMHW) refers to the technical and non technical procedures and activities carried out throughout the overall life cycle of the waste from generation until final disposal, taking into consideration the economic, social, legal and institutional issues together with the technical ones.

Thus the proposed national plan to achieve the outlined goals and objectives has to be developed based on the review and assessment of the existing situation of hazardous waste management and to embody policy orientation concerning all the aforementioned related issues such as:

- Generation of hazardous wastes and estimate of the quantity of wastes that require an integrated management system including treatment and disposal.
- Policies and measures to minimize the generation of hazardous wastes and to promote reuse and recycling.
- Policies to promote appropriate treatment and disposal of hazardous wastes.
- Establishment of treatment facilities and final disposal sites.
- Research and development programmes for hazardous waste management.
- Roles of stakeholders including the Central Government, local governments and the private sector.
- Training and capacity building programmes for hazardous waste management.
- Funding, cost estimate and cost recovery mechanisms.
- Public awareness and dissemination.

Legislative Framework for Hazardous Waste Management

The national legislative framework for IMHW is considered a necessary tool for the viable implementation of the proposed plan. It translates the policies into an applicable, enforceable regulatory framework, thus ensuring proper outputs. The following are the main elements of the national legislative framework.

- *Definitions* of terms, particularly *wastes* and *hazardous wastes, classification and characterization of waste*.
- *Responsibilities placed on the waste generator*, which may include:
    - A requirement to *register* as a waste generator and provide regular information on waste sources, types, quantities and management methods.
    - A requirement to show that steps have been taken to *minimize the quantities* of waste being produced.
    - A *duty of care* whereby the generator remains legally responsible for the waste throughout its life cycle till it reaches its proper destination.
- *Registration or licensing* of those involved in collection, transport, storage, treatment or disposal of wastes.

- *Control over transport*, comprising:
  - A manifest or trip ticket system for cradle-to-grave control, to ensure that wastes arrive at their designated destination.
- *Standards* for design and construction of vehicles and specification of necessary features, covering bulk carriers and packaged waste carriers.
- *Specification* of containers for holding the waste during transport.
- *Labelling* of vehicles and the waste containers.
- Controls over *import* and *export* of waste, according to the regulations set by the Basel Convention and Mediterranean Hazardous waste protocol. A particular issue is the application of such controls to waste destined for recycling - clearly recycling is to be encouraged, but this must be done in such a way as not to provide a loop-hole for those who wish to import wastes for dumping.
- *Planning and permitting* of storage, recycling, treatment or disposal facilities, to ensure that adequate facilities are available both now and in the future and that all facilities are designed and operated in an environmentally sound manner.
- Programmes for dealing with and rehabilitation of *old or abandoned hazardous waste disposal sites*.
- Implementation of the landfill approach and the different treatment options, such as: incineration, physicochemical treatment, …

- The Compliance Strategy: It is not possible to implement and enforce legislation which tells waste generators, for example, that certain types of cleaner production technology need to be used to minimize hazardous waste generation, or that certain types of facilities need to be used for the treatment or disposal of hazardous wastes, unless it is possible for the waste generators to comply. A national control system must therefore include measures to encourage waste minimization and cleaner production, and also to encourage the provision of adequate facilities for recycling, treatment or disposal of hazardous wastes. As any of this is likely to be much more expensive than the current, uncontrolled dumping practices, then an overall *'compliance strategy'* is needed to ensure that the proper means of waste management are used, particularly in the short term while the system is being phased in.

- The hierarchy of hazardous waste management options: There is a general international consensus regarding a *hierarchy of options* for hazardous waste management:

  - The preferred option is to avoid generation of the waste in the first place;
  - If the waste must be generated, both the quantity and the degree of hazard should be minimized;
  - For those quantities of waste which must be generated, the preferred option is recycling, recovery or reuse;

    For wastes which must be generated and cannot be recycled, treatment should be considered to remove the hazard (e.g. by incineration, neutralization), to reduce the volume (e.g. by precipitation of heavy metals) or to render the waste into a less mobile form (e.g. by solidification);
  - Only when all of the other options have been fully explored, should consideration be given to final disposal methods such as landfill.

Overall Approach of the Proposed National Plan

The proposed national plan is divided into five interacting phases:

Phase I, Review of the Existing Situation, comprises and constitutes the data gathering and fact-finding. In the course of Phase I, a comprehensive overview of the present situation of hazardous waste generation and management in the country will be put together, as well as a concise overview of the existing hazardous waste management systems in the region.

Phase II will develop options and measures in the different action areas, including the institutional one. Option evaluation will also be carried out together with an examination of the proposed strategic actions.

Phase III will develop a National Strategy for hazardous waste management, Draft regulations and guidelines, compliance strategy and monitoring systems will also be proposed.

Phase IV will develop the capacity building programme for the implementation of the plan and strategy.

The *Phase V* consists and comprises the framework of implementation of the national strategy. Including the design and commissioning of secured landfills of safe disposal of hazardous waste.

Phase 1 - Review of Existing Situation

Objective. The purpose of Phase I is to review and analyze the existing situation in the country, regarding hazardous waste generation, handling, treatment and disposal and also the technical, institutional and legislative framework for hazardous waste management. Phase I will also include a regional review of the existing systems and practices for hazardous waste management in selected countries.

Task 1.1 - Source of hazardous waste

Hazardous waste is generated from many sources including industrial, agricultural, health care, petroleum, household and others. Quantity and characteristics of these waste vary according to the source and technology used. However, industrial activities represent a major source of hazardous waste. Thus this task will focus on the geographical distribution of the different sources of hazardous waste with special emphasis on industry, in particular the Small and Medium Size Industrial sector (SMI) and traditional industrial sectors such as textiles, leather tanning, metal finishing, as well as the chemical industry and the electronic industry.

Task 1.2 - Hazardous Waste Inventory

The purpose of this task is *to collect information on the volume and nature of hazardous wastes, prepare inventories of such wastes, and predict future generation taking into account the major sources and categories.*

There are three main approaches that can be used for data collection, all of which have their advantages and disadvantages.

- *Rapid assessment*. There are various methods available for rapid assessment of industrial and hazardous waste quantities in developing countries. We will examine the various methods available, including those used in the IMO Global Waste Survey, and in particular will investigate the applicability and usefulness of the most recent of the rapid assessment tools, the World Bank's *Industrial Pollution Projection System.* For certain categories of non-industrial hazardous wastes, including waste oils from transport, clinical wastes from hospitals and pesticides from agriculture, as well as for certain sectors of

industry dominated by small and medium enterprises, rapid assessment may be the only or the most practical option available.

- *Questionnaire Survey*. The most commonly used technique is the direct questionnaire to industry. However, in developed but particularly in developing countries, it is difficult to obtain sufficient response from such surveys, and that, even if information can be obtained, its reliability is open to question. The basic problems are that industry is usually focused primarily on technical and economic rather than environmental issues; priority in environmental issues is likely to be given in the first instance to water and air pollution, with hazardous waste emerging as a concern as standards in other environmental media are gradually tightened and enforced, resulting in the transfer of toxic pollutant into hazardous wastes; most industries unaware of the hazardous waste issues or even that they are generating hazardous wastes. Moreover, industries are reluctance to share information with institutions, such as Environmental authority, when it suspects that these data may be used in the future for enforcement purposes.

- *Personal interviews*. Personal interviews are extremely time consuming and resource intensive. A 'comprehensive' survey, in the sense of a statistically significant survey of all source of hazardous waste is difficult. In addition, the constraints mentioned above for questionnaire surveys also apply to personal interviews. If the person being interviewed is not aware that his factory is generating hazardous wastes, or if the quantities of such wastes are not being measured, then again the reliability of the information must be open to question. The personal interview does give a skilled and experienced interviewer the opportunity to go beyond the immediate bland response to seek out the types of waste which they would expect to be generated from the processes used in a factory, but this is both extremely time consuming and requires extensive training if it is to be carried out by local staff.

Information could be obtained by a mixture of rapid assessment; interviews with representatives of industrial and trade organizations, including Chambers of Industry and Commerce and industrial sector organizations; and a limited number of visits to selected industries in each of the main industrial areas.

The formal extrapolation of survey data is entirely dependant upon the availability of published statistics, for either industrial production and/or industrial employment, which can be used for extrapolation purposes. Given that a statistically significant sample survey can probably not be realistically achieved, and the normal problems relating to acquisition of statistical data, extrapolation of the data may need to be on a fairly ad hoc basis.

Task 1.3 - Review of the Current Hazardous Waste Practices

This task implies mainly carrying out a study on the current practices and existing infrastructure for handling, treatment and disposal for hazardous waste and, *where necessary conducting surveys and field audits of major sources by means of questionnaires and interviews.*

There are two purposes for such a review. The first is to ascertain the current practices which are environmentally inappropriate, the second is to identify any capabilities which may be utilized in future strategies.

Task 1.4 - Review of the Current Institutional, Legislative and economic Frameworks

The purpose of this task is to review and analyze the current institutional, legislative and economic frameworks for hazardous waste management in the country.

- Review of the institutional framework includes the roles and responsibility of the different stakeholders (the Central government, the local agencies, individuals and waste generators, private sectors, non governmental organizations…) and the type of arrangement governing organization of work. It also includes the human resources-

related issues such as available quantity and quality, education, training and capacity building programmes.

- Review of the legal framework includes both the existing national legislations that control and regulate management of hazardous waste and the international legal instruments that are signed and entered into force. The purpose is to find out how proper the HWM practices are carried out, thus identifying the required actions to ensure an appropriate legislative and regulatory framework in consistence with the local (national) specify and the international regulations, mainly those of the Basel Conventions.
- Review of the economic framework includes the costing and funding sources. These sources could be the governmental budgets, private sector participation, or other. An assessment of this framework could lead to finding out the problems and constrains and thus proposing the appropriate options for an effective economic/financial framework.

Task 1.5 - Regional Review

After reviewing the existing national situation, a review of the existing systems in other Mediterranean countries, and probably in other international countries, is an important task to explore the relevant experience, prospective technical and non-technical options for HWM.

As part of the IMO Global Waste Survey, the standard format for a National Profile for hazardous waste management, which was designed to facilitate easy comparison between countries, could be used for this purpose.

Task 1.6 - Identification of Current Problems of Hazardous Wastes in the country

As a result of analysis of the existing situation in the country, the shortcomings of the national HWM system will be depicted together with the cases of this shortcoming. These shortcomings could be attributed to technical, institutional, legal, economic or other reasons.

Phase II - Development of Strategic Options

The purpose of Phase II is to build on the works achieved in Phase I, to develop options and measures in the different areas, addressing the main shortcomings to overcome the existing problems and constrains of HWM in the country.

One of these action areas is the policies that would guide and direct the overall activities. The second complementing area is the legal structure that would translate the policies into applicable practices.

Other areas include:

- The institutional structure and the human resources.
- The technical infrastructure including the information system.
- The economic, financial system.
- Public awareness, attitude and behaviour towards H.W. issues.

Task 2.1 – Development Policy Options and measures

In this task, a number of policy options and directives for hazardous waste management could be considered in view of the regional key directives.

Selected Hazardous Waste Management Policy Options and Measures

A. Control and Enforcement	**B. Economic and Financial Instruments**
1. Controls over waste generators	1. Waste taxes and disposal levies
2. Operating permits and authorizations	2. Charge/rebate systems, tax preferences
3. Control over waste transport and shipment	3. Producer responsibility
4. Environmental audits/action plans	4. Raw material taxes, product charges
5. Standards for treatment, disposal and recycling facilities	5. Subsidies for waste prevention, recycling, etc.
C. Institutional/Participatory Mechanisms	**D. Information Dissemination and Use Mechanisms**
1. Institutional strengthening	1. Community right-to-know, waste reporting
2. Voluntary agreements between government and industry groups	2. Support for research and development and for demonstration projects
3. Role of the public, industry and trade associations	3. Formulation of targets and timetables with agreement from stakeholders
4. Training	4. Waste exchange schemes
5. Role of technical and academic institutes	5. Information and education programs

Task 2.2 - Recommend an Appropriate Legislative Framework-Options

This task should set out in broad terms the proposed legislative framework - including the regulatory control system, enforcement and compliance mechanisms – that would regulate, orchestrate and interplay the basic actions and steps to minimize the impact of hazardous waste on the environment and public health and to ensure the establishment of sustainable integrated HWM system.

This in turn may require any of the following options:

1st Some additions to the present laws and regulations. An example of the additional elements are:

- Establishment of HWM hierarchy and priorities.
- Delineating roles and responsible between the different stockholders.
- Technical standards.
- Financial mechanisms.

2nd Enacting a new HWM Act. That embodies all the required components.

Task 2.3 – Recommend Appropriate Institutional Framework Options

An adequate institutional framework is a prerequisite to enable the enforcement of the legislations and ensure good performance of the HWM system. Thus, it may be required to rebuild/restructure the institutional framework regarding:

- Roles and responsibilities of stakeholders including the central government, local governments, the private sector, non governmental organizations, community groups and the general public.
  A successful hazardous waste management system depends for its success on acceptance by all the stakeholders and the clear and sound definition of the roles and responsibilities of each.
- Organization, management and control of the different elements/actions of HWM system.
  There are various arrangements that can manage the system, selection of the most appropriate one depends largely on the extent of effective interconnection and on a number of other important factors such as a viable resources and extent of public participation. Thus, it may be required to choose between a number of developed options that arrange the interconnection regarding: ownership, contracting, licensing, operation, maintenance, control services provided, coverage, cost.
- Manpower resources:
  The human element is a basic element in the HWM system. Availability of sufficient quantity and quality of manpower would lead to more successful system. Thus, proper planning, educating training both on job and continuous, are important for the development of human resources and building capacity.

Task 2.4 - Recommend an Appropriate Technical infrastructure/Options

This task should propose the various technological options that cover all elements of waste recycling:

- Waste generation;
- Waste collection, storage and transport;
- Waste treatment including reuse, recycling, recovery;
- Waste disposal.

Selection of the appropriate technology is based on the cost, performance, and extent of appropriateness of some waste.

Waste minimization is highly promoted to reduce the quantity and the hazardness of the waste and consequently reduce the load on the subsequent management phases.

A sound, complete, and updated database and information system an appropriate classification system are prerequisite tools for proper planning of IMHW.

Subtask 2.4.1 - Waste Minimization/Cleaner Production

This task will *explore ways and means to promote the application of waste minimization technology and clean technology in selected industries that are major sources of hazardous waste, taking into account the status of national industries.*

There is general agreement on the hierarchy of available technologies for hazardous waste management, which places waste avoidance and waste minimization clearly at the top. There have been a number of international initiatives to promote waste minimization and cleaner production in environmentally developing countries, on the basis that it makes good economic as well as environmental impact to reduce the quantities of waste before investing in expensive end-of-pipe treatment and disposal technologies. The UNEP/UNIDO cleaner

production program has facilitated the establishment of a number of national *Cleaner Production Centres* in the Mediterranean region.

Subtask 2.4.2- Information System

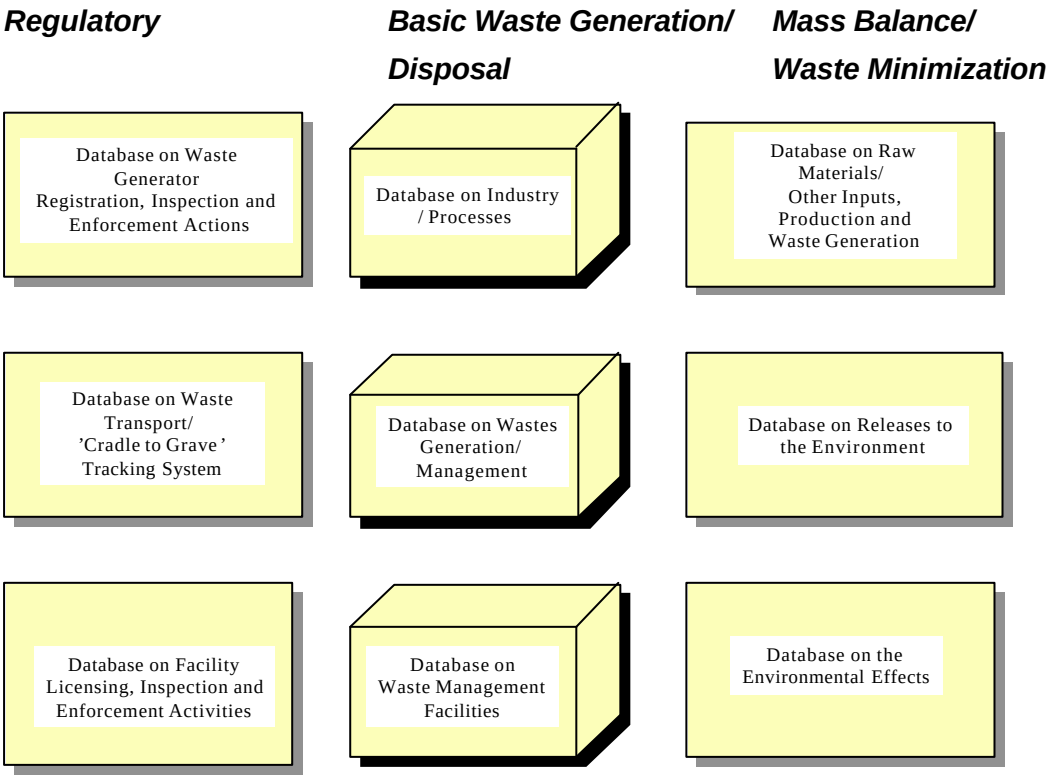
The aim of this task is to *design an information system for hazardous waste management at several stages including generation, collection, storage, transport, treatment and disposal.*

The scope of this task in broad terms is a high level conceptual design of the functional requirements of the management system.

The following figure shows conceptually the potential scope of an industrial waste management information system. The centre column shows three basic modules containing information on industry and processes, on waste generation and their management, and on waste management facilities. The left-hand column shows three (optional) modules, which extend the system from basic information on generation and disposal to the needs of the regulatory agency for control and enforcement. The right-hand column identifies further (optional) modules which provide information on the mass balance of processes (useful for waste minimization/cleaner production purposes) and on both releases to the environment and on the effects of those releases.

An industrial waste management information system that covers all nine conceptual modules would be both ambitious and complex. However, in designing a basic system, it is recommended that account is taken of the potential need to add additional modules in the future.

Schematic Presentation of a Hazardous Waste Management Information System.



Subtask 2.4.3 - Classification System

This task *propose an appropriate methodology for the characterization and classification of hazardous wastes*

The development of a national system for characterization and classification of hazardous wastes would *appear* to be a simple exercise. Most national systems are compatible with the definitions within the Basel Convention.

The definition in the Basel Convention is more of a *qualitative description* of wastes rather than the *list of wastes* which is necessary for classification purposes. Thus it is preferred that each country develops its own characterization system according to its national legislations and local conditions. However, if the objective is to maximize waste minimization and recycling, then for selected wastes which are amenable to such processes, it may be useful to expand the level of detail.

Task 2.5 - Recommend Economic and Cost Recovery Options

The cost of HWM is relatively high. Therefore cost recovery and financial mechanisms are mandated to ensure the sustainability of the system. Options for cost recovery may include:

- Taxes;
- Fees for services;
- Incentives to encourage participation of investors;
- Public sector investment;
- Governmental funding.

Task 2.6 - Public Support

An effective public interaction is important for a viable HWM system. Great efforts should be given to the design of awareness and educational programs directed towards all levels in the community. Provision of these programs could be done through many channels, among which are:

- Mass media (TV, radio, newspapers);
- Public associations;
- Clubs;
- Schools and Universities;
- Public leaders.

Task 2.7 - Option Evaluation

This task will examine and evaluate the proposed options in all action areas; policy, legal, institutional, technical, economic and social (awareness.) The output of this task will be a recommended framework of actions in the different areas.

Task 2.8 - Pre-study for Strategy Formulation

The task objective is a *pre-study for the formulation of the strategy for hazardous waste management focusing on a pilot industrial area*.

As a result of Phase I achievement dealing with review of the existing situation, both in terms of an inventory of hazardous wastes and of the institutional, legislative, and other situations it is recommended to test the proposed strategy in one industrial area to identify constrains, barriers and gaps. Thus propose the appropriate modifications if needed.

Phase III - Development of the national Strategy for hazardous waste management

Objective: propose a national strategy for the management of hazardous waste.

Task 3.1- Draft Regulations and Guidelines

The aim of this task is to *prepare draft regulations and guidelines for hazardous waste management based on achievements of phase I and phase II.*

It is proposed to use the guiding document produced by the Secretariat of the Basel Convention. An explanatory note could be formulated for each of the stakeholder groups describing their roles and responsibilities under the regulations and guidance on the steps they need to take in order to comply with the requirements.

Task 3.2 - Overall Compliance Strategy
A successful hazardous waste management system must comprise all four components, namely legislation, enforcement, facilities and support services. The problem is, how to begin developing a hazardous waste management system? In the absence of proper treatment or disposal facilities, it is impossible for the government to implement or enforce controls over waste generators, because it is not possible for them to comply. When the treatment or disposal facility becomes available it will be possible to comply.

Task 3.3 - Option Development and Recommendation
In Phase II, task 2.7 will result in the inclusion of a broad options or short list of options in the strategy framework. The purpose of this task is to further develop proposals for the establishment of treatment facilities and final disposal sites and to provide preliminary cost estimates for these to facilitate implementation of the compliance strategy.

Task 3.4 - Monitoring Requirements
This task *provides guidance for a future monitoring system and develops monitoring indicators to ensure the project efficacy in the long term.*

The plan proposes a set performance indicators, to monitor implementation of the national strategy for hazardous waste management in the long term. Part of this will need to build on the (assumed existence of) a more general environmental monitoring system, to monitor implementation of environmental regulations in general rather than hazardous waste management in particular.

The plan efficacy may be judged by the effectiveness of the implementation of this strategy. Some of the performance indicators will be dependant upon the finalized strategy.

There are many primary areas to which performance indicators could be applied, these include:

- progress towards strategy implementation;
- rate of development of “hard” hazardous waste inventory, achieved, for example, through waste generator registration;
- assessment of quality of data gathered;
- reduction in inappropriate waste management activities e.g. “dumping”;
- take-up of waste minimisation and interim hazardous waste management measures;
- progress towards development of improved facilities; and
- monitoring for “awareness” of hazardous waste issues.

In addition, a look at the potential for monitoring for secondary improvements, for example in the surface water quality in industrial areas should be considered.

Task 3.5 - Strategy Development
This final task is to bring together all of the previous tasks to formulate a national strategy for hazardous waste management. The scope of the strategy will be up to the year 2010.

The proposed strategy should be presented publicly to all relevant stakeholders.

Phase IV - training programs

Skills transfer

A vital element of the plan is technology and skills transfer to local counterpart staff both within government and to representatives of all of the stakeholders involved in hazardous waste management. One of the options is a combination of on the job training, training workshops and seminars.

Task 4.1 - Develop Training Program
National authority, with close cooperation with the Basel Convention regional centres for Training and Technology Transfer would develop training courses at all levels for government staff and those belong to stakeholders.

Task 4.2 - On-the-Job Training
Provision of on-the-job training for government counterparts is a vital part of the overall skills transfer program. Key components will include the following.

- Classical on-the-job training;
- Regular team meetings, on a one or two weekly basis. These meetings will serve both to facilitate project progress and for training purposes, with presentations both by international and local experts;
- Providing the team with published documentation, and guiding them in the use of that material. Such documents would include training manuals (for example the two hazardous waste and five cleaner production training manuals published by UNEP I.E./PAC in Paris) and other published documents.

Task 4.3 - Training Workshops and Seminars
Few topics could be covered within workshops and seminars, including:

(a) Relevant practices in Mediterranean countries;
(b) Health and environmental effects of hazardous wastes;
(c) Planning for hazardous waste management;
(d) Waste minimisation;
(e) Hazardous waste treatment technologies, and
(f) Disposal of hazardous wastes.

Task 4.4 - Proposals for Ongoing Research/Training
This task suggests links directly into one of the components specified in the national strategy. The national research institutions could play an important role in the implementation of the strategy.

Phase V- Implementation of the National Strategy

The framework of implementation of the national strategy will include prioritization within the different action areas according to the availability of resources and national capabilities. It will also include the quick actions required to enhance the implementation of the compliance and regulatory mechanisms such as, construction of appropriate treatment and disposal facilities.

A preliminary estimate of the required fund for implementation together with the funding mechanism will also be proposed in this task.

Task 5.1- Design and Commissioning of Secured Land Fill(s)
This task will benefit from the previous tasks especially in the identification of the collection, treatment and disposal options. According to the inventory of types and quantities of hazardous wastes, the national authority will design an appropriate, secured land fill (s) for the disposal of HW, taking into consideration the following:

- The meteorological conditions;
- The hydrogeological conditions;
- The general geographic conditions;
- The availability of the necessary infrastructures;
- The possibilities offered to have one or more dumping sites;
- The human settlements;
- The necessary monitoring instrumentation.

A team of engineers and technicians will be trained in order to manage the good practices of the wastes dumping.

ANNEX II

INVENTORIES

ALBANIA

- **Legislation for waste management**

Environmental protection Law No 7664. 21/3/93.
Law No. 8364. 3/07/98, Amendment to law No 7664. 21/3/93.
Decision of Council of ministers, No 26. 31/1/94 ‘’On hazardous waste and residues’’.
Law No 8094. 21/3/96, ‘’ on public removal of waste’’.
Decision of Council of ministers, No 541. 25/09/95 ’’On duties that ministers institutions and physical and juridical persons have in environmental monitoring and control process’’.

(ref. 2 & 3)

- **Hazardous waste definition**

“Waste” is generated from economic and social activities, and physical products, which are not hazardous wastes, according to the Council of Ministers, Decision No. 26 1/31/1994 on “Residues and Hazardous Wastes”.

Council of Ministers Decision No. 26 1/31/1994 on “Residues and Hazardous Waste” defines Hazardous wastes as follows:

“Hazardous waste” is all toxic substances, corrosive, explosive, flammable, carcinogenic, and radioactive, capable to change or generate another substance having the ability to accelerate the burning, that destroy the natural being of water, soil and air, damaging man and all living beings in the natural environment.

Albania uses the definition of hazardous waste as set out in the Basel Convention and has adopted the Basel Annexes for its Decision of the Council of Ministers on the Export, Import and Transit of Wastes.

Albania does not regulate/control any additional wastes as hazardous that are not included in Article 1 (1) a of the Basel convention and would be controlled for the purpose of Transboundary movements pursuant to Article 1 (1) b.

In Albania urban waste and all non-hazardous waste generated from household and social Activities require special consideration when subjected to Transboundary movement.

(ref. 3)

- **Hazardous waste quantities and qualities**

The reported generated quantities of hazardous and other waste to the secretariat of Basel Convention for the year 1998 are as follows:

Waste type	Y-code	Quantity (Metric tonnes)
	Y1-Y45	253
	Y46-Y47	-
Summary		253

Year 1999: exported quantities of hazardous waste

Waste type	Y-code	Quantity (Metric tonnes)
	Y1-Y45	-
	Y47	-
Summary		

(ref. 3)

- **Industrial sectors producing (the) hazardous waste**

Fertiliser, refineries, oil exploration sites, paint and varnish.

- **Stockpiled hazardous waste**

The reported data to the Basel Convention are:

800(m^3) liquid waste containing arsenic stored in steel drums since 25 years
500 (t) pesticides containing Lindane are stored near the coast
3420 (t) hazardous chemicals.

(ref. 3)

- **Hazardous waste treatment facilities**

The reported data to Basel Convention as available treatment facilities are:

A hospital university incinerator of infectious waste is operated. D10
Collection to a safe storage in order to repack and to provide safe storage conditions, D12.

(ref. 2 & 3)

- **Special issues related to the country**

The law for the Management of hazardous waste is going to be completed by the year 2001.

(ref. 3)

The Ministry of Public Economy and Privatisation during the year 2000 collected nearly 80 tones of hazardous chemicals and will continue to collect about 3 420 tones of this substances for better storage conditions.

(ref. 3)

Albania has signed:

- A bilateral Agreement with The Former Yugoslav Republic of Macedonia, Effective from 07.09.2000 to 07.09.2005 on the management of all types of waste; and

- A bilateral Agreement with Germany, effective from 13.10.1992 to 13.10.2002 on environmental issues.

(ref. 3)

There is no any written response to the questionnaire, which is sent on November 2002 to the local Authorities.

Industrial sectors	**Numbers**	**Location**
Cement kilns		
Calcite kilns		
Crude oil, refineries		
Steel Foundries		
Lead accumulators		
Used oils recycling facilities		
(Biological) Waste Water Facilities		

ALGERIA

- **Legislation for waste management**

Environmental standards / criteria to be met by waste generators

Environment standards and criteria that govern hazardous wastes and other wastes are:

- Decree 84-378 on conditions for cleaning, removal and treatment of urban solid wastes; and
- Decree 87-182 on the PCBs, equipments containing PCBs, or contaminated by PCBs.

These decrees are issued under the principal environmental legislation, Law 83-03 of 1983 on protection of the environment.

(ref. 2)

- **Hazardous waste definition**

There are no categories of wastes to be controlled and categories of wastes requiring special consideration in addition to those listed in Annexes I and II of Basel Convention.

(ref. 2)

- **Hazardous waste quantities and qualities**

There is no reported data to Basel Convention for the produced hazardous waste.

The reported generated quantities of hazardous and other waste to the secretariat of Basel Convention for the year 199. are as follows:

Waste type	**Y-code**	**Quantity (Metric tonnes)**
	Y1-Y45	-
	Y46-Y47	-
Summary		-

Year 199. exported quantities of hazardous waste given by Y code

Waste type	**Y-code**	**Quantity (Metric tonnes)**
	Y1-Y45	-
	Y47	-
Summary		-

(ref. 3)

- **Industrial sectors producing the hazardous waste**

The main source of producing hazardous waste is the oil drilling and oil refining facilities.

FACILITY	TYPE	LOCATION	OWNER/OPERATOR
Ait Kheir Field	Oil field – Field	Algeria	Sonatrach (Entreprise Nationale Sonatrach)
Algiers	Oil Refinery – Simple	Algeria	Sonatrach (Entreprise Nationale Sonatrach)
Arzew Refinery	Oil Refinery – Simple	Algeria	Sonatrach (Entreprise Nationale Sonatrach)
Ben Kahla Field	Oil field – Field	Algeria	Sonatrach (Entreprise Nationale Sonatrach)
Block 208 - Algeria	Oil and Gas Concession – Onshore	Algeria	Anadarko Petroleum Corporation, LASMO plc, Maersk Oil
Block 211 - Algeria	Oil and Gas Concession – Onshore	Algeria	Anadarko Petroleum Corporation, LASMO plc, Maersk Oil
Block 222b - Algeria	Oil and Gas Concession – Onshore	Algeria	Agip Algeria Production BV, Teikoku Oil Company, Tullow Oil plc
Block 245 - Algeria	Oil and Gas Concession – Onshore	Algeria	Anadarko Petroleum Corporation, LASMO plc, Maersk Oil
Block 401a - Algeria	Oil and Gas Concession – Onshore	Algeria	Anadarko Petroleum Corporation - Algeria, BHP Petroleum Ltd
Block 402a - Algeria	Oil and Gas Concession – Onshore	Algeria	Anadarko Petroleum Corporation - Algeria, BHP Petroleum Ltd
Block 403A - Algeria	Oil and Gas Concession – Onshore	Algeria	Agip Algeria Production BV, Sonatrach (Entreprise Nationale Sonatrach)
Block 404 - Nigeria	Oil and Gas Concession – Onshore	Algeria	Anadarko Petroleum Corporation, LASMO plc, Maersk Oil
Block 405 - Menzel Lejmat	Oil and Gas Concession – Onshore	Algeria	Burlington Resources, Talisman Energy Inc
Block 406A - Algeria	Oil and Gas Concession – Onshore	Algeria	Cepsa
El Agreb Field	Oil field – Field	Algeria	Amerada Hess Corporation, Sonatrach (Entreprise Nationale Sonatrach)
El Gassi Field	Oil field – Field	Algeria	Amerada Hess Corporation, Sonatrach (Entreprise Nationale Sonatrach)
Haoud Berkaoui Field	Oil field – Field	Algeria	Sonatrach (Entreprise Nationale Sonatrach)
Hassi Berkine North (HBN) Field	Oil field – Field	Algeria	Anadarko Petroleum Corporation - Algeria, LASMO plc, Maersk Oil
Hassi Berkine South (HBS) Field	Oil field – Field	Algeria	Anadarko Petroleum Corporation - Algeria, LASMO plc, Maersk Oil
Hassi Bir Rekaiz - Algeria	Oil and Gas Concession – Onshore	Algeria	Atlantic Richfield Co, Drucker Industries Inc., Turkish Peteoleum Corporation
Hassi Messaoud Field	Oil field – Field	Algeria	Sonatrach (Entreprise Nationale Sonatrach)

FACILITY	TYPE	LOCATION	OWNER/OPERATOR
Hassi Messaoud Refinery	Oil Refinery – Simple	Algeria	Sonatrach (Entreprise Nationale Sonatrach)
Hassi R'Mel Field	Gas field - gas field	Algeria	Sonatrach (Entreprise Nationale Sonatrach)
In Salah Field	Gas field - gas field	Algeria	BP Algeria, Sonatrach (Entreprise Nationale Sonatrach)
Marsat el Hadjaj	Power Station - Gas/oil	Algeria	Societé Nationale de l'Electricité et du Gaz
Oued Amizour	Mine – Zinc	Algeria	Breakwater Resources
Ourhoud Field	Oil field – Field	Algeria	Cepsa, Sonatrach (Entreprise Nationale Sonatrach)
Petrochemical complex at Skikda	Chemical Plant - Chemical Manufacturing Industry	Algeria	Sonatrach (Entreprise Nationale Sonatrach)
Qoubba (QBA) Field	Oil field – Field	Algeria	Anadarko Petroleum Corporation - Algeria, LASMO plc, Maersk Oil
Raf de Skikda	Oil Refinery – Simple	Algeria	Sonatrach (Entreprise Nationale Sonatrach)
Raffinerie d'Alger	Oil Refinery – Simple	Algeria	Sonatrach (Entreprise Nationale Sonatrach)
Ras Djinet	Power Station - Gas/oil	Algeria	Societé Nationale de l'Electricité et du Gaz
Rhourde el Baguel Field	Oil field – Field	Algeria	Elf Aquitaine, Sonatrach (Entreprise Nationale Sonatrach)
Rhourde el Khrouf Field	Oil field – Field	Algeria	Cepsa
Tin Fouye Field	Oil field – Field	Algeria	Repsol YPF, Sonatrach (Entreprise Nationale Sonatrach), TotalFinaElf
Tirek	Mine – Gold	Algeria	Enterprise D'Exploitation des Mines D'or
Zarzaitine Field	Oil field – Field	Algeria	Sonatrach (Entreprise Nationale Sonatrach)

(ref. 38)

- **Stockpiled hazardous waste**

No data available.

- **Hazardous waste treatment facilities**

No data available.

Efforts made by industries / wastes generators

Among the measures taken by industries to reduce or eliminate generation of hazardous wastes:

- Recovery and recycling of water process;
- Renewal of antipollution systems; and
- Renewal of production process.

(ref. 2)

Following cement kilns are operated in Algeria:
1 ECDE Entreprise des Ciments et Dérivés d'Ech-Cheliff,
2. ERCC Entreprise des Ciments et Dérivés du Centre,
3. ERCE Entreprise des Ciments et Dérivés Est,
4. ERCO Entreprise des Ciments et Dérivés de l'Ouest,
5. SCT Société des Ciments de Tebessa.

(ref. 20 & 11)

Industrial sectors	Numbers	Location
Cement kilns	5	
Calcite kilns		
Crude oil, refineries		
Steel Foundries		
Lead accumulators		
Used oils recycling facilities		
(Biological) Waste Water Facilities		

BOSNIA AND HERZEGOVINA

- **Legislation for waste management**

There is no available data.

- **Hazardous waste definition**

There is no available data.

- **Hazardous waste quantities and qualities**

There is no reported data to Basel Convention for the produced hazardous waste.

Year 199.. generated quantities of hazardous waste

Waste type	**Y-code**	**Quantity (Metric tones)**
	Y1-Y45	**-**
	Y46-Y47	**-**
Summary		-

Year 199.. exported quantities of hazardous waste

Waste type	**Y-code**	**Quantity (Metric tones)**
	Y1-Y45	**-**
	Y47	**-**
Summary		-

- **Industrial sectors producing the hazardous waste**

There is no available data.

- **Stockpiled hazardous waste**

No data available.

- **Hazardous waste treatment facilities**

No data available

Industrial sectors	**Numbers**	**Location**
Cement kilns		
Calcite kilns		
Crude oil, refineries		
Steel Foundries		
Lead accumulators		
Used oils recycling facilities		
(Biological) Waste Water Facilities		

CROATIA

- **Legislation for waste management**

Waste management in Croatia was in last few years completely covered with suitable laws and detailed regulations (by-laws, ordinances and rules).

Croatia is also a Party to the Basel Convention.

The spirit, principles, aims and functions of the World Charter for Nature, the Declaration of the United Nations Conference on the Human Environment, the Cairo Guidelines and Principles for the Environmentally Sound Management of Hazardous Wastes, the Recommendations of the United Nations Committee of Experts on the Transport of Dangerous Goods, relevant recommendations, declarations, instruments and regulations adopted within the United Nations system and the work and studies done within other international (such as the European Community) and regional organizations are fully respected.

The basic goals of the waste management are:

- avoiding and minimizing the generation of waste, and minimizing the hazardous nature of waste, whose generation cannot be prevented,
- prevention of uncontrolled waste management,
- recovery of valuable substances for material purposes and energy recovery and their treatment prior to disposal,
- waste disposal onto landfills,
- remediation of waste contaminated areas.

Generally, the "Polluter pays" principle is applied. The import of any waste for disposal or for energy recovery is prohibited, the import of hazardous waste is prohibited, and the import of waste that can be treated in an environmentally sound manner is permitted.

(ref. 19)

- **Hazardous waste definition**

The national definition of waste is in accordance with Article 2 of the Law on Waste, Official Gazette, No. 34/95. Pursuant to this Law, waste means substances and objects that a legal, or a physical person has discarded, or has disposed of, or intends to, or must dispose of them.

Official Gazette - International Agreements, No. 3/94 states that hazardous waste is identified by Appendices I, II, and III of the Law on Ratification of Convention on Control of Transboundary Movement of Hazardous Waste and Its Disposal. It contains the substances exhibiting one of the following characteristics: explosiveness, reactivity, ignitability, corrosiveness, irritability, harmfulness, toxicity, infectivity, carcinogenicity, mutagenicity, teratogenicity, ecotoxicity, and the characteristic of releasing toxic gases by chemical reactions, or biological decomposition. Municipal and industrial waste is classified as hazardous waste if they contain substances exhibiting one of the characteristics listed above.

National definition of hazardous wastes is in accordance with the Annexes I and II of the Basel Convention.

Croatia does not regulate/control any additional wastes as hazardous that are not included in Art. 1 (1)a of the Basel Convention and would be controlled for the purpose of Transboundary movements pursuant to Art. 1 (1)b.

(ref. 1 & 3)

- **Hazardous waste quantities and qualities**

The reported generated quantities of hazardous and other waste to the secretariat of Basel Convention for the year 1999 are as follows:

Waste type	**Y-code**	**Quantity (Metric tonnes)**
	Y1-Y45	**-**
	Y46-Y47	**-**
Summary		-

Year 1999 exported quantities of hazardous waste

Waste type	**Y-code**	**Quantity (Metric tonnes)**
	Y1-Y45	16 381
Summary		16 381

(ref. 1 & 3)

The data on quantity are not yet available. A rough estimation shows a quantity between 200.000 and 350.000 tones of hazardous waste generated in Croatia per year.

(ref. 19)

- **Industrial sectors producing the hazardous waste**

Croatia, with its mid-developed industry, produces the following types of hazardous waste:

- Agrochemical waste,
- Wood preservation waste,
- Wastes from the leather and textile industries,
- Wastes from petroleum refining and natural gas purification,
- Wastes from inorganic chemical processes,
- Wastes from organic chemical processes (plastics, rubber, pigments, pesticides, pharmaceuticals, soaps, detergents, cosmetics, disinfectants),
- Waste from the manufacture, formulation, supply and use of coatings, adhesives, sealants and printing inks,
- Wastes from photographic industry,
- Inorganic waste from thermal processes (power stations and other combustion plants, aluminium thermal metallurgy),
- Inorganic waste containing metals from metal treatment and the coating of metals (galvanic processes, pickling, etching, phosphatizing, degreasing etc.),
- Wastes from shaping and surface treatment of metals and plastics,
- Oil wastes (hydraulic, lubricating, insulating, heat-transmission oils etc.),
- Waste solvents,
- Waste batteries and accumulators,
- Insulation materials containing asbestos,
- Waste from human or animal health care and related research,
- Separately collected fractions of municipal wastes (paint, inks, adhesives, resins, solvents, pesticides, fluorescent tubes and other mercury-containing waste).

(ref. 19)

- **Stockpiled hazardous waste**

No data available.

- **Hazardous waste treatment facilities**

Facilities for the environmentally sound management of hazardous waste

Hazardous waste is at present managed by the companies that generate the waste, whether they have their own facility or they temporarily store the waste within the company pending on the final solution to this problem. Recently, some private companies for collecting and transporting of used oils for incineration in five existing oil-fuelled power plants were registered. The cement industry also shows interest in the use of waste oils as a fuel.

For the time being there are (but a) few incinerators as facilities for the environmentally sound waste management in Croatia. Generally, hazardous waste incinerators can be divided into two groups:

- o "in-house" incinerators, operated at a waste generator's premises, i.e. waste incineration on the property of generator,
- o "public incinerators", contractor operated, commercial plants set up to receive a broad range of wastes from a wide client base.

In Croatia there are several "in house" incinerators, and only one "public incinerator". This one was built in 1997 and is currently being tested.

In the small "in house" incinerators mainly solid waste is incinerated. Incinerators are placed in several private companies and several hospitals. Mainly, these incinerators operate on the basis of pyrolysis, at the burning temperature 800^{o}C to 1100^{o}C, while the retention time is up to 2 seconds. The capacity of individual incinerators is from 1 up to 4 tones per day. The total maximum capacity of all these small incinerators is approximately 10 tones per day.

The public incinerator for hazardous waste, now being tested, will have the capacity of 1,2 tone per hour, which means 28,8 tones per day per a 24-hour-working-day.

All these capacities are still far away from fulfilling the existing needs.

Hazardous waste treatment facilities	No	Yes	If yes, how many?	If yes, where are located and when they commence operation?
Hazardous waste landfill	X			
Physicochemical treatment		X	3	IND EKO, Rijeka; EKO TEHNING, Zagreb; M&C, Sisak
Hazardous waste incinerator		X	1	PUTO, Zagreb

(ref. 19)

- **Special issues related to the country**

Hazardous waste management policy

No formal, written Croatian strategy on the hazardous waste management exists yet. For the time being, there is a written proposal, which represents the hazardous waste management of the Republic of Croatia - a draft made by APO - Hazardous Waste Management Agency.

The proposed hazardous waste management system is based on 3 - 4 central treatment and disposal facilities, waste collection and pre-treatment centres per County and networks of 1 to 6 collection facilities in each County. In the course of 1995/96 the technological designs for two hazardous waste collection and pre-treatment centres have been prepared, as well as the Study covering the type, number and general sites for pre-treatment centres and collection facilities for each County.

Efforts to reduce generation of waste, especially of hazardous waste, are done by establishing the Initiative Committee for Cleaner Production. Cleaner production (CP) is the application of an integrated preventive environmental strategy to processes, products and services. For production processes, CP includes efficient use of raw materials and energy, elimination of toxic or dangerous materials and reduction of emissions and wastes at the source. For products, the CP strategy focuses on reducing impacts along the entire life-cycle of the products and services, from design to use and ultimate disposal.

The intention of the Committee for Cleaner Production is to develop basic capacities in cleaner production in Croatia by using professional capacities and expertise, which already exist in the Czech Republic. The project will be implemented within the UNIDO/UNEP programme for establishing National CP Centres (NCPC) and will be financed within the Multilateral Development Assistance Programme of the Czech Republic.

(ref. 19)

Hazardous waste generation, movement and disposal monitoring system

The activities for the establishment of a hazardous waste inventory for the Republic of Croatia were initiated in 1996 and continued in 1999. Adopting and enacting the by-laws, the Code of Practice on the Type of Wastes and the Code of Practice on the Inventory of Emissions in the Environment met the basic prerequisites. The knowledge of the inventory's accurate and actual data will serve the State Directorate on for the Protection of Nature and Environment to plan its further development activities for the establishment of a hazardous waste system in the Republic of Croatia and future development plans. The inventory data will also be available for the elaboration of the hazardous waste management strategy in the Republic of Croatia, since the State Directorate is obliged to provide the guidelines and criteria for the activities relating to hazardous waste management at the state level.

The activities for 1999 were planned and partly fulfilled as follows:

- the organization of further data gathering and supplying all the Counties of the Republic of Croatia with hazardous waste data (quantities, types, places of generation, manner and places of its storage, existing treatment facilities),
- further database completion (registration lists input),
- registration list processing,
- annual elaboration of reports on hazardous waste on the basis of available accurate data,
- communication with Counties - feedback.

(ref. 19)

Export, import and transit of hazardous waste

As mentioned above, the import of hazardous waste in the Republic of Croatia is prohibited.

In the last few years some private companies exported several tones (about 10 tones) of PCBs and some 150 tones of equipment contaminated with PCBs for incineration abroad. The biggest problem is the high price of such services abroad.

Also, exports of about 100 tones of galvanic sludge's and a few tones of pharmaceutical and medical waste were recorded on several occasions.

No cases of illegal Transboundary traffic of hazardous waste were recorded.

There were no cases of accidents caused by toxic waste, which can be influence on human health.

Transfrontier movements of hazardous waste	**No**	**Yes**	**If yes, how many**	**If yes, please list the quantities and qualities you managed, give the data of final disposal facility**
		X	Only export of hazardous waste. The import of hazardous waste is forbidden according Law on Waste	14.158 Metric tones in year 2000 were exported. Facilities are located in France, Belgium and Germany. (Mostly hazardous waste containing PCB and PCT)

(ref. 19)

Industrial sectors	**No**	**Yes**	**If, yes how many?**	**If yes, where are located?**
Cement kilns		X	5	Našice (1), Koromacno (1), Split (3)
Calcite kilns		X	3	Raša, Velika-Sirac, Licko Lešce
Crude oil, refineries		X	2	Sisak, Rijeka
Foundries		X	7	Varaždin, Daruvar, Osijek, Požega, Rijeka, Zagreb, Sisak
Lead accumulators		X	1	Zagreb
Used oils recycling facilities	X			
(Biological) Waste Water Facilities		X	Available data are in Croatian State Directorate for Water Management	

(ref. 19)

CYPRUS

- **Legislation for waste management**

Current Waste Management Practices

In Cyprus today exist only operational practices, which should be followed by the municipalities when collecting and disposing solid waste. These operational practices deal mostly with the matters of hygiene and collection frequencies.

The municipalities have the full responsibility for the collection and disposal of waste but they still have to receive governmental approval for any important and financial decisions they are making. The only source of income for waste management is the collection fees, which the municipalities receive from households and from the services and the industrial sectors. Borrowing money from banks is not an unusual way for financing the municipalities ' projects. Borrowing money from banks is unavoidable since municipalities do not receive any foreign donations to be used for waste management purposes. Their budget has to be approved by the government.

There is no solid waste management system in the country. With the accession of Cyprus in the EU however, there are the directives related to solid waste management, which Cyprus has to transfer to the country's legislation by the year 2003. The current waste management practices implemented in Cyprus are presented in more detail in Chapter 5.

(ref. 5 & 6)

Harmonization of Cyprus with EU Legislation.

The most important EU Directives, which Cyprus has to transpose to national legislation, are: the *Framework Directive on Waste*, the *Packaging and Packaging waste* (94/62/EC) and the *Proposal on Landfill* (COM (97)105) and the *Hazardous Waste Directive*.

- Framework Directive on Waste,
- Packaging and Packaging Waste,
- Proposal on Landfill,
- Hazardous Waste Directive.

In the following sub-section the directives, which have to be transposed, are presented in more detail.

(ref. 6)

Detailed data are:

- Act 10/1998 on waste;
- Royal decree 952/1997: list of hazardous waste (decision 94/904 EEC);
- Act 11/97: goals for reducing the generation of packaging and waste, recovering those products, as well as requirements for reducing the content of certain hazardous substances in the packages (lead, cadmium, mercury, and hexavalent chromium;
- Royal decree 782/1998: implementation of act 11/97;
- Royal decree 1378/1999 measures for the elimination and management of PCB/ PCTs as well as apparatus containing them.

(ref. 2 & 3)

- **Hazardous waste definition**

Cyprus is preparing a national definition of waste and hazardous waste to be used for the purpose of Transboundary movements of waste. Currently, Cyprus uses the national definition as listed in Annexes I & II of the Basel Convention. The new definition will be based on the European Regulation on Waste Shipment No. EEC/259/93.

Cyprus does not regulate/control any additional wastes as hazardous that are not included in Article 1 (1) a of the Basel convention and would be controlled for the purpose of Transboundary movements pursuant to Article 1 (1) b.

In Cyprus there are no wastes other than those pursuant to in Art. 1 (1)a and/or Art. 1 (1)b that requires special consideration when subjected to Transboundary movement.

(ref. 1 & 3)

- **Hazardous waste quantities and qualities**

The reported generated quantities of hazardous and other waste for the year 1998 are as follows:

Waste type	**Y-code**	**Quantity (Metric tonnes)**
Used oils free of PCB's	Y9	2 560
Waste containing PCB 's	Y10	50
Lead scrap accumulators and lead oxides	Y31	1 434
	Other	2656
Summary		6 700

(ref. 3)

Cyprus has reported to Basel convention that in 1997 the total generated quantities of hazardous and other waste was 52 000,000 (t).

(ref. 2)

Cyprus has reported to Basel convention that in 1998 the total generated quantities of hazardous and other waste was 6 700,000 (t).

(ref. 17)

Year 1998 exported quantities of hazardous waste

Waste type	**Y-code**	**Quantity (Metric tonnes)**
Used oils free of PCB's	Y9	2 560
Waste containing PCB 's	Y10	50
Lead scrap accumulators and lead oxides	Y31	1 434
Summary		4 044

(ref. 3)

- **Industrial sectors producing the hazardous waste**

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- **Stockpiled hazardous waste**

No data available.

- **Hazardous waste treatment facilities**

There are no approved and operated hazardous waste treatment facilities in Cyprus.

- **Special issues related to the country**

The National plan on hazardous waste 1995-2000, official gazette of 13 May 1995 sets the reduction at source of the generated hazardous waste.

The landfill directive approximately should be adopted in the year 2001 (directive 1999/31/EEC)

Cyprus has applied to be Member of the European Union.

General country information

Due to the absence of a legal and institutional framework, today there is no integrated solid waste management system established in Cyprus. The municipalities are following all mentioned practices that exist for the collection and disposal of waste.

However, changes are taking place due to the accession of Cyprus to the EU. The harmonization process with the EU directives on waste is becoming a priority for the government authorities, which have until 2003 to adopt them in the country's legislation.

Information on current waste management practices in the country as well as the EU directives are presented.

Additionally the institutional and financial framework is pointed out as well as the major actors involved in solid waste management. Their level of involvement and actions in the system is also presented.

In this study there is also reference on private recycling companies, which are responsible for all recycling efforts in the country. Statistical data on quantities recycled and other important information about these companies are included.

Through this study, apart from current practices, future plans are presented, paying special attention to problems, which need to be addressed as well as to issues, which need to be further developed.

Hazardous Waste

The hazardous waste in Cyprus is generally disposed of together with other, less harmful waste. Some industries collect and store the waste in a "environmental responsible manner", whilst others lack of the necessary knowledge referring to which waste should be considered as hazardous or not, and consequently which waste volumes should be treated separately.

Cyprus does not operate the facilities required for the effective collection and treatment of hazardous waste.

Environmental legislation does not exist to the necessary extent for the protection of the environment.

Solid hazardous waste is generated at hospitals and at bleaching and dyeing enterprises, which are equipped with internal treatment processes generating ashes and sludges respectively.

The hospitals generate waste types similar to the household / commercial waste, and the hazardous waste (which could be described as biological and infectious wastes). This industrial sector is using pyrolysis ovens to incinerate the generated waste. During the pyrolytic treatment the amount of waste is reduced.

A study that was conducted by the competent authorities in the past on hazardous waste in Cyprus was a first attempt to start dealing with this matter. Since there have not been any significant developments in the management of hazardous waste; a new study is planned to be conducted by the government, that will analyse not only the composition of hazardous waste on the island, but also the impacts of hazardous waste on the environment. The study will also present a national hazardous waste management system.

The only development concerning the management of hazardous waste in Cyprus is the construction of an industrial facility, which will recycle, used car batteries and waste oils. Until now, car batteries and waste oils were exported to Indonesia, Greece, and Belgium. The construction of this recycling unit should be an important first step in the management of hazardous waste in Cyprus.

Disposal Facilities

Today in Cyprus there are two landfills in operation. The *Kotsiatis Landfill* and the *Vati Landfill* and they are located near the two largest cities of the island, Nicosia and Limassol respectively. Until now no composting is taking place in the country.

The *Kotsiatis Landfill* is located 17 km from Nicosia; the nearest housing area to the landfill is the small village of Kotsiatis just 1,5 km away from the site. The nearest surface water recipients are two small streams passing by the landfill to the north and south at a distance of approximately 1 km. There are no reported ground water resources in the area. The potential for enlargement of the landfill is great since there is no development in the area and there is easy access by secondary roads.

The existing landfill occupies an area of 2 ha. The landfill appears to be well operated and equipped with sufficient machinery in the form of compactors, bulldozers, and dumpers and a staff of 5 workers. Covering of the compacted waste is done on regular basis using soil excavated at the site.

The entrance is fenced and a watchman supervises the gate, however, the total perimeter of the landfill is not protected by fence facilities. There is no weighbridge at the entrance, and no formal registration of waste entering the landfill is conducted.

The landfill is not equipped with a liner, hence no collection and treatment of leachate is conducted. Leachate or surface water runoff, for instance at the tipping front, has never been observed at the landfill.

In the landfill are provisions to liberate the biogas produced from the waste decomposition process, but this biogas is not yet collected and used in any way.

The *Vati Landfill* is located 10 km away from Limassol; the nearest housing area is 2 km from the site. The landfill is situated in a hilly terrain dedicated to industrial purposes. Above the

landfill are situated several aerated ponds used for the treatment of sewage water from Limassol. The potential for the landfill enlargement is great since there is no development in the area and there is easy access by secondary roads.

The nearest water recipient is a small stream passing by the site and at a distance of 2 km. This small water flow is connected to a bigger stream, which is dammed up for irrigation purposes 5 km away from the landfill. There are no reported ground water resources in the area.

The existing landfill occupies an area of approximately 1 ha. The landfill appears to be well operated with sufficient machinery and staff. A covering of the compacted waste is done on a regular basis using soil excavated at the site.

Only part of the perimeter is fenced along the access road and no specific entrance or gate has been established to the landfill. Nevertheless, scavenging is no problem at the landfill. There is no weighbridge and no formal registration of waste entering the landfill is conducted.

The *Vati Landfill* is not “equipped” with a liner, therefore no collection and treatment of leachate is conducted.

Leachate or surface water runoff could be detected forming a small pool. The hilly terrain makes things worse, especially concerning leachate control and soil erosion or even landslide of waste. In the Vati landfill are taken some provisions to liberate the biogas generated by the waste decomposition processes.

A third landfill, the Ayia Marinoudha Landfill in Paphos, was closed down due to the exhaust of its capacity. The fact that the new highway from Limassol to Paphos was planned to pass over the landfill contributed also to its closure as well.

(ref. 6)

Cyprus’s main export commodities include organic and inorganic chemicals, mineral products, edible oils, timber, mining equipment, wines and various fruits and food products. The country’s main import commodities include cement, ceramics, chemical products, cocoa beans and products, machinery, manufactured and agricultural products, mineral products, petroleum products and plastic products.

Exchange is allocated freely and without restrictions through authorised dealers to pay for imports, provided that documentary evidence of shipment or actual importation of goods is available. The Central Bank of Cyprus in co-operation administers Exchange controls with authorised dealers. Cyprus uses the Harmonised System of Tariff clarification.

Free Trade Zones have been established near the port areas of Larnaca and Limassol and tax incentives aimed at encouraging investment and promoting the economic development of Cyprus are offered to residents and non-residents investors.

(ref. 23)

In Cyprus operates in Vassilika The Cyprus Cement Company Ltd.

(ref. 20)

Industrial sectors	Numbers	Location
Cement kilns	1	
Calcite kilns		
Crude oil, refineries		
Steel Foundries		
Lead accumulators		
Used oils recycling facilities	1	
(Biological) Waste Water Facilities		

EGYPT

- **Legislation for waste management**

Law 4/1994, the environmental law, recognizes the importance of regulating and handling hazardous substances, and defines them in article 1 as follows:

Substances, which have hazardous characteristics that endanger human health or have adverse, effect on the environment as infectious, poisonous, explosive, flammable or radioactive hazardous.

Handling of these hazardous was also defined in the same article as: "---Anything that leads to their movement with the intention of collecting, transporting, storing or using them".

Article 5 of the Law, which sets up the functions of the Egyptian Environmental Affairs Agency.

(EEAA), is including also the coordination function with other competent authorities referring to the regulation and security in handling hazardous substance.

The Law sets also the rules for handling hazardous substances in section 2 of chapter 1 concerning hazardous substances and wastes of article 29.

The Executive Regulations, that were issued by Prime Ministerial decree 338/1995 and hereafter designated as the "Executive Regulations", are giving more details in article 25 specifying the competent authorities for the different groups of hazardous substances that shall issue, in coordination with the Minister of Health and the EEAA, lists of these substances in their field of competence.

The procedures of licensing and the conditions necessary for license granting are detailed dealt in the Executive Regulations in Article 26.

Egyptian regulations governing management of chemicals

Egypt has issued a large number of environmental legislation governing, importing, manufacturing, trade, usage of chemicals covering different areas:

1. Laws and regulations governing importing, manufacturing, trading, handling of chemicals used in industry, has been issued by The Ministry of Industry.

2. Laws and regulations governing, importing, manufacturing, trading, handling and usage of pharmaceuticals, radioactive substances and insecticides, have been issued by The Ministry of Health.

3. Laws and regulations governing importing, manufacturing, trading, possessing and usage of explosives, have been issued by The Ministry of Interior.

4. Regulations governing operation of nuclear reactors and atomic activities and monitoring of radiation levels and disposal of radioactive wastes are the responsibility of Atomic Authority, affiliated to The Ministry of Electricity and Energy.

The Environmental Law No. (4) has been issued in 1994. Its executive regulations have been issued in February 1995. A full chapter of this Law regulates the management of hazardous substances including chemicals.

In this law, it is forbidden to deal with of hazardous substances without authorization from the agencies in charge. The competent ministries, in cooperation with EEAA and the Ministry of Health should develop and promulgate a list of hazardous substances, which should be controlled and shall be revised from time to time as appropriate.

The competent ministries, after consulting with the EEAA, shall promulgate regulations establishing standards necessary to the protection of public health and the environment and applicable to those who handle chemicals.

The standards shall cover the following:

1. Record keeping practices that accurately identify the quantities of such chemicals, constituents that are significant in quantity or in potential harm to human health or the environment.
2. Use of appropriate containers for such chemicals.
3. Labelling practices for the identification of any containers used for storage, transport of such chemicals.
4. Furnishing of information on such chemicals to persons transporting storing, or using it.
5. Use of a manifest system and any other reasonable means to assure that all such chemicals are handling in the proper way.
6. Contingency plans for effective action to minimize unanticipated damage from any chemicals' accident.

A great deal remains to ensure the environmentally sound management of chemicals within the principles of sustainable development and improved quality of life for human kind.

Egyptian Laws and regulation for managing chemicals

Environmental Law No. 4 for the year 1994

Article 29
It is forbidden, without a license from the competent administrative authority, to handle hazardous substances and wastes. The Executive Regulations of this Law explain the procedures and the conditions for granting such a license.

The Ministries, each in its field of competence, shall issue, in coordination with the Minister of Health and EEAA, a list of the hazardous substances and wastes as aforementioned in paragraph one of this article.

Article 30
Management of hazardous wastes shall be subject to procedures and regulations stated in the Executive Regulations of this Law. The Executive Regulations designate the competent authority, which, after consulting EEAA, will issue the tables of dangerous wastes to which the provisions of this Law shall apply.

Article 31
It is forbidden to construct any establishment for treating dangerous wastes without a permit from the competent administrative authority and before consulting EEAA. Disposal of dangerous wastes shall be according to the norms and conditions stated in the Executive Regulations of this Law. The Minister of Housing, Utilities and New Communities shall assign, after consulting with the Ministries of Health, Industry and EEAA, the disposal sites and the required conditions to authorize the disposal of dangerous wastes.

Article 32
It is forbidden to import dangerous wastes or to allow its entrance into or passage through Egyptian territories.

It is forbidden, without permit from the competent authority, to allow the passage of ships carrying hazardous wastes through territorial seas or the exclusive economic zone of the ARE.

Article 33
It is mandatory for all those who produce or handle dangerous material, either in gaseous, liquid or solid form to take precautions to ensure that no environmental damage shall occur.

The owner of an establishment whose activities may result in hazardous wastes shall, according to the provisions of this Law, maintain a register of these wastes and the method of disposing thereof, as well as contracting agencies for receipt of these wastes. EEAA is responsible for following up the register to ensure its conformity with the truth.

Regulations governing Handling of Industrial Chemicals:

Law number 499/1995:
Stated that the Ministry of Industry is the responsible agency for handling of poisonous and non-poisonous chemicals used in Industry.

The Ministry of Industry issued the rules and regulations for importation and trade of these chemicals.

Decree number 471/1995 of the Minister of Industry:
The Ministry of Industry must be informed of any activity concerning the trading poisonous or non-poisonous substances including the name of the shop owner, the number of this license and the kind of trade.

Decree number 138/1958 of the Minister of Industry, amended by decree 91/1059:

1. For trading in poisonous or non-poisonous chemical used in industry, a license must be issued from the Industrial Control Authority (ICA).
2. It is prohibited to have such a license together with ownership of any pharmaceutical enterprise.
3. This license is personal and cannot be transferred or inherited.
4. Poisonous materials should be kept in suitable packages with a label showing the name of the material, the supplying factory, and the quantity contained. The word poisonous should be written in Arabic and one foreign language in red and in a clear place.
5. The owner of the shop or store must keep a logbook with its pages serially numbered and stamped by the ICA.

Any supply or selling should be indicated in this book.

Decree number 342/1962 of the Minister of Industry:
Added the following to MD 138/1958:

The non-poisonous material that are imported or bought by the factories for manufacturing their products are to be excluded from the license mentioned in MD 138/1958.

Law number 21/1958 concerning organization and development of Industry:
Chapter 2, articles 14, 15 authorize the Ministry of Industry to put specifications for raw materials and industrial products. The Minister of Industry issued the rules to be strictly followed in the production of more than 150 commodities.

Law number 21/1957 concerning the Egyptian Organization for Standardization and Quality:
The organization issued specifications for chemicals and household commodities such as: Red lead oxide primer.

Matches, paint, solvents, fuel, pigments and dyes, food additives, perfumes, soap, detergents, clothes and blankets.

Regulations governing pesticide use:

Agricultural Law no. 53/1966 Article 78
Agricultural pesticides are those chemicals and formulations used to control plant diseases, pest insects, rodents, weeds, other organisms detrimental to plants, animal insects and parasites.

Article 79
Pesticide Committee is to be formed by a ministerial decree from the Minister of Agriculture. The task of the Committee is to specify pesticides to be used in country, determine their specifications, procedure of their registration and condition for use.

Article 80
Based on the recommendations of the Committee, the Minister of Agriculture issues ministerial decree that put the articles of the agricultural law into action particularly those concerning:

1. *Kinds of pesticides to be imported for local use, their specifications, conditions of importation and handling.*
2. *Conditions and procedures of licensing for pesticides importation and trade.*
3. *Procedures of pesticides registration, registration renewal, registration fees.*
4. *Methods of pesticides sampling and analysis, ways of disapprobation by the producers on results of chemical analysis, procedures to be followed in considering approbation and judging its validity, and the fees to be paid for such approbation.*

Article 82
Advertising or distribution of information on pesticides should comply with its specification and conditions for handling and registration and also with the recommendations of the Ministry of Agriculture for their use.

Regulations governing handling of pharmaceutical and chemicals in consumer goods

Law No. 127/1955 (Pharmacy Practicing)
It regulates pharmaceutical affairs including establishments, personnel, products and ingredients. According to this law the ministry of the health apply full control over dosage forms of drugs, cosmetics, household insecticides and disinfectants, biological preparations and diagnostics, and medical devices.

Law No. 183/1960 Concerning narcotics control:
It sets regulations for handling and control of narcotics.

Ministerial Decree No. 429/1969
It sets conditions for storage and licensing procedure concerning narcotic substances.

Presidential Decree 450/1980
Concerning the establishment of the national council for addiction control.

Ministerial Decree 487/1985
Deals with psychoactive substances and preparations. It annexes three tables dealing with three different levels and categories.

Law No. 367/1954 Chapter 2,3,4.
It regulates medical diagnostic laboratories, scientific research lab. and biological preparations laboratories.

Law No. 10/1966 and Amendments
Concerns food control.

Ministerial Decree No. 163/1967
It is controlling the importation of food additives.

Decree No. 798/1957 and Ministerial Decree No. 679/1983
Deals with all the requirements to be fulfilled in cooking ware containers and packages used for food processing and packaging.

Ministerial Decree No. 178/1975 and Amendments Concerning colouring additives permitted in foods.

Ministerial Decree No. 16/1964 and amendments Regulates the use of food preservatives.
Law No. 53/1966
Authorizes the Minister of Agriculture to regulate and organize investigation of food products of animal origin and the freeze foodstuff.

Ministerial Decree No. 10/1957
Concerning licensing of household insecticides.

Law No. 118/1979
Concerning import and export of pharmaceutical and chemicals in consumer goods section 5, chapter 1, article 73 defines the role of the general organization for control of Imports and Exports. Under this law it is prohibited the import or export of any commodity not fulfilling the specifications laid down by this organization (GOCIE).

The minister of economy issued some decrees dealing with control of many goods and commodities.

Ministerial Decree No. 315/1993
Prohibits the importation of blue asbestos among a list comprising six other chemicals.

(ref. 4 & 11)

- **Hazardous waste definition**

The national definition of “waste” and “hazardous waste” is in accordance with the definitions provided under the Basel Convention.

Egypt is in preparatory process to regulate/control additional wastes as hazardous that are not included in Article 1 (1)a of the Basel convention and would be controlled for the purpose of Transboundary movements pursuant to Article 1 (1)b.

Egypt is also in a preparatory process of identifying wastes other than those pursuant to in Art. 1 (1)a and/ or Art. 1 (1)b that require special consideration when subjected to Transboundary movement.

(ref. 1 & 3)

- **Hazardous waste quantities and qualities**

Year 1997 generated quantities of hazardous waste

Waste type	**Y-code**	**Quantity (Metric tonnes)**
	Y1-Y45	**-**
	Y46-Y47	**-**
Summary		-

Egypt has reported to Basel convention that in 1997 the total generated quantities of hazardous and other waste was 92 220,500 (t)

(ref. 2)

Year 1999 exported quantities of hazardous waste

Waste type	**Y-code**	**Quantity (Metric tonnes)**
	Y1-Y45	**-**
	Y47	**-**
Summary		-

Various management schemes and technological options are being assessed. Recently, it is estimated that hospitals, nation- wide, generate about 200 tons/day of various wastes, of which about 75 tons/day is considered hazardous (infectious, sharps, chemicals, etc.).

Regarding industrial hazardous wastes, two systems for Greater Cairo (including Cairo, Giza, and Qaliobia) and Alexandria are being planned for implementation. Parallel efforts are made in new industrial cities, particularly from the standpoint of establishing proper secure landfills for final disposal. In a recent study, industrial hazardous wastes in Greater Cairo Metropolitan (harbouring about 55% of all industrial activities, nation-wide) were estimated to amount 77,000 – 84,000 tons/ year. Thus, the estimated amount of hazardous industrial wastes ranges between 150,000 – 175,000 tons/ year.

(ref. 7)

- **Industrial sectors producing the hazardous waste**

Chemical Production, Import and Export

The production and import of chemicals for local use are considered to be high quantities where the export is medium Table A: shows Chemical production ton/ year.

Table A: Chemical Production and Trade/Governmental sector

Chemicals Type	Production/ Manufacturing Ton/year	Imports (Value L.E thousands)	Exports (Ton/year value)
Fertilizers	6,680,000	3,939,049,72	N.A
Petroleum products			N.A
Industrial (used in manufacturing/processing facilities)	7,826,446	3,749,838,63	8,756,133,756
Total	7,826,446	3,749,838,63	8,756,133,756

Chemical use by categories

Pesticides used in Egypt are regulated by Agricultural Law No. 53 that was issued in 1966, as well as the Ministerial Decree No. 215 issued in 1985. An interagency Pesticides Committee, under the umbrella of the Ministry of Agriculture, has been formed which is responsible for pesticide registration and licensing of imports. Before registration a pesticide is evaluated for efficacy for three successive years. At the time of registration it is examined for chemical and physical properties. The Central Agricultural Pesticides Laboratory (CAPL) regulates pesticides through its enforcement system and penalizes violators.

There is an "Association for Agrochemical Producers and Affiliates" in the country, but there is no NGO involved with pesticides.

Pesticides continue to be used in Egypt, under principles of IPM and are used only when absolutely necessary.

Table B: Chemical used by Categories /Governmental sector

Type of Chemical	Number of Tons Used per Year in the Country
Pesticides- agricultural	5,756,000
Fertilizers	1,547,680
Electricity	70,436
Mineral& mining Industries	5,115,088,16
Food industries	3,783,840,32
Chemical Industry	1,341,729
Plastic	22,085
Petroleum	61,043,577
Cellulose Industry	169,334
Industrial Gases	13,463
Textile	2,878,783
Paper	30,928
Pharmaceutical Industry	86,034

Chemical Waste

A huge amount of Chemical waste is generated during manufacturing processes

The main categories of waste generated are summarized in Table C.

Table C: Chemical Waste Generation

Nature of Industry	Type of Chemical Waste	Approx. quantity ton/year
Industrial Governmental Sector	Mercury Lead Chromium Cadmium Copper	1,838,724 24.489 6.092,069 3,738,841 2,055,026
Paper Industries	Organics &Inks	3,175
Engineering Industries	Sludge	1,650
Mineral Industries	Sludge	100,100

(ref. 22)

The facilities involved in crude oil drilling and refining in Egypt are:

FACILITY	TYPE	LOCATION	OWNER/OPERATOR
Amerya Refinery	Oil Refinery - Simple	Egypt	Alexandria Petroleum
Assyout Oil Refinery	Oil Refinery - Simple	Egypt	Egyptian General Petroleum Corporation
East Beni Suef Concession	Oil and Gas Concession – Onshore	Egypt	Apache Oil Egypt Inc, Seagull
El Manzala Permit - Egypt	Oil and Gas Concession – Onshore	Egypt	Centurion Energy International Inc
El Mex Refinery	Oil Refinery - Simple	Egypt	Egyptian General Petroleum Corporation
El Nasr Refinery	Oil Refinery - Simple	Egypt	Egyptian General Petroleum Corporation
El Suez Refinery	Oil Refinery - Simple	Egypt	Egyptian General Petroleum Corporation
Issaran Field - Egypt	Oil field – Field	Egypt	Scimitar Hydrocarbons Corporation, Scimitar Production Egypt Limited
Khalda Concession - Egypt	Oil and Gas Concession – Onshore	Egypt	Apache Corporation, Apache Oil Egypt Inc, Novus
Matruh Licence - Egypt	Oil and Gas Concession – Onshore	Egypt	Energy Africa Ltd, Shell Egypt N.V.
North Abu Rudeis Block - Egypt	Oil and Gas Concession – Onshore	Egypt	SOEKOR E and P (Pty) Ltd, Tullow Oil plc
Northeast Abu Gharadig Concession - Egypt	Oil and Gas Concession - Onshore	Egypt	Apache Corporation, Apache Oil Egypt Inc
Qarun Concession - Egypt	Oil and Gas Concession - Onshore	Egypt	Apache Corporation, Apache Oil Egypt Inc
Ras el Hekma Concession - Egypt	Oil and Gas Concession - Onshore	Egypt	Apache Corporation, Apache Oil Egypt Inc
Ras Kanayes Concession - Egypt	Oil and Gas Concession - Onshore	Egypt	Apache Corporation, Apache Oil Egypt Inc
Sidi Kerir	Power Station - Gas/steam turbine	Egypt	InterGen
Sidi Kerir Refinery	Oil Refinery - Simple	Egypt	Government of Egypt
South Umbarka Concession - Egypt	Oil and Gas Concession - Onshore	Egypt	Apache Corporation, Apache Oil Egypt Inc
Sukhari	Mine - Gold	Egypt	Centamin Egypt Ltd
Umbarka Development Lease - Egypt	Oil and Gas Concession - Onshore	Egypt	Apache Corporation, Apache Oil Egypt Inc
Wadi Feiran	Oil and Gas Concession - Onshore	Egypt	Egyptian General Petroleum Corporation

(ref. 23)

- **Stockpiled hazardous waste**

No data available.

- **Hazardous waste treatment facilities**

Hazardous Waste Management at National Level

Proper functional and safe hazardous waste management (HWM) is not fully practiced in Egypt.

Much effort has been recently extended to install proper systems nation- wide; and in conformity with the Environmental Protection Law # 4 for 1994, and with internationally accepted sound practices, taking into account the Egyptian conditions and limitations. In general, the field of hazardous wastes is being given top priority matching with its high-risk mandates, particularly under the poor prevailing conditions.

A national management and information system for hazardous materials and wastes is currently under development within the auspices of the EEAA in collaboration with all stakeholders and involves government authorities. Parallel endeavours are also being undertaken by EEAA jointly with the Ministry of Health to cope with the alarming situation of medical wastes.

(ref. 7)

Special issues related to the country

National Programmes and Projects

In the 1990s the Government of Egypt had clearly opted for a policy of waste recovery, focusing mainly on composting. Compost is considered an attractive product because of its possible use as a soil conditioner for desert reclamation schemes. The national policy comprises the construction of two windrow composting plants in each Governorate of Egypt, preferably by using locally manufactured equipment.

Most recently, in 1999, the Government of Egypt has developed and partly implemented a plan to fully privatize solid waste management including waste collection, composting and disposal in nine Governorates. For the time being only Alexandria is working on this privatization project. The tender document has been made, the tender has been publicized, and the bidders have submitted their bids, which are now under evaluation. After that, the other Governorates will follow.

It is expected that the informal private collectors and recyclers will be important parts of any new system where no single company would be able to do the whole job by itself. At the same time, the informal private waste collectors are rather familiar with waste collection techniques than the other sectors, so as the informal waste recyclers, who may represent the instant market for the sorted recyclable materials.

A national management and information system for hazardous materials and wastes is currently under development within the auspices of the EEAA in collaboration with all stakeholders and involved government authorities. Parallel endeavours are also being undertaken by EEAA jointly with the Ministry of Health to cope with the alarming situation of medical wastes. Various management schemes and technology options are being assessed.

As for industrial hazardous waste, two systems for Greater Cairo (including Cairo, Giza, and Qaliobia) and Alexandria are being planned for implementation. Parallel efforts are being

made in new industrial cities, particularly from the standpoint of establishing proper secure landfills for final disposal.

(ref. 7)

Industry Sectors

Egypt's main industry sectors are tourism, which is not covered in any depth on this website, and oil and gas, which show enormous potential and are covered extensively on our Egypt's tourism industry has suffered extensively from the slow-down in the international tourist industry following the September 2001 attacks. It was also adversely affected by the activities of Islamic militants.

Agriculture takes place mainly along the Nile River and involves some 40% of the adult population. Various technological advances have taken place that has greatly improved the sector. Egypt now boasts one of the highest crop yields in the world. The main products are cotton, rice, corn, wheat, fruit and vegetables. This sector is crucial to the country, especially because of the ever-increasing population, which is difficult to cater for.

Manufacturing is also a key sector. The main goods manufactured are textiles and foods. The Food Industries Chamber has undertaken to improve manufacturing standards in the country.

Egypt's chemical industry is also quite active and includes the production of fertilizers and petrochemicals. The pharmaceutical industry is also developing in the country.

Because the MBendi site is regarded as the most comprehensive global mining website, our are also quite extensive, even though this is not one of Egypt's major industry sectors. There are hopes that Egypt could become a top 10 gold producer but we urge caution on this claim.

In Egypt are following cement kilns:

1. Alexandria Cement, 2, Al-Ameriyah Cement Co., 3, Amerya Cement, Assiut Cement Co., ,4, Cement Portland Tourah Company, 5, Egyptian Cement Company, 6, Helwan Portland Cement Co., 7, Misr Beni Suef Cement Co., 8, National Cement, 9, Sinai Cement Company, 10, Sinai White Portland Cement Company Ltd., 11, South Valley Cement Company, 12, Suez Cement.

(ref. 20)

Industrial sectors	Numbers	Location
Cement kilns	12	
Calcite kilns		
Crude oil, refineries		
Steel Foundries		
Lead accumulators		
Used oils recycling facilities		
(Biological) Waste Water Facilities		

FRANCE

- **Legislation for waste management**

Policies on packaging waste, batteries, vehicles and electronic waste.

Decree No. 98-638 from July 20 1998 about how to take into account the environmental requirements in the design and the manufacturing of packaging; and Decree No. 99-374 from May 12th 1999 about introducing batteries in the market and their disposal.

Agreement on the treatment of end-of-life vehicles, from March 10 the 1993.

(ref. 3)

- **Hazardous waste definition**

"Waste" shall mean any substance or object in the categories set out in annex I of the

Directive CEE 75/442 from 15 July 1975, as modified, which the holder discards or intends or is required to discard.

The national definition of hazardous waste used for the purpose of Transboundary movements is in accordance with EU Regulation 259/93.

France regulates/controls additional wastes as hazardous that are not included in Art. 1 (1) of the Basel Convention and would be controlled for the purpose of Transboundary movements pursuant to Art. 1 (1) b. These wastes are the ones included in lists amber and red, and unlisted waste of the EU regulation 259/93.

In France there are no wastes other than those pursuant to Art. 1 (1)a and/or Art. 1 (1)b that require special consideration when subjected to Transboundary movement.

(ref. 1 & 3)

- **Hazardous waste quantities and qualities**

The reported generated quantities of hazardous and other waste to the secretariat of Basel Convention for the year 1999 are as follows:

Waste type	Y-code	Quantity (Metric tonnes)
	Y1-Y45	9 000 000
	Y46-Y47	27 500 000
Summary		36 500 000

(ref. 3)

France has reported as total hazardous waste amount 7000 (t) to Eurostat for the year 1990. The generation of hazardous waste pro capita was 123 Kg.

(ref.30)

Year 1999 exported and imported quantities of hazardous waste

Waste type	Y-code	Quantity (Metric tonnes)
Total amount of hazardous waste and other wastes exported	158 302 mt 70 787 mt	229 089
Total amount of hazardous waste and other wastes imported	1 450 153 mt 61 998 mt	1 512 151
Summary		1 741 230

(ref. 3)

- **Industrial sectors producing the hazardous waste**

The industrial sectors are separated in the chemical products and the non-iron industries.

Chemical industries

The chemical industry of France on 1998 has made a turn over of 320,5 MFF, without the turn over of the medicaments of 139,5MFF.

Base chemistry	142,7
Inorganic Chemistry	37,7
Organic chemistry	105,0
Para chemistry	84,2
Cosmetics	77,2
Pharmaceutical	16,4

TOTAL 320,5 MMF

The imported chemical products were in 1998 167,1 MMF The amount of imported pharmaceuticals was also for 1998 33,4 MMF. Detailed data are in the following table.

Organic products	54,6 MMF
Plastic materials	28,1
Mineral products	10,4
Pesticides	8,4
Cosmetics	6,8
Photographic products	6,6
Fertilizers	5,3

The exported chemical products were in 1998 202,4 MMF. The amount of exported pharmaceuticals was also for 1998 49,6 MMF. Detailed data are in the following table.

Organic products	54,3 MMF
Cosmetics	34,4
Plastics	31,4
Pesticides	12,1
Mineral products	9,0
Photographic products	5,8

(MMF = milliards Francs)

Non iron metal industries

Primary metallurgy	10,1 MMF
Metal scrap treatment	3,4
Primary production and treatment metallurgy	32,7

(ref. 22)

France has reported to Eurostat for the year 1995 for the amount of branches generating industrial waste following data

Total industries	Food, beverage & tobacco	Textile	Leather	Wood and wood products	Paper & paper products	Printing & publishing
101 000	1 139	212	48	6 637	2 769	-

Chemical	Rubber & plastics	Refineries	Non metallic mineral products	Base metal	Metal production, machines	Other manufacturing
545	504	-	403	2 157	523	-

(ref. 30)

- **Stockpiled hazardous waste**

No data available.

- **Hazardous waste treatment facilities**

France has reported to Eurostat for the year 1996 the following treatment and disposal methods

Physicochemical treatment D9 (1000 t)	Incineration D10, D11 (1000 t)	Recovery operations R1-13 (1000 t)	Landfill D1 (1000 t)	Other treatment (1000 t)
319	1 288	-	693	1

(ref. 30)

The European environmental agency has published an electronic catalogue with the number of waste treatment a recycling facilities in France.

R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	S
54	27	0	0	0	0	0	0	0	0	0	0	0	81

D1	D2	D4	D5	D8	D9	D10	D12	D13	D14	D15	S
0	0	0	14	0	16	0	0	0	0	0	30

(ref. 30)

- **Special issues related to the country**

In France are operated following cement kilns groups.

1. Ciments Calcia, 2. Ciments Français, 3. Lafarge Group, 4. Origny Cement, 5. Vicat S.A.

(ref. 20)

Industrial sectors	Numbers	Location
Cement kilns		
Calcite kilns		
Crude oil, refineries		
Steel Foundries		
Lead accumulators		
Used oils recycling facilities		
(Biological) Waste Water Facilities		

GREECE

- **Legislation for waste management**

Law 1650/86 '' the environmental protection''
Common **M**inisters **D**ecision 69269/ 90 ''environmental impact studies''
Common **M**inisters **D**ecision 69728/ 824/96/96) "solid waste management"
Common **M**inisters **D**ecision 114218/97) "technical standards for solid waste management"
CMD 72751/3054/85 ''hazardous waste management''
CMD 19396/1546/97 ''hazardous waste management''
CMD 98012/2001/97 'used oil management''
CMD 73537/1438/95 ''batteries and accumulators containing hazardous substances''
Law 2939/ 2001 ''Alternative packaging waste management''

(ref. 1 & 3)

- **Hazardous waste definition**

No an extra catalogue or other definition for the hazardous waste is applicable in Greece.

The national definition of waste is in accordance with the Legislative Decree No. 22/97 and Council Regulation (EEC) No. 259/93 adopted from Council Directive 75/442/EEC on Waste.

The general definition of hazardous waste is set by the DLGS No. 22/97 adopting the Council Directive 91/689/EEC. For the purpose of Transboundary movements, the list of Council Regulation 259/93 is adopted.

- **Hazardous waste quantities and qualities**

The reported generated quantities of hazardous and other waste for the year 1998 are as follows

Waste type	Y-code	Quantity (Metric tones)
	Y4	0.500
	Y10	1 800.000
	Y11	34 000.000
	Y17	2 800.000
Summary		38 600.500

(ref. 3)

Greece has reported to Basel convention that in 1997 the total generated quantities of hazardous and other waste were 283 000,000 (t).

(ref. 2)

Greece has reported to Basel convention that in 1998 the total generated quantities of hazardous and other waste were 287 000,000 (t).

(ref. 17 & 32)

Year 1998 exported quantities of hazardous waste given by Y code

Waste type	Y-code	Quantity (Metric tones)
Pesticides	Y4	86,230
Equipments containing PCB's	Y10	46,400
Brash Ashes	Y22, Y23	1181, 000
Waste Acids	Y34	9,590
Laboratory waste	Y14	23,080
Lead accumulators	Y31	9,100
Waste glue adhesives	Y13	0,720
Summary		1356,120

(ref. 2 & 3)

- **Industrial sectors producing the hazardous waste**

FACILITY	TYPE	LOCATION	OWNER/OPERATOR
Ampissa & Distomon	Mining – Bauxite	Greece	Delphie - Distomon SA
Olympias	Mining – Gold	Greece	Hellenic Gold
Sappes	Mining – Gold	Greece	Greenwich Resources Plc
Skouries	Mining – Gold	Greece	Hellenic Gold
Larko Viotia	Mining – Zn	Greece	Larco
Stratoni	Mining – Base metals	Greece	Hellenic Gold
Viochalko	Iron recycling	Greece	Viochalko
Chalkor	Cooper recycling	Greece	Viochalko
Elval	Aluminium Recycling	Greece	Viochalko
Kavala	Fertilises production	Greece	Phosphoric fertiliser industry
Thessalonika	Fertilises production	Greece	Phosphoric fertiliser industry
Corinth Motor Oil	Oil refinery	Greece	Motor oil
Aspropyrgos refinery	Oil refinery	Greece/ Attica	Hellenic Petroleum SA
Eko refinery	Oil refinery	Greece/ Thessalonica	Hellenic Petroleum SA
Petrola refinery	Oil refinery	Greece/ Attica	Petrola SA
PPC	Power plants	Greece/Attika, Eubea, Kozani, Florina, Tripolis	Puplic power cooperation SA

(ref. 23)

Greece has reported to Eurostat for the year 1996 the following industrial waste amount differentiated by the local industrial sectors:

Total industries	Food, beverage & tobacco	Textile	Leather	Wood and wood products	Paper & paper products	Printing & publishing
6 682	975	168	51	77	129	-

Chemical	Rubber & plastics	Refineries	Non metallic mineral products	Base metal	Metal production, machines	Other manufacturing
842	8	16	786	3570	-	60

For the year 1995 Greece has reported to Eurostat a total hazardous waste amount of 350 (t). The generation of hazardous waste pro capita was 33 Kg.

(ref. 30)

- **Stockpiled hazardous waste**

Fertiliser phosphogypsum
Refineries oily sludge's
Foundries iron oxides

- **Hazardous waste treatment facilities**

The operated treatment and disposal methods, which Greece has reported to Eurostat for the year 1997 were as follows

Physicochemical treatment D9 (1000 t)	Incineration D10, D11 (1000 t)	Recovery operations R1-13 (1000 t)	Landfill D1 (1000 t)	Other treatment (1000 t)
12	1	100	226	11

(ref. 30)

The European environmental agency has published an electronic catalogue with the number of waste treatment and recycling facilities in Greece.

R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	S
0	3	0	0	0	0	0	5	0	0	0	0	0	8

D1	D2	D4	D5	D8	D9	D10	D12	D13	D14	D15	S
0	0	0	0	0	0	0	0	0	6	0	6

(ref. 30)

In the above recycling and/or disposal facilities are included all the treatment plants which are integrated in the corresponding waste generating industry and also all operated facilities offering treatment/-recycling services to third parties.

- **Special issues related to the country**

In Greece are following cement kilns operated

1. Halyps Cement, 2.Heracles Cement Aliveri, 3. Heracles Cement Olympos Volos, 4. Heracles Cement Milaki Evia, 5. Titan Cement Company S.A. Kamari, 6, Titan Cement Company S.A. Rio, 7, Titan Cement Company S.A. Thessalonica.

(ref. 20)

Existing industrial sectors as

Industrial sectors	Numbers	Location
Cement kilns	7	
Calcite kilns	3	
Crude oil, refineries	4	
Steel Foundries	3	
Lead accumulators	2	
Used oils recycling facilities	3	
(Biological) Waste Water Facilities	-	

ISRAEL

- **Legislation for waste management**

The Hazardous Substances Law of 1993 is the central legal tool for the management of hazardous substances in Israel. It provides the Ministry of the Environment with the authority to control hazardous substances, including licenses, regulations and supervision of the various aspects of their production, use, handling, marketing, transport, import and export. The law authorizes the Minister of the Environment to promulgate regulations on the classification of poisons and on the treatment, use production, import, export, packaging, commerce, transfer, storage, maintenance and use of hazardous substances. The law also enables an authorized representative of the Minister of the Environment to enter any premise dealing with hazardous substances, with the exception of pharmacies, for the purposes of inspection, investigation or for the collection of samples of hazardous substances.

(ref. 12)

Hazardous substances regulation 1994.

(ref. 3)

- **Hazardous waste definition**

National definition of hazardous wastes for the purpose of Transboundary movements is as defined in the Hazardous Substances Law or by the Basel Convention.

Israel does not regulate/control any additional wastes as hazardous that are not included in Art. 1 (1)a of the Basel Convention and would be controlled for the purpose of Transboundary movements pursuant to Art. 1 (1)b.

In Israel there are no wastes other than those pursuant to Art. 1 (1)a and/or Art. 1 (1)b of the Basel Convention that require special consideration when subjected to Transboundary movement.

(ref. 1 & 3)

Additional Types of Hazardous Waste
Biological waste composes the bulk of non-radioactive, non-chemical hazardous waste produced by hospitals each year. Currently most of it ends up in garbage dumps where it poses environmental and health hazards. A joint committee of the Ministries of the Environment and Health, working according to guidelines on biological waste set by the World Health Organization, has called for the establishment of 15-20 regional disposal centres at main hospitals throughout the country.
(ref. 12)

- **Hazardous waste quantities and qualities**

The generated quantities of hazardous waste in year 1999

Waste type	**Y-code**	**Quantity (Metric tonnes)**
Total amount of hazardous waste generated	Y1-Y45	329 077
	Y46-Y47	-
Summary		329 077

Exported /imported quantities of hazardous waste in year 1999

Waste type	Y-code	Quantity (Metric tonnes)
Total amount of hazardous waste and other waste exported	Y1-Y47	7 557
Total amount of hazardous waste and other waste imported	Y1-Y47	3 114
Summary		

(ref. 3)

- **Industrial sectors producing the hazardous waste**

Industry in Israel: An Overview

Scarcity of water, a relatively small population, limited land reserves, and lack of natural resources has led Israel to base its economy on a highly qualified work force and technological advances generated by a network of academic and research institutions. In view of the country's qualified labour force and scarcity of mineral resources, industry has concentrated on manufactured products with high added values by developing products based on Israel's own scientific and technological infrastructure. Until the 1970s, traditional industrial branches such as food processing, textiles and fashion, furniture, fertilizers, pesticides, pharmaceuticals, chemicals and rubber, plastic and metal products provided most of the country's industrial output. In the past two decades, however, advances have been made in the fields of medical electronics, agro technology, telecommunications, fine chemicals, computer hardware and software.

In 1995, some 19,000 industrial firms employing more than 412,000 workers (14% of them with higher education) produced an output of $50 billion, 34% of which was exported. Israel's industrial output growth rate during 1990-94 was 32.5% (second highest to Korea's 34.5 %). Investment in industry amounted to $4.3 billion in 1995, a 10% rise compared to 1994 (when a 24% rise was recorded). The most significant industrial growth has occurred in the high-tech sectors that are skill and capital intensive and require sophisticated production techniques as well as considerable investment in research and development (R&D). These sectors accounted for 37% of industrial production in 1965, 58% in 1985, and 62% in recent years. High-tech firms spent over 90% of the $650 million devoted to industrial R&D.

Agriculture in Israel: An Overview

Table - Overview of the Agricultural and Industrial Sectors (1996)

Sector	Contribution to the GNP (%)*	Number of Employees 10^3	Major Products in each Sector
Industrial/manufacturing[1] and Mining/Extraction	17.1	730	
Agricultural	2.1		
TOTAL	**19.2**		

[1] Including all manufacturing, production, formulation, assembly and related facilities

* Product at Factor Cost

Table: Overview of the Manufacturing/Agricultural Sector

Sector	Micro Farms/ facilities[1]	Small Farms/ facilities[2]	Medium Farms/ facilities[3]	Big Farms/ facilities[4]
10[3]				
Agricultural	--	--		
Industrial/ manufacturing	15.227 (80%)	3.186 (17%)	0.397 (2%)	0.183 (1%)
TOTAL				

[1] 1-15 employees
[2] 16-100 employees
[3] 101-250 employees
[4] More than 251 employees

(ref. 27)

Chemical Use by Categories

Chemical Type	Annual Consumption (tons)
Pesticides – Agricultural	Miriam
Pesticides - Public Health	Orna Miznar
Pesticides - Consumer	Sano
TOTAL	

Chemical Waste Generation and Trade

Chemical Waste	Generation	Export[1]	Import[1]
Smadar			
Robin			
TOTAL			

[1] If Classified as hazardous wastes, then in accordance with the Basel Convention on the Control of Transboundary Movement of Hazardous Wastes

(Ref. 27)

NAMES OF COMPANIES REGISTERED TO MBENDI WEBSITE
B2PLAST.COM LLD Investments Ltd MRC Limited (m.r.c.) Naphta Israel Petroleum Corp Ltd Sinvanco Advanced Cellular Technologies

(ref. 23)

- **Stockpiled hazardous waste**

No data available.

- **Hazardous waste treatment facilities**

Disposal facilities

- Environmental Services Company Ltd., Ramat Hovav) P.O.B. 5743, Beer-Sheva 84156; tel.: (972-8) 650-3700; website: www.enviro-services.co.il; e-mail: esc@zahav.net.il, treatment of hazardous wastes by best available technology (D1, D4, D5, D9, D14, D15);
- Ecosol, Ramat Hovav, incinerator for hazardous wastes (D10, D13, D14,D15); and
- Lapidot, Helez, deep well injection (used caustic soda from oil refineries) (D3).

Recovery/recycling/re-use facilities

- Liran, Rishon Letzion, solvent reclamation (R2);
- Petrochim, Ashdod, solvent reclamation (R2);
- Teva Factories (Pharmaceutics), solvent reclamation (R2);
- M.T.A. Recycling Technologies, Jerusalem, solvent reclamation (R2);

and

- Tabib, Petah Tikva, Ammoniacal copper recycling (R4).

(ref. 3)

Industrial sectors	Numbers	Location
Cement kilns		
Calcite kilns		
Crude oil, refineries		
Steel Foundries		
Lead accumulators		
Used oils recycling facilities		
(Biological) Waste Water Facilities		

ITALY

- **Legislation for waste management**

Law No 22 –D.Lgs. 05/02/1997 explain the waste classification, includes the list of hazardous waste and the requirements of land filling, requirement of Asbestos recovery.

Asbestos disposal is regulated under the law DPR –08/08/1994.

Law No 124- D.M. 25/02/2000 regulates the Incineration of hazardous waste.

Laws D.Lgs No 27/97, D. Lgs No 389 08/11/1997 & D.M –05/09/1994 explain the technical aspects of hazardous waste recovery

Law D.Lgs No 209- 22/05/1999 explain the disposal of PCB/PCT.

Laws D.Lgs No 95- 27/01/1992, D.M No 392/1996 & D.Lgs No 95/1992 explains the used oil management.

Laws D.Lgs No 22/1997 & D.M.- 26/06/2000 explain the disposal of infectious waste.

Law D.M. No 476- 20/11/1997 explains the accumulators and batteries management.

(ref. 18)

- **Hazardous waste definition**

The national definition of waste is in accordance with the Legislative Decree No. 22/97 and Council Regulation (EEC) No. 259/93 adopted from Council Directive 75/442/EEC on Waste.

The general definition of hazardous waste is set by the DLGS No. 22/97 adopting the Council Directive 91/689/EEC. For the purpose of Transboundary movements, the list of Council Regulation 259/93 is adopted.

Italy regulates/controls additional wastes as hazardous that are not included in Art. 1 (1) a of the Basel Convention and would be controlled for the purpose of Transboundary movements pursuant to Art. 1 (1)b. These wastes include all the wastes that are listed in the EEC/259/93

Annexes III and IV.

In Italy there are no wastes other than those pursuant to Art. 1 (1)a and/or Art. 1 (1)b of the Basel Convention that require special consideration when subjected to Transboundary movement.

(ref. 1 & 3)

- **Hazardous waste quantities and qualities**

In 1997, 29,5% of the total amount of hazardous waste generated by all industries in Italy (2,218,150 tones) is accounted to the chemicals industry (IAEP, 1999). According to the ICIA, total waste (hazardous and non-hazardous) generated by the chemicals industry decreased by 57% in the time period between 1989 and 1999.

Generated quantities of hazardous waste for the year 1999

Waste type	Y-code	Quantity (Metric tonnes)
	Y1-Y45	
	Y46-Y47	
Summary		

For the year 1997 the total hazardous waste generation was 2 283 302 tonnes.

(ref. 32)

Year 1999 exported quantities of hazardous waste

Waste type	Y-code	Quantity (Metric tonnes)
	Y1-Y45	
	Y47	
Summary		

(ref. 3)

- **Industrial sectors producing the hazardous waste**

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- **Stockpiled hazardous waste**

No data available.

- **Hazardous waste treatment facilities**

The European environmental agency has published an electronic catalogue with the number of waste treatment a recycling facilities in Italy.

R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	S
										-	-	-	221

Italy has 221 facilities for material recovery of hazardous waste. An assignment to R-code is not possible.

D1	D2	D4	D5	D8	D9	D10	D12	D13	D14	D15	S
0	0	0	39	74	147	46	0	0	0	0	306

(ref. 20)

In Italy the following cement kilns are in operation:

1. Adriasebina Cementi Srl, 2. Italcementi, 3. Italcementi Group, 4. Gruppo Financo, 5. Merone S.p.A.

(ref. 20)

Industrial sectors	Numbers	Location
Cement kilns		
Calcite kilns		
Crude oil, refineries		
Steel Foundries		
Lead accumulators		
Used oils recycling facilities		
(Biological) Waste Water Facilities		

LEBANON

- **Legislation for waste management**

Environment related laws have existed in Lebanon since the early 1930s' but the environment was an issue taken for granted for all these years. It is relatively recently that it started to pop up as a major concern not only to environmentalists but also for the general populous as well.

The following is a listing o f excerpts from existing legislation related to MSW and other closely related issues:

- Decree 8735 of August 23, 1974 relating to the general cleanliness and the sanctions relative to this effect.

It is forbidden to get rid of refuse, industrial and agricultural waste, construction waste, junk cars and all other types of waste to street sides and public places, rivers, properties of the state or the municipalities and into maritime areas.

It is strictly forbidden to throw any type of waste such as paper, empty boxes, fruit peels, cigarette butts and, other waste on roads and public places and inside official buildings.

It is forbidden for municipalities to gather garbage at roadsides and at public places in non-closed containers prior to transport, and to use transport means that are open and non-hermetically sealed.

All residents and shop owners must deposit their garbage inside hermetically sealed containers or inside leak-proof plastic bags. This must start within one month of the publication of this law.

Municipalities are allowed to impose garbage delivery inside plastic bags or offer such bags at a maximum rate of 30 per month to every home and charge for them.

The chief of municipality shall determine the time at which garbage shall be picked up in order not to let the latter accumulate on the street sides.

Every person found guilty of breaking the above law shall be charged by an amount equal to 25 LL ($.016). In the case a minor breaks the law, the parents shall pay the fine.

Any driver found guilty of throwing garbage out of his car shall be imprisoned for a period between two weeks and one month and fined an amount between 250LL and 500LL ($0.16 to $0.32) and his car shall be impounded for a period of one month at his own expenses.

The above applies for any other person inside the car as a passenger.

Note: In 1974 US$1 = 3.25 LL. Today 1999, US$1 = 1,500 LL

- Decree 197 of February 18, 1993 related to the creation of the Ministry of Municipal and Rural Affaires.

The Ministry of Municipal and Rural affairs (MMRA) shall propose strategies and prepare studies related to the development of local activities in order to encourage citizen participation and guaranty the execution of laws and regulations related to the municipalities.
The MMRA shall further supervise municipalities and municipal unions and control their activities.

- Decree 216 of April 2, 1993 related to the creation of the Ministry of Environment.

The Minister of Environment (MoE) shall be responsible to establish policies related to environmental protection and implement them in cooperation with concerned administrations.

The MoE shall combat all sorts of pollution and undertake studies related to the means and conditions of processing solid waste and wastewater.

- Article 164 and 165 of diverse laws concerning the Ministry of Interior.

*Article 16*4: The municipalities may undertake certain projects necessary to guarantee public health and security should the concerned responsible abstain from doing so.

Article 165: The fines imposed by the courts for infractions related to public health and safety are flowing to the municipal fund of the region where the infraction took place.

- Decree 14469 of May 15, 1970 relating to the distribution of fines to municipalities.

The fines imposed by the courts for the infractions of laws and regulations shall be paid to the municipality where the infractions were committed.

- Decree 425 of September 8, 1971 concerning the use of plastic bags for waste disposal.

This law imposes the use of plastic for the disposal of garbage.

- Decree 7975 of May 5, 1931 relating to the residential cleanliness.

It is forbidden to throw or deposit garbage next to residences. These residues must be gathered and buried or delivered to the municipal department responsible for cleaning.

- Decree 118 of December 27, 1977 relating to the collection and disposal of solid waste by the Municipalities.

This is known as the Municipal Law. It gives the municipalities the power to organize solid waste collection and disposal.

- Decree 11/78, 1978 related to the use of insecticides.

No insecticide may be imported into the Lebanon if it is banned for use in the country of origin.

- Decree 64/88, 1988 related to the protection of the environment and the importation of various types of waste.

It was made the duty of every person to preserve the safety of the environment from pollution.

Importation or possession of radio active or poisonous waste was prohibited. In extreme cases the death penalty could be applied.
(ref. 8)

- **Hazardous waste definition**

There is no national definition of hazardous waste.

- **Hazardous waste quantities and qualities**

Year 1999 generated quantities of hazardous waste

Waste type	Y-code	Quantity (Metric tonnes)
	Y1-Y45	
	Y46-Y47	
Summary		

Year 1999 exported quantities of hazardous waste

Waste type	Y-code	Quantity (Metric tonnes)
	Y1-Y45	
	Y47	
Summary		

There is no reported data to Basel convention.

(ref. 3)

- **Industrial sectors producing hazardous waste**

--

- **Stockpiled hazardous waste**

No data available.

- **Hazardous waste treatment facilities**

No data available

The following gives information's to Municipal Solid Waste Management

- *The Ministry of Environment* prepares studies concerning solid waste treatment, participates in the preparation of tender documents for infrastructure and engineering works, advises on the construction and equipping of solid waste treatment plants.
- *The Ministry of Municipal and Rural Affairs* processes all invoices submitted by private contractors for waste collection and processing and undertaking payments out of the Independent Municipal Fund on behalf of every municipality benefiting from the services.
- *The Ministry of Public Health* is empowered to propose technical specifications and terms which should be followed in solid waste collection and disposal projects.
- *The Ministry of Public Works* (Road Building and Sanitary Engineering Department and the Directorate General of Urban Planning), undertake the preparation of projects for collection and disposal of domestic garbage, draw up the tender documents for such projects and supervise their execution.
- *Municipal Unions* deal with common interest projects benefiting all municipalities and in particular common garbage treatment projects. Outside Beirut, Municipalities are responsible for waste collection.

National Policy

Policy Overview

The general policy relating to MSW is very blurry and contains many grey areas especially due to the lack of well defined and structured laws and regulations established at a national level. However, there are a few areas where the government's policies are voices in one way or another. The following reflects these policies:

Incineration

The government's policy toward incineration is very loud and clear. Incineration is totally banned from the MSW process in Lebanon. The two existing incinerators that were operating in the Greater Beirut area are shut down. The Quarantina incinerator was closed down while the Amroussieh incinerator was never repaired following the riots that resulted in the burning down of the incineration plant.

Landfilling

A program for landfills and composting plants throughout the entire country is in place as per the Solid Waste Environmental Management Project (SWEMP).

Although the issue of how the existing uncontrolled dumps are closed and cleaned up is addressed, however, it remains unresolved. Only the Normandy dump of West Beirut is being worked on under the SOLIDERE land reclamation program where over 609,000 sq. m of land is being reclaimed for infrastructure construction in the Beirut Central District.

The difficulty of identifying landfill sites may not allow the government to realize the ambitious landfill program. Because generation rates have been improperly estimated in the planning assumptions, the increasing volume of solid waste will put pressure on the planned system. Also the current plans do not allow for the mixing of industrial waste with municipal wastes in these sites. There is a very strong case for encouraging formal and informal waste minimization in both the domestic and industrial sectors.

Direct cost recovery is essential for the sustainability of waste management programs, and its introduction in a number of municipalities is positive; but there is still an uncovered need for structuring the charging systems for waste collection and disposal to provide a greater incentive for waste minimization than at present.

(ref. 8)

In Lebanon is operated the cement kiln Cimenterie Nationale

(ref. 20)

Industrial sectors	Numbers	Location
Cement kilns	1	
Calcite kilns		
Crude oil, refineries		
Steel Foundries		
Lead accumulators		
Used oils recycling facilities		
(Biological) Waste Water Facilities		

LIBYA

- **Legislation for waste management**

--

- **Hazardous waste definition**

--

- **Hazardous waste quantities and qualities**

Generated hazardous waste quantities for the year …

Waste type	Y-code	Quantity (Metric tones)
	Y1-Y45	--
	Y46-Y47	--
Summary		--

Exported hazardous waste quantities for the year …

Waste type	Y-code	Quantity (Metric tones)
	Y1-Y45	--
	Y47	--
Summary		--

(ref. 3)

- **Industrial sectors producing the hazardous waste**

Libya has been able to build on the achievements in its oil industry to create a relatively well-developed chemical industry, although it has not developed as quickly as originally intended.

Marsa El-Brega is the country's main centre for the production of petrochemicals, with ethanol, ammonia and urea being produced. The Marsa El-Brega complex is operated by the National Petrochemical Company (Napectco). There is a methanol production facility at al-Burayqah, and a small petrochemical complex at Abu-Kammash.

Ras Lanouf is the location of an as yet uncompleted project being developed by the Ras Lanuf Oil and Gas Processing Company (Rasco) to produce various chemicals including benzene, butadiene, methyl-tertiary-butyl ether and butene-1.

(ref. 23)

- **Stockpiled hazardous waste**

No data available.

- **Hazardous waste treatment facilities**

No data available.

- **Special issues related to the country**

Industries

Libya has total eight petrochemical plants. Two polyethylene plants are situated at Ras Lanuf. Additional there are some plans for the development of a major petrochemical plant.
The plastics industry in Libya comprises polymer production, polymer processing and polymer conversion.

Libya - petrochemical complex at Abu Kammash, which produces ethylene dichloride (EDC) (around 104 ktpa), VCM (around 60 ktpa) and PVC (around 60 ktpa).

Ras Lanuf - Ras Lanuf Oil and Gas Processing Company (Rasco) - was due to be commissioned in 1997. There were plans to produce LDPE (50 ktpa), HDPE (80 ktpa), PP (68 ktpa) at Ras Lanuf, as soon as finances permitted. Current status unknown.

FACILITY	TYPE	LOCATION	OWNER/OPERATOR
Assumud Field	Oil field – Field	Libya	Sirte Oil Co
Attahaddy Field	Oil field – Field	Libya	Sirte Oil Co
Azzawiya	Oil Refinery - Simple	Libya	Government of Libya
El Sharara Field	Oil field – Field	Libya	Repsol Exploracion Murzuq SA
el-Bouri	Oil and Gas Concession – Offshore	Libya	Repsol YPF
Elephant Field	Oil field – Field	Libya	LASMO plc
En Naga North Field - Libya	Oil field – Field	Libya	Lundin Oil AB, Red Sea Oil
Marsa El-Brega	Chemical Plant - Chemical Manufacturing Industry	Libya	National Petrochemical Company
NC - 174 Block - Libya	Oil and Gas Concession – Onshore	Libya	Agip North Africa BV, LASMO plc, Pedco
NC -177 Block - Libya	Oil and Gas Concession – Onshore	Libya	Lundin Oil AB
NC 101	Oil and Gas Concession – Onshore	Libya	Nexen Inc
NC 115 Block - Libya	Oil and Gas Concession – Onshore	Libya	Repsol Exploracion Murzuq SA
NC 184/1/2 - Libya	Oil and Gas Concession – Onshore	Libya	Canadian Natural Resources Ltd, Energy Africa Ltd, PanCanadian Petroleum Limited
NC 185 - Libya	Oil and Gas Concession – Onshore	Libya	Canadian Natural Resources Ltd, Energy Africa Ltd, PanCanadian Petroleum Limited
NC 186 Block - Libya	Oil and Gas Concession – Onshore	Libya	Repsol Exploracion Murzuq SA
November Seventh	Oil and Gas Concession – Offshore	Libya	Nimr Petroleum Company, Petronas
Raguba Field	Oil field – Field	Libya	Sirte Oil Co
Ras Lanuf	Oil Refinery – Simple	Libya	Government of Libya
Sirte Oil Co	Oil Refinery – Simple	Libya	Government of Libya

(ref. 23)

In Libya are following cement kilns:

1. Arab Cement Co., 2. Libyan Cement Company, 3. National Cement and Building Materials Co., 4. Souk el Khamis General Cement Co., 5. The Libyan Cement Co. (El Fatiah Cement), 6. The Libyan Cement Co., 7. Zliten Cement Plant

(ref. 20)

Industrial sectors	**Numbers**	**Location**
Cement kilns	7	
Calcite kilns	--	
Crude oil, refineries	--	
Steel Foundries	--	
Lead accumulators	--	
Used oils recycling facilities	--	
(Biological) Waste Water Facilities	--	

MALTA

- **Legislation for waste management**

Summary of the Main Existing National Legislation Relating to Waste Management
Environment Protection Act of 1991 (Act V of 1991), and related secondary legislation:
This Act is primarily concerned with environmental quality and its protection, and empowers the Minister for the Environment to make regulations concerning the use and possession of toxic substances and substances that may be harmful to the environment. It also permits the Minister to indicate locations and methods for disposing of certain substances on land.

Non-alcoholic Beverages (Control of Containers) Regulations – Legal Notice 158 of 1998:
This Legal Notice makes it obligatory for a "carbonated ready-to-drink liquid or beverage which contains no more than two per centum of alcohol and which is flavoured" to be sold only in refillable glass bottles or dispensed from a keg, and also requires a mandatory refundable deposit to be levied on such containers.

Deposit of Wastes and Rubble (Fees) Regulations – Legal Notice 128 of 1997:
These regulations require *inter alia* that rubble, waste and hazardous waste must be deposited in a licensed waste deposit site, and that such sites and carriers of waste must be licensed. They also introduced a fee for depositing waste in both public and private waste deposit sites.

Environment Protection (Sewer Discharge Control) Regulations – Legal Notice 8 of 1993:
This Legal Notice, administered by the Drainage Department, introduced a permitting system for the discharge of non-domestic wastes into the sewerage system.

Environment Protection (Control of Transboundary Movement of Toxic and other Substances) Regulations, 2000 – Legal Notice 205 of 2000:
These Regulations control all operations relating to the transit, export and import of toxic substances, and promote their environmentally sound management. They put into effect the obligations on the transboundary movement of hazardous wastes and their disposal as arising under the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal.

Litter Act of 1968 (Act VIII of 1968):
This Act is primarily concerned with littering and the control of disposal of domestic waste. It places responsibility for waste collection on the Ministry responsible for Health and regulates the collection of waste from urban areas. It also makes the dumping of waste in public areas an offence.

The Development Planning Act of 1992 (Act I of 1992):
This Act is mainly concerned with land use and development. It defines the depositing of waste on land as 'development' and states that such 'developments' require planning consent. The development and design of waste management facilities are also controlled by this Act.

Factories (Health, Safety and Welfare) Regulations, 1986 – Factories Ordinance (Cap. 107):
These regulations are mainly concerned with the health and safety of factory workers. However, they also empower the Superintendent of Public Health to specify the method and degree of treatment necessary for waste disposal, the carriers of the waste and the location and method of disposal.

Swill Control Regulations – Legal Notice 125 of 1993:
Primarily concerned with the protection of livestock from imported diseases, these regulations also control indirectly the management of swill offloaded from aircraft and vessels visiting Malta.
(ref. 25)

- **Hazardous waste definition**
  Waste is generally defined as any substance or object, which the holder discards or intends or is required to discard. Wastes may be:
  - Hazardous, i.e. explosive, oxidizing, flammable, irritating, toxic, carcinogenic, corrosive, infectious, teratogenic, mutagenic, ecotoxic or otherwise harmful;
  - Non-hazardous e.g. municipal waste (MSW), which comprises waste from households, as well as other waste which, because of its nature or composition, is similar to waste from household;
  - Inert, i.e. waste that does not undergo any significant physical, chemical or biological transformations. Inert waste will not dissolve, burn or otherwise physically or chemically react, biodegrade or adversely affect other matter with which it comes into contact in a way likely to give rise to environmental pollution or harm human health.

(ref. 25)

- **Hazardous waste quantities and qualities**

Generated quantities of hazardous waste for the year 1999

Waste type	**Y-code**	**Quantity (Metric tonnes)**
	Y1-Y45	--
	Y46-Y47	--
Summary		--

Exported quantities of hazardous waste for the year 2000

Waste type	**Y-code**	**Quantity (Metric tones)**
Lead batteries	Y 31	4 500.000
	Y47	--
Summary		4 500.000

The above written data are delivered by a letter of the ministry for the environment of Malta dated December 2001 the 7th.

(ref. 17)

- **Industrial sectors producing the hazardous waste**

--

- **Stockpiled hazardous waste**

The ministry for the environment of Malta declares in its letter, dated 7 December 2001, that the following quantities are stockpiled:

a. ~70 Tones of PCB containing equipment
b. Asbestos waste

(ref. 17)

- **Hazardous waste treatment facilities**

The ministry for the environment of Malta declared that in the whole country no hazardous waste treatment facilities exist. A new treatment plant to process used oils has been set up but it is still not in operation.

The existing facilities for managing and disposing of wastes on the Maltese Islands are summarised in following Table. In addition, there are a number of unauthorised 'waste deposit sites' and waste recycling / scrap yards.

Table: Existing Licensed / Authorized Waste Management Facilities

Type of Facility	Location	Status
Landfill	Maghtab – Malta	Effectively a 'land raise' site.
Landfill	Qortin – Gozo	Effectively a 'land raise' site.
Composting Plant	St. Antnin Composting Plant, Marsascala – Malta	80,000 tonnes per annum design capacity. Currently processing around 30,000 tonnes per annum of mixed MSW.
Incinerator	St. Luke's Hospital, G'mangia – Malta	700 kg/day. Old & unreliable. No gas cleaning installed.
Incinerator	Boffa Hospital, Floriana – Malta	Old technology. No gas cleaning installed.
Incinerator	Gozo General Hospital, Victoria – Gozo	Old technology. No gas cleaning installed.
Incinerator	Abattoir, Marsa – Malta	Small. Old & unreliable. No gas cleaning installed.
Incinerator	Abattoir, Xewkija – Gozo	Small, relatively modern rotary kiln. No gas cleaning installed.
Incinerator	Malta Drydocks Corradino – Malta	Old technology. No gas cleaning installed.
Combustion	Airport, Gudja – Malta	Open burning.
Recycling *	Various locations	Operational, but not necessarily to their full capacity.
Used oil storage / re-processing *	Valletta Harbour – Malta	Not yet fully operational.
Scrap yards *	Various locations	Operational.

Privately owned*

(ref. 25)

- **Special issues related to the country**

Purpose and Scope of the Strategy

This National Waste Management Strategy follows on from, and is intended to complement and build upon, the *Solid Waste Management Plan for Malta* [1]. Its overall purpose is to provide a policy and decision-making framework for the future management of wastes, and for the preparation of detailed implementation plans.

In such a process waste management must primarily take place in accordance with national legislation and local policies as well as take into consideration international conventions of which Malta is a signatory. It is also the means by which the various requirements and targets contained in European Directives on waste will be implemented. It is above all the means through which we can deliver a better quality of life and to provide a proper and effective framework for the protection of human health and the environment.

This Strategy covers not only those wastes defined in the Waste Framework Directive, including those covered by Directives dealing with specific waste types, products and processes, but also other wastes not included therein, such as animal wastes and by-products. The relevant EU Directives are currently being transposed into national legislation. The Ministry for Agriculture and Fisheries are at present formulating the relative implementation plans, in line with this National Strategy, regarding the treatment and disposal of animal, slaughterhouse and other wastes.

Key Principles

There are a number of key principles that need to be taken into account in establishing and implementing a strategy for waste management. These are:

- Sustainable development;
- Proximity principle and self-sufficiency;
- Precautionary principle;
- Polluter pays principle;
- Waste hierarchy;
- Best Practicable Environmental Option (BPEO);
- Producer Responsibility.

(ref. 25)

Industrial sectors	Numbers	Location
Cement kilns	--	
Calcite kilns	--	
Crude oil, refineries	--	
Steel Foundries	--	
Lead accumulators	--	
Used oils recycling facilities	--	
(Biological) Waste Water Facilities	--	

[1] A Solid Waste Management Plan for Malta, 2000 – 2009, prepared by the Works Division, Ministry for the Environment, January 2000.

MONACO

- **Legislation for waste management**

In the legislative area of hazardous waste management, Monaco is adopting the relevant regulation and law from France and therefore EU demands.

(ref. 1 & 3)

- **Hazardous waste definition**

In Monaco, there is no national definition of wastes and hazardous wastes as such. However, several legal texts concerning the management of wastes highlight the character of hazardousness of certain categories of wastes that are collected in selective manner and managed adequately. However, in all events the Basel Convention's definitions are applicable to all services concerned.

(ref. 1 & 3)

- **Hazardous waste quantities and qualities**

Generated quantities of hazardous waste for the year 1999

Waste type	Y-code	Quantity (Metric tones)
	Y1-Y45	17.200
	Y46-Y47	62 784.000
Summary		62 801.200

Exported quantities of hazardous waste for the year 1999

Waste type	Y-code	Quantity (Metric tones)
	Y1-Y45	17.200
	Y47	23 564.000
Summary		23 581.200

(ref. 3)

- **Industrial sectors producing the hazardous waste**

--

- **Stockpiled hazardous waste**

There are no hazardous waste facilities in Monaco.
A household waste incinerator is operating with energy recuperation. (R1)

(ref. 2 & 3)

- **Hazardous waste treatment facilities**

No data available.

Industrial sectors	Numbers	Location
Cement kilns	--	
Calcite kilns	--	
Crude oil, refineries	--	
Steel Foundries	--	
Lead accumulators	--	
Used oils recycling facilities	--	
(Biological) Waste Water Facilities	--	

MOROCCO

- **Legislation for waste management**

The Draft Law on Waste Management and their Disposal foresees a list of hazardous wastes, the importation of which will be banned. The Draft Law defines “wastes” at national level, as residues coming from the production process, from transformation or from utilization, all substances, materials, products or more generally abandoned goods, meant to be discarded, or disposed of with the aim of protecting the environment and the people.

The Law on Hazardous Wastes Management and their Disposal foresees the preparation of the list of hazardous wastes subject to import ban.

Morocco is in a preparatory process of identifying wastes other than those pursuant to in Art. 1 (1)a and/or Art. 1 (1)b that require special consideration when subjected to Transboundary movement.

(ref. 1 & 3)

- **Hazardous waste definition**

The above Draft Law on Waste Management and their Disposal foresees a list of hazardous wastes at national level, the importation of which will be banned. The Draft Law defines hazardous wastes, as all wastes that because of the elements constituting them, or by their noxious characteristics contained in them are susceptible to harm the people and the environment, the list of which is established by regulation.

(ref. 1 & 3)

- **Hazardous waste quantities and qualities**

The reported generated quantities of hazardous and other waste for the year 1999 are as follows

Waste type	Y-code	Quantity (Metric tones)
	Y2-Y45	975 000.000
	Y1	12 000.000
	Y46	4 000 000.000
Summary		4 987 000.000

Morocco has reported to the Basel convention that in 1997 the total generated quantities of hazardous and other waste was 6 543 104,500 (t)
(ref. 2)

Exported quantities of hazardous waste for the year 1999

Waste type	Y-code	Quantity (Metric tones)
Not specified		20.000
Summary		20.000

(ref. 3)

- **Industrial sectors producing the hazardous waste**

The following data for the industry in Morocco are extracted from the MBENDI web site:

FACILITY	TYPE	LOCATION	OWNER/OPERATOR
Akka	Mine - Gold	Morocco	Managem
Asilah - Ouezzane Block - Morocco	Oil and Gas Concession - Onshore	Morocco	Anschutz Overseas Corporation (The), Enterprise Oil plc
Bleida	Mine - Copper	Morocco	Soc Minière de Bougaffer
Block A - My Bousselham - Morocco	Oil and Gas Concession - Onshore	Morocco	Office National de Recherches et d'Exploitations Pétrolières, Société Anonyme Marocaine de l'Industrie de Raffinage
Block B - Sidi Fili - Morocco	Oil and Gas Concession - Onshore	Morocco	Office National de Recherches et d'Exploitations Pétrolières, Société Anonyme Marocaine de l'Industrie de Raffinage
Block C - Oued Sebou Ouest - Morocco	Oil and Gas Concession - Onshore	Morocco	Office National de Recherches et d'Exploitations Pétrolières, Vanguard Oil Corporation
Block D - Volubilis Est - Morocco	Oil and Gas Concession - Onshore	Morocco	Office National de Recherches et d'Exploitations Pétrolières, Vanguard Oil Corporation
Block E - Fez Nord - Morocco	Oil and Gas Concession - Onshore	Morocco	Office National de Recherches et d'Exploitations Pétrolières, Vanguard Oil Corporation
Block G - Essaouira - Morocco	Oil and Gas Concession - Onshore	Morocco	LASMO plc, Office National de Recherches et d'Exploitations Pétrolières
Block I - Cap Ghir Haute Mer - Morocco	Oil and Gas Concession - Offshore	Morocco	Office National de Recherches et d'Exploitations Pétrolières, Société Shell du Maroc
Block J - Sidi Bennour - Morocco	Oil and Gas Concession - Onshore	Morocco	Office National de Recherches et d'Exploitations Pétrolières
Block K - Foum Draa Maritime - Morocco	Oil and Gas Concession - Offshore	Morocco	Office National de Recherches et d'Exploitations Pétrolières, Roc Oil Company Limited
Block L - Ras Tafalney - Morocco	Oil and Gas Concession - Offshore	Morocco	LASMO plc, Vanco Energy Company
Block M - Anza Haute Mer - Morocco	Oil and Gas Concession - Offshore	Morocco	Office National de Recherches et d'Exploitations Pétrolières, Societe Shell du Maroc
Block Safi Haute Mer - Morocco	Oil and Gas Concession - Offshore	Morocco	Vanco Energy Company
Block Sidi Fili - Morocco	Oil and Gas Concession - Onshore	Morocco	Société Anonyme Marocaine de l'Industrie de Raffinage
Bou Azzer	Mine - Nickel	Morocco	Compagnie de Tifnout Tiranimine
Cap Draa Haute Mer -	Oil and Gas Concession -	Morocco	Energy Africa Ltd, Enterprise Oil plc, Kerr - McGee Corporation, Office

FACILITY	TYPE	LOCATION	OWNER/OPERATOR
Morocco	Offshore		National de Recherches et d'Exploitations Pétrolières
Douar Hajar	Mine - Base Metals	Morocco	Cie Minière de Guemassa
Imiter	Mine - ?	Morocco	Société Metallurgique d'Imiter
Meskala Field	Oil field - Field	Morocco	Office National de Recherches et d'Exploitations Pétrolières
Moulay Bousselham - Morocco	Oil and Gas Concession - Onshore	Morocco	Société Anonyme Marocaine de l'Industrie de Raffinage
Samir Refinery	Oil Refinery - Simple	Morocco	Saudi Corral
Sidi Kacem Refinery	Oil Refinery - Simple	Morocco	Société Cherifienne des Pétroles
Tissa Block - Morocco	Oil and Gas Concession - Onshore	Morocco	Anschutz Overseas Corporation (The), Enterprise Oil plc
Tiznit Offshore Area - Morocco	Oil and Gas Concession - Offshore	Morocco	Energy Africa Ltd, Office National de Recherches et d'Exploitations Pétrolières, Petronas

(ref. 23)

- **Stockpiled hazardous waste**

No data available.

- **Hazardous waste treatment facilities**

There is no hazardous waste facility in operation.

In Morocco are following cement kilns:

1. Asment de Temara, 2. Cementos Marroquies, 3. Cementos Tanger SA, 4. Cimenterie de l'Oriental, 5. Cimenterie nouvelle de Casablanca, 6. Ciments du Maroc, 7. Société des Ciments Artificiel de Mekn?s, 8. Société des Ciments de Marrakech.

(ref. 20)

Industrial sectors	Numbers	Location
Cement kilns	8	
Calcite kilns	--	
Crude oil, refineries	--	
Steel Foundries	--	
Lead accumulators	--	
Used oils recycling facilities	--	
(Biological) Waste Water Facilities	--	

THE PALESTINIAN TERRITORY

- **Legislation for waste management**

The Palestinian Ministry of Environmental Affairs is the designated competent authority and the focal point regarding hazardous wastes management in Palestine. The Ministers', despite many political constraints in the region, is putting great efforts to establish suitable and effective procedures and practices for safe handling and management of hazardous wastes and materials in conformity with international related agreement including Basel Convention.

The Palestinian National Authority has adopted the Palestinian Environmental Law of 1999. This law provides a legal frame for hazardous wastes management in Palestine.

(ref. 29 & 15)

- **Hazardous waste definition**

- **Hazardous waste quantities and qualities**

The Ministry is in the process of preparing records of hazardous wastes produced in Palestine. The delay of preparing such records is due to some inherited practices on dealing with hazardous wastes such as: dumping of some industrial liquid, hazardous wastes in sewers and unsafe Land filling, We are auditing such sources of wastes in order separate the hazardous stream of wastes and ensuring their safe disposal.

(ref. 29 & 15)

Generated quantities of hazardous waste for the year 1999

Waste type	Y-code	Quantity (Metric tones)
	Y1-Y45	--
	Y46-Y47	--
Summary		--

Exported quantities of hazardous waste for the year 1999

Waste type	Y-code	Quantity (Metric tones)
	Y1-Y45	--
	Y47	--
Summary		--

(ref. 3)

- **Industrial sectors producing the hazardous waste**

Small scale industries textile, electroplating, photo processing and paint industries are present in Gaza strip which produces~60% of Palestinian territory.
(ref. 15)

The main sources of hazardous wastes are the following;

- Industrial including tanneries, aluminium, paints, shoes and other chemical industries.
- Medical Including hospital and clinical refuse. In addition to medicines and laboratories wastes.
- Agricultural including panned or expired pesticides and veterinary medical products.
- Domestic from household and commercial activities.
- Oils from cars, marine boats, energy and industrial processes.

(ref. 29 & 15)

- **Stockpiled hazardous waste**

No data available.

- **Hazardous waste treatment facilities**

Hazardous waste treatment is carried out as follows:

1. There is two used oil re-refining facilities have to be established in Palestine, one was established in 1996 and the second is under construction.
2. Four small old incinerators for medical wastes (not functioning).
3. One hazardous waste sanitary landfill cell for Gaza districts.
4. Possibility of using the Israeli hazardous waste landfill sites in Nagev, (The disposal charge is very high, the reason that hazardous wastes producers are not utilizing this option.)

The above information are sent by the Palestinian ministry of environmental affairs on 8 December 2001

In the Palestinian Territory, there are the following cement kilns:

Industrial sectors	Numbers	Location
Cement kilns	--	
Calcite kilns	--	
Crude oil, refineries	--	
Steel Foundries	--	
Lead accumulators	--	
Used oils recycling facilities	2	
(Biological) Waste Water Facilities	1	

(ref. 42)

SLOVENIA

- **Legislation for waste management**

National environmental protection 1993.

Law on waste management 1978/1986.

(ref. 14)

- **Hazardous waste definition**

According to Rules on Waste Management (1998) definition of waste is: Waste shall be deemed to be all substances or items which are classified under any of the groups of waste specified in Annex 1A (list of groups of wastes) to these Rules and whose owner disposes them of, intends to dispose of or must dispose of them. Classification list of wastes (hereinafter: list of wastes) is determined in Annex 1 to these Rules, which is an integral part of this Rules.

According to the Decree on the export, import and transit of wastes (1996) a definition of the hazardous waste used for the purposes of Transboundary movement is: Hazardous wastes shall be the wastes listed in the A list, from the first part of the Annex 1, which is an integral part of the Decree. Considered as hazardous wastes are also wastes which can not be classified by A list and B list from the first part of the Annex 1 of this Decree, but they are listed in hazardous waste list from the second part of the Annex 1 of this Decree or they are wastes listed in the Amber and Red list from the third part of the Annex 1 of this Decree. (The A and B list are the same as the list A and list B from the Annex VIII and Annex IX of the Basel Convention. Hazardous waste list is the same as the Hazardous Waste list of the Council Decision 94/904/EC. Amber and Red lists are the same as in the Commission Decision 1999/816/EC.)

Slovenia does not regulate/control any additional wastes as hazardous that are not included in Art. 1 (1)a of the Basel Convention and would be controlled for the purpose of Transboundary movements pursuant to Art. 1 (1)b.

In Slovenia there are no wastes other than those pursuant to Art. 1 (1)a and/or Art. 1 (1)b of the Basel Convention that require special consideration when subjected to Transboundary movement.

(ref. 1 & 3)

- **Hazardous waste quantities and qualities**

In 1997 the reported to the secretariat of Basel convention generated hazardous waste are:

Waste type	Y-code	Quantity (Metric tones)
	Y1	1 836.000
	Y2	3 360.000
	Y3	36.000
	Y4	8.000
	Y8	1 981.000
	Y9	225.000
	Y10	13.000

Waste type	Y-code	Quantity (Metric tones)
	Y12	1 915.000
	Y13	3 700.000
	Y15	3 211.000
	Y16	117.000
	Y17	48.000
	Y18	300.000
	Y21	4.000
	Y22	16.000
	Y23	1 431.000
	Y31	711.000
	Y33	118.000
	Y34	2 226.000
	Y35	943.000
	Y36	548.000
	Y39	677.000
	Y41	123.000
	Y42	3 253.000
	Y45	2.000
	Y46	304.000
Summary		27 106.000

Slovenia has reported to Basel convention that in 1997 the total generated quantities of hazardous and other waste was 29 138 000 (t).

(ref. 2)

Slovenia has reported to Basel convention that in 1999 the total generated quantities of hazardous waste was 124 631 (t).

(ref. 3)

Year 1999 exported quantities of hazardous waste

Waste type	Y-code	Quantity (Metric tones)
	Y1-Y45	--
	Y47	--
Summary		--

(ref. 3)

- **Industrial sectors producing the hazardous waste**

The purpose of this chapter is to provide basic information about the production, import, export and use of chemicals in Slovenia.

Chemical Production, Import and Export

Data on chemical production, import, export and use in Slovenia is provided in table's 2.A and 2.B.

The Data relate to the year 1995 and are taken from publications of the Statistical Office of the Republic of Slovenia, except data for the petroleum products, which are taken from the Statistical yearbook of the Energy Subsection of the Republic of Slovenia, 1995, issued by the Ministry of Economic Affairs (''Statisticni letopis energetskega gospodarstva RS, 1995'').

Pesticides: production data include the numbers 0118200012 to 0118200352 of the nomenclature of industrial products, and import - export data include the tariff numbers 3808 of the custom nomenclature (Official Gazette of the Republic of Slovenia, No. 73/96).

Fertilizers: production data include the numbers 0118200362 to 0118200562 of the nomenclature of industrial products, and import - export data include the custom tariff numbers 3101-3105.

Industrial chemicals: production data include all numbers of the branch 0118 - basic chemical production, and import - export data include the custom tariff numbers, starting with 28 and 29; in both cases without pesticides and fertilizers.

Consumer chemicals: production data include all products of the branch 0119 (processing of chemical products) and 0129 (processing of rubber), and import - export data include the custom tariff numbers starting with 30-40.

Chemical Production and Trade (1995)

Chemical Type	Production/ Manufacturing		Import		Export	
	Tons	Value (USD)	Tons	Value (USD)	Tons	Value (USD)
Pesticides	6,157		3,067	20,075,000	1,449	11,766,000
Fertilizers	5,980		221,631	40,596,000	408	516,000
Petroleum Products	587,000		1,690,000	450,947,000	32	13,387,000
Industrial Chemicals (used in manufacturing/ processing facilities)	710,381		485,262	763,140,000	243,217	309,350,000
Consumer Chemicals	424,876		365,059	647,735,000	402,240	879,313,000
TOTAL	1,734,394		2,765,019		647,346	

The first ten countries, from which most of chemicals were imported in 1995, are: Germany, Italy, Austria, Croatia, France, Switzerland, Hungary, Netherlands, Great Britain and Belgium.

The first ten countries to which in the same year we exported most of the chemicals, are: Croatia, Italy, Germany, Russian Federation, Austria, Poland, Macedonia, Czech Republic, USA and Hungary.

Chemical Use by Categories

Chemical Use by Categories (1995)

Type of Chemical	Chemical Use (tons)
Pesticides	7,775
Fertilizers	227,203
Petroleum Products	2,276,968
Industrial Chemicals (used in manufacturing/ processing facilities)	952,426
Consumer Chemicals	87,695
TOTAL	3,852,067

The chemical use by categories was calculated according to the formula: domestic production + import - export.

Waste Production (1993)

No.	Code	Type of Waste	Production	
1	31	Mineral wastes (without metal wastes)	136 m^3	6,779 t
2	35	Metal wastes	9 m^3	8,330 t
3	51	Oxides, hydroxides, waste salts	31 m^3	197 t
4	52	Waste acids, hydroxides and concentrates	22,208 m^3	1,433 t
5	53	Wastes from agrochemical preparations and pharmaceutical products	2 m3	772 t
6	54	Wastes from the production of mineral oils	9,831 m^3	3,314 t
7	55	Waste organic solvents, paints and varnishes, lacquers, adhesives, putties and resins	2,059 m^3	2,584 t
8	57	Plastic and rubber wastes	403 m^3	90t
9	58	Textile wastes of natural and man made fibres		19 t
10	59	Other waste chemical products	1,295 m^3	132 t
11	71	Radioactive wastes	114 m^3	0,004 t
12	97	Specific wastes from hospitals	416 m^3	1,518 t
		TOTAL	36,504 m3	25,168

Hazardous wastes

In 1993 approx. 60.000 tons of hazardous wastes was generated in Slovenia. The greatest share was represented by wastes of acids, hydroxides and concentrates (38%), followed by wastes from the production of mineral oils (21%), metal wastes (14%), and mineral wastes (11%). Other wastes represent less than 10% of the total quantity. Data by categories are represented in table 2 C.

In 1994 5.000 to 6.000 tons of hazardous wastes were exported, which represents approx. 10% of the annual waste production. The main share was represented (around 80%) by residues and waste from mineral oil processing and storage. In 1995 approx. 2000 tons of hazardous wastes was exported. These volumes were generated mainly by the production of mineral oils (48%) and the production of organic solvents, paints and varnishes (44%).

There is an annual import of approx. 20.000 tons of lead accumulators waste with the purpose of recycling it. Import and export of hazardous wastes in 1995 is presented in Table 2D.

Hazardous wastes are regulated by the Environmental Protection Act (Official Gazette of the Republic of Slovenia, No. 32/93), the Regulation on handling special wastes, which contain hazardous materials, (Official Gazette of the Republic of Slovenia, No. 20/86, 4/89, 39/96) and the Regulation on import, export and transit of hazardous waste, which determines the conditions for the import, export and transit of hazardous wastes (Official Gazette of the Republic of Slovenia, No. 39/96, 45/96, 1/97).

Import and Export of wastes (1995)

No.	Code	Type of Waste	Export (kg)	Import (kg)
1	35 302	Lead	0	22,124,000
2	53 501	Pharmaceuticals with expired date of use	55,600	0
3	53 502	Wastes from pharmaceutical production	57,900	0
4	54 102	Old waste oils	130,000	0
5	54 107	Chlorinated transformer oils	66,456	0
6	54 401	Synthetic cooling and lubricating agents	129,000	0
7	54 408	Mixtures of oils and water	230,000	0
8	54 703	Sludge's from oil separators	400,780	0
9	55 220	Mixtures of solvents, containing halogen	4,174	0
10	55 370	Mixtures of non - halogenated solvents	846,570	0
11	55 502	Old paints, varnishes and lacquers	15,560	0
12	55 503	Sludge's from paints, varnishes and lacquers	16,480	0
13	57 000	PVC sludge's	33,440	0
		TOTAL	1,985,960	22,124,000

Sources:
Ministry of Environment and Physical Planning.
The Record of special wastes for the Republic of Slovenia, Faculty of Natural Science and Technology - Department of Chemical Education and Information Technology, March 1995.

Comments

Chemicals imports are greater than the production and exports.

For better and easier trade it is important to adjust our legislation to that of the European Union.

A number of chemical facilities are located on environmentally questionable locations.

Use of chemicals is high but the level of management with chemicals, in particular in medium-size and small companies is low.

Use of household chemicals is very high and responsible for about 80% of causes of poisoning in the country. There is a great need for increased awareness of the public in this regard.

Pesticides are available almost to everybody and their use is very difficult to control. The situation is similar in the case of fertilizers. There is a great need for improving public awareness and educating the farmers.

A special problem is packing, labelling and data on the safety sheets. They are not in line with European procedures and the data sheets are often incomplete. Regulation of chemicals and administrative procedures are new activities in Slovenia, which need further assistance.

For good chemicals handling control, inspectors should be employed and trained.

Chemical wastes are a serious problem, especially unused and unwanted chemicals as well as waste chemicals packages. Legislation is in preparation, but awareness of the problem is very low chemical wastes represent a serious threat to the environment and health of the public employed.

(ref. 22)

Slovenia has reported a total hazardous waste amount of 29 (t) to Eurostat for the year 1997. The generation of hazardous waste pro capita was 15 Kg.

(ref. 30)

- **Stockpiled hazardous waste**

No data available.

- **Hazardous waste treatment facilities**

For the year 1997 Slovenia has reported to the Eurostat the following treatment and disposal methods:

Physicochemical treatment D9 (1000 t)	Incineration D10, D11 (1000 t)	Recovery operations R1-13 (1000 t)	Landfill D1 (1000 t)	Other treatment (1000 t)
-	-	21	-	29 117

(ref. 30)

Industrial sectors	**Numbers**	**Location**
Cement kilns	--	
Calcite kilns	--	
Crude oil, refineries	--	
Steel Foundries	--	
Lead accumulators	--	
Used oils recycling facilities	--	
(Biological) Waste Water Facilities	--	

SPAIN

- **Legislation for waste management**

Act 10/98 on wastes.

Royal Decree developing and implementing Act 10/98 on waste.

Act 11/97 on packing.

Royal Decree 1378/1999 elimination and management of PCB ‘s.

(ref. 2 & 3)

- **Hazardous waste definition**

According to the Act 10/1998 on Wastes, Article 3, Definitions, “wastes” are those substances or objects falling under any of the categories referred to in the annex to the present Act, which the holder discards, has the intention or is required to discard. In any case, substances or objects (which fulfils the above condition) and listed in the European Waste Catalogue approved by the Community institutions should always be considered as wastes.

(For categories of wastes appearing in the annex to the Act, see annex II to the questionnaire)

(The European Waste Catalogue was adopted by decision 94/3/EEC of the Commission of European Communities of 20 December 1993)

According to the Act 10/1998 on Wastes, Article 3, Definitions, “hazardous wastes” refers to those wastes appearing in the Hazardous Wastes List adopted by Royal Decree 952/1997, as well as their containers. Those which have been classified as hazardous in pursuance of Community norms and those which the Government can approve in accordance with the established European norms or international agreements to which Spain is a Party. (Royal Decree 952/1997 publishes in Spain the Community list of hazardous wastes approved through decision 94/904/EEC of the Council of the European Communities of 22 December 1994)

Spain regulates/controls additional wastes as hazardous that are not included in Art. 1 (1) a of the Basel Convention and would be controlled for the purpose of Transboundary movements pursuant to Art. 1 (1)b. The transboundary movement of wastes in Spain, is governed by Council regulation (EEC) No 259/93 on the supervision and control of shipments of waste within, into and out of the European Community, amended by Council regulations (EEC) No 120/97 and (EEC) NO 2408/98 as well as decision 1999/816/EEC. Provisions in the body of the text of these regulations and in its annexes II, III, IV and V, define those wastes on which the control applies. Since there is no definition of hazardous wastes, it is not possible to list those hazardous wastes, which, even though not included under article 1 (1) of the Basel Convention, will be subject to the control of shipments. It has to be determined in each case whether the waste is listed under annexes V, II, III or IV (in that order) of the regulation. For instance, it can be identified: Sludge from the treatment of sewage; municipal and domestic waste; and wastes from the combustion of municipal/domestic wastes (subject to control of shipments and in many cases to a ban).

(ref. 1 & 3)

- **Hazardous waste quantities and qualities**

Year 1999 generated quantities of hazardous waste

Waste type	Y-code	Quantity (Metric tones)
	Y1-Y45	4 279 709
	Y46-Y47	18 376 532
Summary		22 656 241

(ref.3)

Year 1999 exported quantities of hazardous waste

Waste type	Y-code	Quantity (Metric tones)
	Y1-Y45	--
	Y47	--
Summary		

(ref. 3)

- **Industrial sectors producing the hazardous waste**

FACILITY	TYPE	LOCATION	OWNER/OPERATOR
Aguablanca	Mine - Nickel	Spain	Rio Narcea Gold Mines Ltd
Aguas Teñidas	Mine - Base Metals	Spain	Navan Mining Plc
Atlantic Copper Smelter	Mineral Beneficiation - Base Metals	Spain	Freeport-McMoran Copper and Gold
El Valle and Carles	Mine - Gold	Spain	Rio Narcea Gold Mines Ltd
Filon Sur	Mine - Gold	Spain	Filon Sur
Las Cruces	Mine - Copper	Spain	Cobre Las Cruces S.A.
Los Frailes	Mine - Zinc	Spain	Boliden Limited
Reocin	Mine - Zinc	Spain	Asturiana de Zinc S.A.
Sotiel	Mineral Beneficiation - Base Metals	Spain	Navan Mining Plc

(ref. 23)

For the year 1995 Spain has reported to Eurostat the following amount of industrial which was generated by the following industrial sectors:

Total industries	Food, beverage & tobacco	Textile	Leather	Wood and wood products	Paper & paper products	Printing & publishing
-	275	-	241	-	258	-

Chemical	Rubber & plastics	Refineries	Non metallic mineral products	Base metal	Metal production machines	Other Manufacturing
1 107	-	-	-	3 460	139	-

For the year 1995 Spain has reported to Eurostat a total hazardous waste amount of 3 394 (t). The generation of hazardous waste pro capita was 84 Kg.

(ref. 30)

- **Stockpiled hazardous waste**

No data available.

- **Hazardous waste treatment facilities**

For the year 1990 the following methods for waste treatment and disposal were reported by Spain to the Eurostat.

Physicochemical treatment D9 (1000 t)	**Incineration D10, D11 (1000 t)**	**Recovery operations R1-13 (1000 t)**	**Landfill D1 (1000 t)**	**Other treatment (1000 t)**
448	-	306	974	-

(ref. 30)

The European environmental agency has published an electronic catalogue with the number of waste treatment and recycling facilities in Spain.

R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	S
23	11	13	39	7	0	1	1	8	0	1	1	49	154

D1	D2	D4	D5	D8	D9	D10	D12	D13	D14	D15	S
1	0	0	9	2	44	8	1	9	5	54	133

(ref. 30)

In Spain are following cement kilns in operation:

1. Asland SA, 2. Cementos Hispania SA, 3. Cementos Molins, 4. Cementos Uniland S.A., 5. Valenciana de Cementos (CEMEX, Spain), 6. Financiera y Minera, 7. HISALBA - Hornos Ib?icos Alba S.A., 8. Portland Valderrivas, S.A, 9. Umar - Union Maritima International S.A.

(ref. 20)

Industrial sectors	**Numbers**	**Location**
Cement kilns	9	--
Calcite kilns	--	
Crude oil, refineries	--	
Steel Foundries	--	
Lead accumulators	--	
Used oils recycling facilities	--	
(Biological) Waste Water Facilities	--	

SYRIAN ARAB REPUBLIC

- **Legislation for waste management**

Decrees No2680 /1952, & No 34T/1997 on pesticides use and prohibitions.

Decision No10 /1990 on pesticides use and prohibitions.

Decree No165 /1997 hazard classification of industries.

Publication of the Ministry of Environment No 477SB –12/3/1998 for the prohibition of waste dumping.

(ref. 16)

Solid Waste Legislation & Regulation Framework

The main organizations with primary responsibilities for setting the national policy on environment including solid waste management SWM are; the Higher Council for Environmental Safety, Ministry of State for the Environment and the Ministry of Local Administration. Of course any law needs agreement of parliament and passes by presidential decree.

At the moment there is no specific legislation in Syria that covers environmental issues (including SWM) either on the national level or at the local level. However, there are general legislation, decrees and orders from the Prime Minister and Minister of Local Administration, and general recommendations from The Higher Council for Environmental Safety and the Ministry of State for the Environment. Of course the Ministry of state can't issue laws and true environmental decrees due to the absence of an environmental law; it can only issue some organizational orders.

Local Administrative Legislation

The law of local administration (No 11 date 11.5.1971) and its executive rule (President Decree No2297, date 28.9.1971), have broad objectives of which are:

- Responsibility concentrates in the hands of the people.
- The Local Administrative Units in all levels are responsible directly for the economy, culture, service etc.
- The aims of the Local Administrative Unit are the attainment of public health, comfort, safety and public development.

The Ministry of local administration was established by Presidential Decree (No.36 date 12.8.1971). The main mandate of the Ministry is to propose the general policy for the Local Administrations according to the country's needs, establish plans and programs and supervise and assess the execution of these programs according to the Local Administration's law, and to co-ordinate between the central system and the local units and local planning.

The Ministry of Local Administration has not issued any rules or regulations concerning solid waste management in the Mohafazat. According to presidential orders and decrees and the law of Local.

Administration, the municipalities are obliged to collect solid waste, and are empowered to issue the necessary rules and regulations for the collection, transportation, and deposition of

waste. The law of Local Administration gives the municipalities and its councils the right to make decisions, rules and regulations regarding solid waste management.

Law No.1, 1994 (the law of service tax) gives the local administrative councils the right to impose levies (tariffs for households and service charges for commercial establishments), as they deem suitable. The municipalities also have the right and power to impose fines for solid waste mismanagement up to a maximum sum of SP500 (US $10) for serious problems. They are also empowered to remove any waste at the expense of the citizen /polluter.

Environmental Legislation

As mentioned above there is a general lack of environmental legislation in Syria. The parliament is currently pending the 8th draft of an environmental bill. The Ministry for State for the Environment expects that the draft bill will be passed on by parliament in the year 2000. If this law is passed it will provide provisions within the following main areas:

- Standards and classification;
- Waste management in general;
- E.I.A and permitting;
- Environmental disasters;
- Responsibilities and liabilities;
- Legal and administrative measures;
- Environmental protection and development fund;
- Sanctions and punishments.

Below is a brief summary of the draft bill of the environmental law:

Article 1, chapter I- uses the following definitions concerning (solid waste):

Waste: *"Unwanted solid, liquid or gaseous substance resulting from different kinds of activities".*

Hazardous wastes: *"Substances which have dangerous characteristics, effect health and have harmful substances such as poison, contagious substances, radioactives, inflammable or exploding substances".*

Article 2-e -chapter II- protection of the Environmental Elements, (Issued upon the approval of the high council for Environmental safety and issued according to the proposal of the general commission for Environmental affairs) states the following:

"Tables for solid, liquid and gaseous pollutants, either physical or chemical, including their quality and how badly effect on environment. Set a comprehensive classification for wastes, dangerous substances and pesticides and the way of uses, keeping or dispose these wastes. Furthermore to find the proper places of treating according to the approved standards".

- Article 3, chapter II states:

"It is prohibited to collect, dump or discharge into surface water or aquifers any solid, liquid or radioactive substances that may cause pollution and do harm the health of human beings or other living organisms or impair the use of water in human activities. Such substances include any industrial waste, solids…etc., which are not treated according to approved standards and specifications".

- According to article 11 the following is banned:

"Ship traffic in the regional water loading hazardous waste" and *"dumping of waste, carcasses from the ships or other activities in regional water".*

- Article 12-a banning:

"Transfer, burning, dumping, storage, disposal of the toxin, radioactive, hazardous wastes in the Syrian land or its regional water".

- Article 12-b states that:

"The procedures of handling hazardous wastes should abide with all preventive procedures mentioned in enforceable regulations to guarantee that there will be no environmental damage. The owner of any plant or industrial activity should notify the Commission of every accidental spill of toxic or hazardous products in the environment to undertake immediate procedures to avoid damages".

- Article 13, chapter III- Environmental impact assessment, states that:

"The licensing authority conducts an environmental impact assessment for the plants according to the requirements, conditions and environmental standards issued by a council's decision in accordance with article 2 of this law, and defines the plants that the rule of this article is applicable to, by a decision from the Minister".

- Article 19-a, chapter V- Responsibilities and Compensation of damages, states:

"Anyone who affects the environment conscientiously or deliberately is considered responsible, and he is obliged to remove and recover damages and return the situation as it was before. If he refuses, the general commission for environmental affairs will recover the damages and then oblige him with all expenses in addition to all administrative expenses."

(ref. 5 & 9)

- **Hazardous waste definition**

Article 1, chapter I- uses the following definitions concerning (solid waste):

Waste: *"Unwanted solid, liquid or gaseous substance resulting from different kinds of activities".*

Hazardous wastes: *"Substances which have dangerous characteristics, effect health and have harmful substances such as poison, contagious substances, radioactives, inflammable or exploding substances".*

There is no classification system to distinguish the "normal" solid from hazardous waste.

(ref. 9)

- **Hazardous waste quantities and qualities**

In 1997 the reported generated quantities of hazardous waste are;

Waste type	Y-code	Quantity (Metric tones)
	Y1	3 000 .000
	Y9	50 000.000
	Y36	10 000.000
	Y46	1 825 000.000
Summary		1 888 000.000

Year 1999 exported quantities of hazardous waste

Waste type	Y-code	Quantity (Metric tones)
	Y1-Y45	
	Y47	
Summary		

(ref. 3)

- **Industrial sectors producing the hazardous waste**

--

- **Stockpiled hazardous waste**

230 tones of obsolete Pesticides.

(ref. 16)

- **Hazardous waste treatment facilities**

No data available.

- **Special issues related to the country**

Industrial sectors	Numbers	Location
Cement kilns		
Calcite kilns		
Crude oil, refineries		
Steel Foundries		
Lead accumulators		
Used oils recycling facilities		
(Biological) Waste Water Facilities		

TUNISIA

- **Legislation for waste management**

Laws and Regulations

In Tunisia, a comprehensive legislative framework for Solid Waste Management has been enacted.

Under this strengthened legislative framework, SWM has been given National Priority at the Presidential Level, due to the awareness of its linkage to the broader economic development of the country, especially tourism, which is a major economic activity in the country.

Tunisia has numerous laws and regulations dealing directly or indirectly with the different aspects of solid waste. However, Law n°41 approved on June 10, 1996 constitutes the most detailed regulation of the management, elimination and control of solid waste at national and local levels. Its key elements are:

- classifies waste according to its origin and characteristics;
- defines government and municipal responsibilities;
- encourages private sector participation;
- establishes priority of waste minimization, recycling and composting;
- establishes that producers, importers and distributors of packaging are responsible for their products when they are discarded as wastes;
- provides basis for national waste management facility sitting programme;
- establishes procedures for managing waste, monitoring facilities, and enforcing standards.

On the basis of this law, the basic regulatory framework for the management of dangerous waste was developed with the following components:

- a decree with a list of dangerous waste products;
- a modal register prepared specially for dangerous waste producers;
- a modal annual declaration specifically for dangerous waste producers, and
- a monitoring form specially for the transport of dangerous waste.

A list of dangerous waste producers is under study and companies are being classified according to the category of waste produced. This will help to provide improved quantitative and qualitative knowledge of waste categories in Tunisia.

(ref. 5 & 10)

- **Hazardous waste definition**

There is no national definition of waste used for the purpose of Transboundary movements of waste in Tunisia.

In Tunisia there is a national definition of hazardous wastes. Tunisian list of hazardous wastes consists of (i) wastes contained in Annex I (hazardous wastes list) and; (ii) any other waste containing any Annex II constituents and exhibits any Annex III hazard characteristics. Each hazardous waste is assigned a six-digit code.

Wastes included in the Tunisian definition of hazardous wastes that are in addition to those defined under Art. 1 (1) a of the Basel convention (see attachment 3).

Waste anode butts made of petroleum coke and/or bitumen; used single-use cameras not containing batteries; wastes of synthetic or artificial fibres; waste photographic papers and films; spent activated carbons other than those mentioned in Attachment1 (080702, 180106); and ships and other floating engines to be dismantled emptied of freight and any material classified as hazardous require special consideration when subjected to Transboundary movement.

(ref. 1 & 3)

- **Hazardous waste quantities and qualities**

Generated quantities of hazardous waste for the year 1999

Waste type	Y-code	Quantity (Metric tones)
	Y1	5 200. 000
	Y2	145.000
	Y3	7 265.000
	Y8	49 000.000
	Y9	2 960.000
	Y11	3 270.000
	Y12	2 440.000
	Y13	3 480.000
	Y17	8 130.000
	Y36	70.000
	Y46	1 830 000.000
Summary		1 911 960.000

(ref. 3)

Exported quantities of hazardous waste for the year 1997

Waste type	Y-code	Quantity (Metric tones)
	Y1-Y45	--
	Y46-Y47	--
Summary		

- **Industrial sectors producing hazardous waste**

The main source of producing hazardous waste is the oil drilling and oil refining facilities.

FACILITY	TYPE	LOCATION	OWNER/OPERATOR
7 November Field - Tunisia	Oil field - Field	Tunisia	Nimir Petroleum Company Ltd, Petronas
Al Manzah Field - Tunisia	Oil field - Field	Tunisia	Ecumed Petroleum Corporation, Entreprise Tunisienne des Activités Pétrolières
Alyane Permit - Tunisia	Oil and Gas Concession - Offshore	Tunisia	Nuevo Energy Company
Anaguid Block - Tunisia	Oil and Gas Concession - Onshore	Tunisia	Anadarko Petroleum Corporation, Coho International, Entreprise Tunisienne des Activités Pétrolières, Nuevo Energy Company

FACILITY	TYPE	LOCATION	OWNER/OPERATOR
Ashtart Field	Oil field - Field	Tunisia	Entreprise Tunisienne des Activités Pétrolières, Preussag Energie GmbH
Bazma Permit - Tunisia	Oil and Gas Concession - Onshore	Tunisia	Eurogas International Corp.
Bougrine	Mine - Zinc	Tunisia	Breakwater Resources
Boujabeer	Mine - Base Metals	Tunisia	Société du Nord-Ouest
Cap Bon Marin Permit - Tunisia	Oil and Gas Concession - Offshore	Tunisia	Entreprise Tunisienne des Activités Pétrolières
Cap Bon Permit - Tunisia	Oil and Gas Concession - Onshore	Tunisia	Entreprise Tunisienne des Activités Pétrolières
Châal Permit - Tunisia	Oil and Gas Concession - Onshore	Tunisia	Entreprise Tunisienne des Activités Pétrolières
Chebba Marin Permit - Tunisia	Oil and Gas Concession - Onshore	Tunisia	Cabre Exploration Ltd, Entreprise Tunisienne des Activités Pétrolières
Chemsi Permit - Tunisia	Oil and Gas Concession - Onshore	Tunisia	Entreprise Tunisienne des Activités Pétrolières
Chorbane Permit - Tunisia	Oil and Gas Concession - Onshore	Tunisia	Anschutz Overseas Corporation (The), Entreprise Tunisienne des Activités Pétrolières
Chott el Gharsa Permit - Tunisia	Oil and Gas Concession - Onshore	Tunisia	Entreprise Tunisienne des Activités Pétrolières
Djebel Ouest Permit - Tunisia	Oil and Gas Concession - Onshore	Tunisia	Entreprise Tunisienne des Activités Pétrolières
Djerissa	Mine - Iron Ore	Tunisia	Société du Djebel Djerissa
El Biban Field	Oil field - Field	Tunisia	Ecumed Petroleum Corporation
El Borma Field	Oil field - Field	Tunisia	Agip Tunisia BV
El Hamra Permit - Tunisia	Oil and Gas Concession - Offshore	Tunisia	Eurogas International Corp., TransAtlantic Petroleum Corporation
El Jem Permit - Tunisia	Oil and Gas Concession - Onshore	Tunisia	Entreprise Tunisienne des Activités Pétrolières, Preussag Energie GmbH
El Ouara Permit - Tunisia	Oil and Gas Concession - Onshore	Tunisia	Entreprise Tunisienne des Activités Pétrolières, Pluspetrol Tunisia
Enfidha Permit - Tunisia	Oil and Gas Concession - Offshore	Tunisia	Agip Tunisia BV, Entreprise Tunisienne des Activités Pétrolières
Ezzaouia Field	Oil field - Field	Tunisia	Ecumed Petroleum Corporation
Fejaj Permit - Tunisia	Oil and Gas Concession - Onshore	Tunisia	Bligh Oil and Minerals NL, Entreprise Tunisienne des Activités Pétrolières, Nuevo Energy Company

FACILITY	TYPE	LOCATION	OWNER/OPERATOR
Gadiaga gas field	Gas field - gas field	Tunisia	Benton Oil and Gas Company
Grombalia Permit - Tunisia	Oil and Gas Concession - Onshore	Tunisia	Ecumed Petroleum Corporation, Entreprise Tunisienne des Activités Pétrolières
Hassine	Mine - Zinc	Tunisia	Société du Nord-Ouest
Mellita Permit - Tunisia	Oil and Gas Concession - Offshore	Tunisia	Ecumed Petroleum Corporation
Rades.Tunis Power Station	Power Station - Combined cycle	Tunisia	Public Sector Enterprise Group Global
Robbana Field	Oil and Gas Concession - Onshore	Tunisia	Ecumed Petroleum Corporation
Sidi Aich Permit - Tunisia	Oil and Gas Concession - Onshore	Tunisia	Entreprise Tunisienne des Activités Pétrolières

(ref. 23)

- **Stockpiled hazardous waste**

No data available.

- **Hazardous waste treatment facilities**

No data available.

Industrial sectors	Numbers	Location
Cement kilns	--	
Calcite kilns	--	
Crude oil, refineries	--	
Steel Foundries	--	
Lead accumulators	--	
Used oils recycling facilities	--	
(Biological) Waste Water Facilities	--	

TURKEY

- **Legislation for waste management**

Environment Act No 2872/1993 (pollutant pays principle, industrial activities rating / Environmental impact Assessment, definition of special protected areas, noise regulations, creating an environmental fund).

Act No 2464 on municipal revenues.

Regulation on the control of solid waste, 14 March 1991.
Regulation on the control of hazardous waste, No22387, 27 August 1995.
Regulation on the control of medical waste, 20 May 1993.
Regulation on the control of hazardous chemical substances and products.

(ref. 2 & 13)

- **Hazardous waste definition**

According to the Turkish Environment Law, official paper of 11 August 1983 (No. 18123), waste is harmful substances discharged into or dumping in the environment as a result of any activity.

According to the Regulation regarding the Control of Hazardous Waste published in the official paper of 27 August 1995 (No. 22387), hazardous wastes are those wastes deemed within the scope of Annex I and II of the Basel Convention and having one or several of the hazardous characteristics included and/or specified within Annex III of the Convention, and materials polluted by these wastes. Under Turkish Regulation, hazardous wastes lists performed according to the (i) Reasons why materials are intended for disposal, (ii) Disposal operations, (iii) List of hazardous characteristics and (iv) Constituents of potentially hazardous wastes.

Medical waste, gypsum, waste oils and ashes from incineration plants are defined as "special wastes" according to the Turkish legislation. These wastes of which some are generated in huge quantities (especially gypsum and ashes), of which are hazardous and some are not.

Therefore special treatments are necessary to dispose of these wastes. Draft Regulations on waste oils, waste batteries and ashes from incineration plants have been prepared. There are regulations on "Control of Medical Waste" (published in the official paper of 20 May 1993- No. 21586), "Control of Solid Waste" (published in the official paper of 14 March of 1991- No. 20814).

Turkey is in preparatory process to regulate/control additional wastes as hazardous that are not included in Article 1 (1) a of the Basel convention and would be controlled for the purpose of Transboundary movements pursuant to Article 1 (1) b.

According to the National Regulations and Communiqué, the importation of plastic wastes and used tires is prohibited in Turkey. Therefore for the transit transportation of used tires through Turkey is subject to the approval of our Ministry of Environment. In giving this consent, it is necessary to take the written consent of the state of import.

(ref. 1 & 3)

- **Hazardous waste quantities and qualities**

Generated quantities of hazardous waste for the year 1999

Waste type	Y-code	Quantity (Metric tones)
	Y1-Y45	--
	Y46-Y47	--
Summary		--

The reported exported quantities of hazardous waste for the year 1999 are as follows

Waste type	Y-code	Quantity (Metric tones)
	Y1-Y45	447.000
Summary		447.000

(ref. 3)

- **Industrial sectors producing hazardous waste**

The main source of producing hazardous waste is the mining facilities registered in mbendi web site.

FACILITY	TYPE	LOCATION	OWNER/OPERATOR
Cayeli (Cayeli Isletmeleri A.S)	Mine - Base Metals	Turkey	Inmet Mining Corporation
Cerateppe	Mine - Copper	Turkey	Teck Cominco Limited
Kisladag	Mine - Gold	Turkey	Eldorado Gold Corporation
Ovacik	Mine - Gold	Turkey	Normandy Mining Limited
Seydisehir	Mine - Bauxite	Turkey	Eti Aluminyum

(ref. 38)

- **Stockpiled hazardous waste**

No data available.

- **Hazardous waste treatment facilities**

No data available.

In Turkey the following cement kilns are in operation :

1. Aknansa, Agregasa, Kar?imsa, 2. Sabanci Holding Cement, 3. Set, 4. Lafarge Aslan Cimento AS, Inssaat San.ve Tic. AS

(ref. 20)

Industrial sectors	Numbers	Location
Cement kilns	4	-
Calcite kilns		
Crude oil, refineries		
Steel Foundries		
Lead accumulators		
Used oils recycling facilities		
(Biological) Waste Water Facilities		

YUGOSLAVIA

- **Legislation for waste management**

Law No 27/90 and 45/90 on transport of dangerous substances (off. Gazette SFRY).

Federal Law No 46/92, 16/93 and 24/94 on foreign trade (off. Gazette FRY).

The federal customs act (off. Gazette FRY).

Law No 66/91 on environmental protection of republic of Serbia (off. Herald RS).

Law No 12/96 on environment of Republic of Montenegro (off. Gazette RCG).

(ref. 2 & 3)

- **Hazardous waste definition**

The definition of waste and hazardous waste used for the purpose of Transboundary movements are given in the Rule on Import, Export and Transit of Wastes in the FR of Yugoslavia (1999), based on the Law on the Basis of the Environmental Protection.

There are two National lists of wastes with national label/code, harmonized with BC annexes and EU / OECD lists, with a few additions. These are (i) List of Hazardous wastes, and (ii) List of non-hazardous wastes (not exhibiting hazardous characteristics). The wastes from the both lists are subject to Transboundary movement permission and control.

Yugoslavia regulates/controls additional wastes as hazardous that are not included in Article 1 (1)a of the Basel Convention and would be controlled for the purpose of Transboundary movements pursuant to Art. 1 (1)b. These wastes are:

1. National waste code: W59-2-00000-Y45 - Used equipments and goods (including refrigerators, packaging material, barrels, containers and transport vehicles) that contain, or include or contaminated with chlorofluorocarbons (refrigerate fluids, isolation, etc.);

2. National waste code: W59-3-00000-000 - Used fluorescent tubes, lamps and similar;

3. National waste code: W62-2-00000-Y45 - Used equipments and goods (including fire fighter instruments and appliances, packaging materials, barrels, containers and transport vehicles) that contain, or include or contaminated with halons;

4. National waste code: W92-1-00000-000 - Every single contingent that contains medicines, chemicals, pharmaceutics and similar, and different products, with expired date for usage for declared purpose;

5. National waste code: W92-2-00000-000 - Used goods importing in the big quantities, which will be the problem for the environmentally sound management in country when become the waste after the declared usage due date (used tires and similar);

6. National waste code: W92-3-00000-000 - Used and old equipments, units and materials for waste treatment and waste final disposal, as well as their parts and residual materials from treatment;

7. National waste code: W92-4-00000-000 - Mixtures of wastes and mixed different waste streams with not in details defined properties; and

8. National waste code: W92-5-00000-000 - Wastes with radioactive characteristics, only in case if there are not covered with different existing set of regulations for radioactive wastes.

In addition to wastes listed in the List of hazardous wastes, the wastes in the List of non-hazardous wastes (not exhibiting hazardous characteristics) are subject to Transboundary movement permission and control. List of non-hazardous wastes consists of 201 wastes (waste streams and/or constituents) mainly covering Annex IX wastes of the Basel Convention and wastes from EU Green List with a few additions, which are listed below:

1. National waste code: W265-2-00000-00000 - Residual cooking oils not exhibiting hazardous characteristics, and could be used for purposes other than human and animal consumption;

2. National waste code: W276-00000-000 - Packaging material imported in big quantities; and

3. National waste code: W277-00000-A/B - All other wastes included in actual Lists A and B of the Basel Convention, which are not specified on the other place.

(ref. 1 & 3)

- **Hazardous waste quantities and qualities**

Year 1999 generated quantities of hazardous waste

Waste type	**Y-code**	**Quantity (Metric tonnes)**
	Y1-Y45	--
	Y46-Y47	--
Summary		--

Year 1999 exported quantities of hazardous waste

Waste type	**Y-code**	**Quantity (Metric tonnes)**
	Y1-Y45	--
	Y47	--
Summary		--

(ref. 3)

- **Industrial sectors producing hazardous waste**

Major generators of hazardous wastes are the chemical, oil, petrochemical, metal, paper, leather, textile and transport industries. Minor generators include car, repair shops, surface metal working shops, dry cleaners, etc.

Many wastes have a high content of non-degradable products and chemical compounds that pollute the environment. Processing technologies are inadequately developed or elaborated.

(ref. 3)

- **Stockpiled hazardous waste**

No data available.

- **Hazardous waste treatment facilities**

There are no approved and licensed hazardous waste disposal facilities.

There is no data available for Recovery/recycling/re-use facilities.

(ref. 3)

- **Special issues related to the country**

In Yugoslavia are following cement kilns:

1. Beocin, 2. Djeneral Jankovic, 3. Kosjeric, 4. Novi Popvac.

(ref. 20)

National strategies/policies

National Strategy for Hazardous Waste Management was formulated within Environmental Policy Act (1993). The Resolution on the Policy of the Environmental Protection in the Federal Republic of Yugoslavia ("Off.Gazette FRY", No.31/93) has been designed as a specific, unified and long-term programme and as a component of the integral economic system of the FRY. The principal goals of the policy in the field of the cleaner production and waste minimization are as follows:

- to reduce waste generation;
- to re-use of wastes as raw materials in industrial processes and other natural processes;
- to use wastes for generation of energy;
- to introduce "low waste" producing technology and recycling of wastes in interconnected industrial production processes;
- to introduce programmes for the enhancement of production efficiency along with the reduction of energy consumption;
- to give importance to preventive approach by reducing quantities for final disposal either through prevention of waste (by "clean technologies and lengthening the life time of products and deviance treatments of waste) or by the re-use (recycling); and
- to implement the principle "polluter pays".

Under the Programme of Integral Environmental Protection and Promotion (Programme 1) the FRY shall ensure conditions for the implementation of the policy through the measures and activities which make it necessary to promote technological measures and interdisciplinary scientific research; introduce economic instruments in the field of the environment; provide an integral system of environmental protection; build an institutional framework; and establish an integrated information system at the national level.

The Programme for management of wastes, hazardous materials and chemicals (Programme, 10) will implement the policy. To ensure the necessary conditions for the implementation of this policy a series of measures and activities will be undertaken in the following areas:

- adoption of long-term programmes for reducing specific and hazardous waste per unit of product, energy and service;
- adoption of long-term programmes for reduction of solid wastes generation and its utilization; and
- introduction of technologies generating small quantities of waste and the recycling of industrial wastes.

On the basis of a preliminary inventory of hazardous wastes (data from 1994) a National Strategy for Wastes on Republic of Serbia level was prepared in 1998 (but not officially adopted).

Hazardous waste management in Yugoslavia, as the consequence of war, is to be treated as a humanitarian issue and hazardous waste issue is one of the priorities. For complete reintegration of the country in international bodies and activities there is an urgent need to redesign/update National Hazardous Waste Action Plan and System (as recommended by Federal Government Conclusion from April 2000 and UNEP/Balkan Unit Technical Hazardous Waste Mission to country in November 2000).

Legislation, regulations and guidelines

Federal Level

- The Law on Confirmation of Basel Convention, adopted by Federal Parliament at 24 th December 1999 - "Off. Gazette FRY", International Agreements, No.2/990;
- The Law on the Basis of the Environmental Protection ("Off. Gazette FRY", No.24/98) is the framework for waste management in compliance with UN and EU. Federal ministry prescribes the conditions of transboundary movement of hazardous and other wastes and control movement of wastes through the territory of FR Yugoslavia (Article 26);
- The Rules on Import, Export and Transit of Wastes in the FR of Yugoslavia ("Off. Gazette FRY", No.69/99), based on the Law on the Basis of the Environmental Protection, regulate the transboundary movements of hazardous and other wastes (import, export and transit and obligations of the performer of this activity, lists of hazardous and other wastes, harmonized with BC annexes and EU/OECD lists, control system through the notification procedure and movement document);
- The Law on Foreign Trade ("Off. Gazette FRY", No. 46/92, 16/93 and 24/94) stipulates that goods may be imported or temporarily imported if they meet the conditions stipulated with reference to the trade of goods namely for use at the domestic market (Article 10, paragraph 1); that the goods are subject to obligatory health, veterinarian, ecological and phytopathologic control or quality control and may be imported or temporarily imported only if satisfying the indicated conditions (Article 10, paragraph 2); that goods cannot be imported or in the state where they are produced (Article 10, paragraph 3); the import of hazardous waste is prohibited (Article 12, paragraph 6);
- The Law on Standardization ("Off. Gazette FRY, No. 30/96) stipulates a need to enact standards and technical regulations for the protection of human life and health and environment (Article 4 and 9). The degree of compliance of processes, products and services with technical regulations and standards will be checked by enterprises and other legal persons authorized to certify processes, products and services, the environment protection system and by assessors of quality and environmental protection systems, testing products, checking of compliance's (Article 12). The processes, products and services that must be accompanied with certificates on compliance are stipulated in the technical or other standards. For products and services, the producer, provider of services or importer shall obtain a certificate on compliance before the product is put on sale, namely before a service is performed (Article 120, paragraphs 4 and 5). Solely authorized laboratories test products. The Yugoslav standards relating to the environment are adopted and applied based on the Standardization Law. Law on Standardization (1996) stipulates a need to enact standards and technical regulations for the protection of human life and health and environment (Art.e 4 and 9).
  These standards are published in the Serbian language, marked JUS ISO and are identical with the respective international ISO standards. To date, the FRY has publicized 5 of the 7 ISO standards relating to the environmental management (ISO 14000). This activity is performed by the Federal Standardization Bureau, which is the national organization for standardization and represents FR Yugoslavia in ISO; and

- In the Customs Act ("Off. Gazette FRY", No. 45/92) and related regulations, the provisions on customs supervision and procedures concerning goods harmful or dangerous for the environment are covered.

Pursuant to this legal base, revised standards for industrial air emissions were approved and revised standards for wastewater discharges and discharges to soil are still being drafted.

Republican Level

- Law on Environmental Protection ("Off. Herald RS", No.66/91) stipulates that no domestic or imported technology may be applied in the territory of Serbia nor any products put to sale unless they meet the stipulated norms for the environmental protection and norms of quality, namely if the product is prohibited in the country of export (Article 17). The wastes are collected, classified, prepared for use as secondary raw materials, treated, utilized or temporarily and permanently disposed of in a controlled manner and if necessary destroyed (Article 82, paragraph 1). In the territory of the Republic any treatment, storage, disposal of radioactive and other wastes that have the property of hazardous substances of foreign origin is prohibited (Article 82, paragraph 2). Handling of hazardous substances in manufacture, use, transport, trade, storage and disposal shall be done so as not to endanger human life and health, nor contaminate the environment (Article 83, paragraph 1);
- The Rules on the Treatment of Wastes having Hazardous Characteristics ("Off.Herald RS", No.12/95) prescribe the treatment of certain categories of wastes having properties of hazardous substances and established the mandatory accounting of the types and quantities of such substances in production, use, transportation, movement, storage, and disposal processes. Waste generators have obligation to report the quantity of each reportable waste streams/categories generated and transferred, to competent authorities. The frequency of reporting is in most cases one month. Under development is system of information of transboundary waste streams movement, as well as upgraded of existing systems;
- The Law on Waste Management of the Republic of Serbia ("Off. Herald RS", No.25/96) stipulates handling of waste substances that may be used as secondary raw materials, the way of collection, treatment and storage (Article 1). Monitoring and controlling the use of secondary raw materials, keeping respective records, undertaking protection measures will be carried out by special republican organization-Recycling agency (Article 6 and 22-24). The Law also governs handling of wastes –secondary raw materials (Article 11.17); and
- The Law on the Environment ("Off. Gazette RCG", No.16/96) prohibits the application and use of technology, products, semi-products or raw material that are forbidden in the country of export or in the country in which they are produced; disposal of all types of waste, except at the places selected for the purpose (Article 9, paragraph 2 and 6). It restricts import of waste substances except upon the permit issued by the Ministry in charge of environment protection, for disposal of the wastes having the properties of deleterious and hazardous substances at the designated sites and upon the preliminary consent of the Ministry (Article 10, paragraph 1 and 2).

Measures taken by industries/waste generators

Yugoslavia produces relatively large quantities of different types of waste, which, in view of their quantity or properties, are a threat to the environment.

Major generators of hazardous wastes are the chemical, oil, petrochemical, and metal, paper, leather and textile and transport industries. Minor generators include car, repair shops, surface metal working shops, dry cleaners, etc.

Many wastes have a high content of non-degradable products and chemicals that pollute the environment. Processing technologies are inadequately developed or elaborated.

Pressure of staying on international market has forced the raise of the environmental and service standards within industries and municipalities, as well as has increased waste management through promotion of transfers of environmental technologies and cleaner production.

However, currently most of the industries/waste generators are dealing with after war clean-up activities, rather than with measures leading to pollution prevention.

Industrial sectors	**Numbers**	**Location**
Cement kilns	4	
Calcite kilns		
Crude oil, refineries		
Steel Foundries		
Lead accumulators		
Used oils recycling facilities		
(Biological) Waste Water Facilities		

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30. Unitar. Country profile 1998,

    http://www.unitar.org/cwm/nationalprofiles/English/nponlineng.htm.

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Y-CODES

A. HAZARDOUS WASTES

Y0 All wastes containing or contaminated by radionuclides, the radionuclide concentration or properties of which result from human activity.

Y1 Clinical wastes from medical care in hospitals, medical centres and clinics.

Y2 Wastes from the production and preparation of pharmaceutical products.

Y3 Waste pharmaceuticals, drugs and medicines.

Y4 Wastes from the production, formulation and use of biocides and phytopharmaceuticals.

Y5 Wastes from manufacturing, formulation and use of wood preserving chemicals.

Y6 Wastes from the production, formulation and use of organic solvents.

Y7 Wastes from heat treatment and tempering operations containing cyanides.

Y8 Waste mineral oils unfit for their originally intended use.

Y9 Waste oils/water, hydrocarbons/water mixtures, emulsions.

Y10 Waste substances and articles containing or contaminated with polychlorinated biphenyls (PCBs) and/or polychlorinated terphenyls (PCTs) and/or polybrominated biphenyls (PBBs).

Y11 Waste tarry residues arising from refining, distillation and any pyrolytic treatment.

Y12 Wastes from production, formulation and use of inks, dyes, pigments, paints, lacquers, varnishes.

Y13 Wastes from production, formulation and use of resins, latex, plasticizers, glues/adhesives.

Y14 Waste chemical substances arising from research and development or teaching activities which are not identified and/or are new and whose effects on man and/or the environment are not known.

Y15 Wastes of an explosive nature not subject to other legislation.

Y16 Wastes from production, formulation and use of photographic chemicals and processing materials.

Y17 Wastes resulting from surface treatment of metals and plastics.

Y18 Residues arising from industrial waste disposal operations.

<u>Wastes having as constituents:</u>

Y19 Metal carbonyls.

Y20 Beryllium; beryllium compounds.

Y21 Hexavalent chromium compounds.

Y22 Copper compounds.

Y23 Zinc compounds.

Y24 Arsenic; arsenic compounds.

Y25 Selenium; selenium compounds.

Y26 Cadmium; cadmium compounds.

Y27 Antimony; antimony compounds.

Y28 Tellurium; tellurium compounds.

Y29 Mercury; mercury compounds.

Y30 Thallium; thallium compounds.

Y31 Lead; lead compounds.

Y32 Inorganic fluorine compounds excluding calcium fluoride.

Y33 Inorganic cyanides.

Y34 Acidic solutions or acids in solid form.

Y35 Basic solutions or bases in solid form.

Y36 Asbestos (dust and fibres).

Y37 Organic phosphorus compounds.

Y38 Organic cyanides.

Y39 Phenols; phenolic compounds including chlorophenols.

Y40 Ethers.

Y41 Halogenated organic solvents.

Y42 Organic solvents excluding halogenated solvents.

Y43 Any congener of polychlorinated dibenzo-furan.

Y44 Any congener of polychlorinated dibenzo-p-dioxin.

Y45 Organohalogen compounds other than substances referred to in this Annex (e.g. Y39, Y41, Y42, Y43, Y44).

B. HOUSEHOLD WASTES

Y46 Wastes collected from households, including sewage and sewage sludges.

Y47 Residues arising from the incineration of household wastes.

(ref. 31)

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Please note that the MTS Reports are available from our web site at www.unepmap.org

MTS 146. UNEP/MAP/RAC/CP: **Guidelines for the application of Best Available Techniques (BATs), Best Environmental Practices (BEPs) and Cleaner Technologies (CTs) in industries of the Mediterranean countries.** MAP Technical Reports Series No. 146, UNEP/MAP, Athens, 2004. (English, French).

MTS 145. UNEP/MAP/RAC/CP: **Plan for the reduction by 20% by 2010 of the generation of hazardous wastes from industrial installations for the Mediterranean region.** MAP Technical Reports Series No. 145 UNEP/MAP, Athens, 2004. (English, French).

MTS 144. UNEP/MAP/RAC/CP: **Plan on reduction of input of BOD by 50% by 2010 from industrial sources for the Mediterranean region.** MAP Technical Reports Series No. 144, UNEP/MAP, Athens, 2004. (English, French, Arabic).

MTS 143. UNEP/MAP/RAC/CP: **Guidelines for the application of Best Environmental Practices (BEPs) for the rational use of fertilisers and the reduction of nutrient loss from agriculture for the Mediterranean region.** MAP Technical Reports Series No. 143, UNEP/MAP, Athens, 2004. (English, French, Arabic).

MTS 142. UNEP/MAP/RAC/CP: **Guidelines for the application of Best Available Techniques (BATs) and Best Available Practices (BEPs) in industrial sources of BOD, nutrients and suspended solids for the Mediterranean region.** MAP Technical Reports Series No. 142, UNEP/MAP, Athens, 2004. (English, French).

MTS 141. UNEP/MAP/MED POL: **Riverine transport of water, sediments and pollutants to the Mediterranean Sea.** MAP Technical Reports Series No. 141, UNEP/MAP, Athens, 2003.

MTS 140. UNEP/MAP/MED POL: **Mariculture in the Mediterranean**. MAP Technical Reports Series No. 140, UNEP/MAP, Athens, 2004. (IN PUBLICATION).

MTS 139. UNEP/MAP/MED POL: **Sea Water Desalination in the Mediterranean: Assessment and Guidelines.** MAP Technical Reports Series No. 139, UNEP/MAP, Athens, 2003. (English and French).

MTS 138. UNEP/MAP/PAP: **MAP CAMP Project "Malta": Final Integrated Project Document and Selected Thematic Documents.** MAP Technical Report Series No. 138, UNEP/MAP, Athens, 2002. (English).

MTS 137. UNEP/MAP/BLUE PLAN: **Free Trade and the Environment in the Euro-Mediterranean Context, Montpellier/Mèze, France, 5 – 8 October 2000**: Volume I: Technical Report of the Workshop; Volume II: Regional and International Studies; Volume III: National Studies; Volume IV: Environmental Aspects of Association Agreements. MAP Technical Report Series No. 137, (4 Vols), UNEP/MAP, Athens, 2002. **Libre-échange et environnement dans le contexte euro-méditerranéen: Montpellier/Mèze, France, 5 – 8 octobre 2000** (Parts in English & French).

MTS 136. UNEP/MAP/MED POL: **Guidelines for the management of fish waste or organic materials resulting from the processing of fish and other marine organisms**. MAP Technical Report Series No. 136, UNEP/MAP, Athens, 2002. (English, French, Spanish & Arabic).

MTS 135. PNUE/PAM: **PAC DU PAM "Zone côtière de Sfax": Synthèse des études du projet, rapport de la réunion de clôture et autres documents choisis.** No. 135 de la Série des rapports techniques du PAM, PNUE/PAM, Athènes, 2001. (French).

MTS 134. UNEP/MAP/PAP: **MAP CAMP Project "Israel": Final Integrated Report and Selected Documents.** MAP Technical Reports Series No. 134, UNEP/MAP, Athens, 2001. (English).

MTS 133. UNEP/MAP: **Atmospheric Transport and Deposition of Pollutants into the Mediterranean Sea: Final Reports on Research Projects**. MAP Technical Reports Series No. 133, UNEP/MAP, Athens, 2001. (English).

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MTS 131. UNEP/MAP: **MAP CAMP Project "Fuka-Matrouh", Egypt: Final Integrated Report and Selected Documents**. MAP Technical Reports Series No. 131, (2 Vols.), UNEP/MAP, Athens, 2001. (English).

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MTS 129. UNEP/MED POL: **Guidelines for the Management of Dredged Material.** MAP Technical Reports Series No. 129, UNEP, Athens 2000. (English, French, Spanish and Arabic). PNUE/MED POL: **Lignes Directrices pour la gestion des matériaux de dragage.** (Anglais, français, espagnol et arabe).

MTS 128. UNEP/MED POL/WHO: **Municipal Wastewater Treatment Plants in Mediterranean Coastal Cities.** MTS no. 128, UNEP, Athens 2000 (English and French). PNUE/MED POL/OMS **: Les Stations d'épuration des eaux usées municipales dans les villes cotières de la Méditerranée.** (Anglais et français).

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MTS 126. UNEP/MCSD/Blue Plan: **Report of the Workshop on Tourism and Sustainable Development in the Mediterranean,** Antalya, Turkey, 17-19 September 1998. MAP Technical Reports Series No. 126, UNEP, Athens 1999. (English and French). PNUE/CMDD/Plan Bleu: **Rapport de l'atelier sur le tourisme et le développement durable en Méditerranée**, Antalya, Turquie, 17-19 septembre 1998. (Anglais et francais).

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MTS 124. UNEP/WHO: **Identification of Priority Hot Spots and Sensitive Areas in the Mediterranean.** MAP Technical Reports Series No. 124. UNEP, Athens, 1999. PNUE/OMS: **Identification des "Points Chauds" et "Zones Sensibles" de polution prioritaire en Méditerranée.**

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