
5 Reduction/Elimination of Generation of Waste

All Regions/Countries, Parties of the Basel Convention

UN Region: Africa

Algeria

Year 2002

Legislation

Law no 01-19 of 12/12/2001 related to the management, control and disposal of wastes.

Incentives

Tax on pollutant and hazardous activities; incentive tax encouraging the reduction of stocks of industrial wastes(2002); and incentive tax encouraging waste care activities.

Industry

The generators and/or holders of hazardous special wastes are required to insure or ensure by their own the collection, sorting, transport, stocking, valorization and the elimination of their wastes.

Botswana

Year 2002

Policies

Adoption of the Waste Management hierarchy.

Legislation

Botswana's strategy for Waste Management supports cleaner production guidelines; Botswana's Waste Management Act supports polluter pays principle; and Administration of industrial trade effluent agreement.

Incentives

Polluter pays principle; trade effluent agreements on industrial wastes; and in the near future plans for waste oil recycling charges to importers.

Industry

Self regulation initiatives by key oil importing industries; and move to discourage plastic carriers in commercial premises initiated.

Others

Plans to introduce Cleaner production concept to industry.

Cameroon

Year 2002

Policies

No strategy exist as at now. No inventory done yet to determine the quantities and qualities of the hazardous waste present in the country. Need for both technical and financial assistance to carry out this inventory.

Legislation

Law N° 96/12 of 5th August 1996 relating to Environmental management in Cameroon.

Egypt

Year 2002

Policies

Strategies related to the hazardous waste management have been adopted:

National Strategy for Waste Management;
National Strategy for Cleaner Production; and
National Environmental Action Plan 2002-2017.

Policies adopted for waste generators from the industrial sector regarding hazardous waste include:

Reduction of hazardous waste at sources;
Identification of hazardous waste;
Safe on-site storage hazardous waste;
Labeling of hazardous waste
Reporting on generation of hazardous waste; and
On-site treatment of hazardous waste.

Legislation

Egyptian Environmental Law No. 4/1994 and its Executive Regulations present the overall legal framework for hazardous waste management, in addition to laws 93/1961 and 48/198; and
The Egyptian Environment Affairs Agency has adopted recently some guidelines for managing the overall hazardous waste management system in addition to that adopted by the Basel Convention, these guidelines covers: transportation, on-site interim storage, identification & characterization, permitting system and recycle and disposal.

Incentives

In preparation.

Industry

Establishing of the National program for modernization of the Egyptian industry;
National strategy for cleaner production; and
Establishing of the National center for cleaner production.

Others

Enhancing partnership with the private sector;
Increase capacity building programs; and
Involvement of NGO's in hazardous waste management.

Ethiopia

Year 2002

Policies

The Environmental Policy of Ethiopia and the Conservation Strategy of Ethiopia provide for the application of the said measures.

Legislation

Environmental Pollution Control Proclamation, Proclamation No. 300/2002.

Incentives

These are provided for in legislation indicated supra, e.g. Article 3 Sub-article 4.

Industry

Certain tanneries have installed waste treatment facilities making use of a revolving fund made available by UNIDO.

Gambia

Year 2002

Policies

Gambia Environmental Action Plan (1992); Gambia Waste Management Strategy (1997); and Environmental Quality Monitoring and Enforcement strategy (1997).

Legislation

National Environment Management Act (1994); Environmental Management Discharge Permit Regulations (2001); Environmental Quality Standards Regulations (1999); and Ozone Depleting Substances Regulations 2000.

Incentives

Monthly Environmental Tax on all salaried workers; Environmental tax on all imported second hand items except used clothing; and National Environment Agency conducts an Annual National Environmental Award Scheme.

Industry

The Gambia Tourism Authority has embarked on a yearly award for the Most Environmentally Friendly hotel. The National Environment Agency has also embarked on a few demonstration projects to promote best practices in industry.

Others

Sensitization and information campaigns under the Environmental Education and Communication Programme of the National Environment Agency; and Integration of Environmental Education in the school curricular at all levels.

Kenya

Year 2002

Policies

Sessional Paper on Environmental and Development;
Sessional paper No. 6 on Industrialisation to the year 2020; and
The constitution of Kenya.

Legislation

The Environmental Management and Coordination Act, 1999; and
Factories and Other places of work, 1990 Public Health Act.

Incentives

Under EMCA there is provision for:
Emission licences;
Duty waivers for pollution control equipment;
Tax rebates; and
Deposit bonds

Industry

Adoption of ISO 14000 Environmental Management systems that provide for preventive and corrective measures;
Many industries are adopting cleaner production system; and
Risk surveys to address insurance related.

Others

Many companies now have environment, health and safety (EHS) at Senior Management levels;
Sector groups (tanners and Kenya Flower council);
There are company of the year (COYA) awards for best performing industries on waste.

Madagascar

Year 2002

Policies

In preparation.

On 18 June 1998, the National Committee for the Management of hazardous wastes (GNGPC) was officially created (Decret N°98-444). This committee has been, since this date, the official national mechanism responsible for chemical management in terms of safety.

Legislation

A National Law to reduce hazardous wastes is currently being elaborated.

Incentives

A National Law is currently being elaborated.

Industry

Decree of application MECI, Law N°99-954 of 15/12/99. (Accountability of investments towards the environment).

Others

None.

Mali

Year 2002

Policies

None.

Legislation

None.

Incentives

None.

Industry

None.

Others

None.

Morocco

Year 2002

Policies

Study of the creation of a National Disposal Centre is under preparation. The site for the center is being selected.

The CMPP plays a coordinating as well as catalytic role of a natural cleaner production market by means of :

The promotion and dissemination of the concept of sustainable ecological industrial development; improvement of the performance and competitiveness of the enterprise; and making public opinion sensitive and aware of cleaner production technologies.

Legislation

The Law on Waste Management and its Disposal prepared by the concerned departments is in the process of adoption. The Draft Law foresees 3 application decrees that are being prepared:

Decree on the hazardous waste list;

Decree on the disposal sites characteristics; and

Decree on waste incineration.

Incentives

Creation within the Department of Environment of the Fund for Industrial Depollution (FODEP). The Fund is destined for industrial enterprises willing to engage in depollution projects. 80% of the cost of the project can be financed by FODEP according to the project type:
Integrated project (20% donation and 20-60% of credit at medium or at long term and;
Approved Project (40% donation and 20-40% of credit at medium or at long term).

Industry

None.

Others

Some wastes are incinerated at the furnace of cement factories and;
A project to create a waste stock market is currently being developed.

Mozambique

Year 2002

Legislation

EIA Regulation; and

Environmental Law of 1997: Based on the relevant provision of the Constitution, the Environmental Law of 1997 provides a general framework for environmental protection, including management of hazardous wastes. The purpose of the law is “to define the legal basis for the proper use and management of the environment and its elements in order to establish a system of sustainable development” in the country. The law includes several provisions addressing this issue. There is as yet no specific legal instrument on the management of hazardous wastes, or on export and import of such wastes. Work is underway to develop several regulations under the law.

The following aspects of hazardous wastes management are addressed in the Environment Law or a separate regulation: definition of hazardous wastes; licensing system for persons managing waste and disposal facilities; restriction/prohibition of export/import of hazardous wastes; and civil liability and reparation of damage.

Others

In general terms, the Environmental Law of 1997 imposes strict liability on persons who cause material damage to the environment. The State has the right to assess the damage, fix the amount of compensation, and to take counter measures at the expense of the person causing the damage. The provision does not relate to hazardous wastes specifically.

Niger

Year 2002

Policies

Agenda 21 constitutes the national strategy for the environment and sustainable development plan.

Legislation

The Law on norms and quality and the complementary texts related to legal the framework on environmental management are currently being elaborated and are in the process of being adopted.

Incentives

None.

Industry

Mining and chemical related industries apply directives and guidance of their respective multinational groups on production and management of the wastes.

Others

None.

Seychelles

Year 2002

Policies

Government invested heavily in solid waste management throughout the nineties, especially as part of the implementation of the Environment Management Plan 1990-2000. There are now four major landfills in operation, two of which are fully engineered landfills. Hazardous waste management is addressed as part of the overall plan for waste management on the islands (Solid Waste Master Plan), especially since most hazardous is produced in small volumes. There are collection systems for waste oil, scrap metal, lead acid batteries and pesticide containers, and also sorting out of the organic fraction of municipal waste for composting. These are mostly eliminated through export, and in the case of pesticide containers, through recycling. The following additions to the locally available facilities are being explored: incinerator, larger storage facilities for oil and Kraft paper recycling plant.

The generation of waste is addressed through a 'reduce, reuse, and recycle policy'. Waste reduction initiatives can be done through the environmental assessment process under the Environment Protection Act. The potential for waste generation, waste reduction, and recycling are three criteria that are used to assess large projects or initiatives. The ministry also regularly engages different sectors of the economy in waste reduction efforts, for example, reduction of throwaway of soft drinks and mineral water bottles, reduction of construction waste reaching the landfill, reduction of pesticide waste through proper stock management etc.

The generation of waste at the household level is addressed through educational programs and in some instances through house-to-house campaigns. A varied set of activities is organized throughout the year by this ministry and the agency responsible for waste. Educational/sensitisation programs are carried out in schools, and TV, radio and newspaper items (of which a large part has to do with the generation of waste) are released on a weekly basis. There are also annual events such as the Cleanup the World Campaign, Environment Week, and Recycle fair.

In addition, certain products, such as asbestos roofing sheets and POPs pesticides are not allowed in Seychelles, thus the problem with their elimination or treatment does not exist. With regards to avoidance, importers and consumers (also through NGOs) are being continuously encouraged to opt for less dangerous products.

Legislation

Environment Protection Act, 1994: at section 12 establishes the agency responsible for waste and defines its functions, and at section 13 onwards establishes other obligations for waste minimization by the authority.

Pesticides Act 1996.

Seychelles Bureau of Standards guidelines on the storage and handling of dangerous products.

Incentives

There are presently few economic initiatives to encourage waste minimization.

The legal instruments of licensing, environmental authorizations and Public Health are frequently used to force persons to comply with the requirements.

The company that exports scrap metal is being encouraged to collect and export all scrap at no cost.

Industry

The Public Utilities Corporation has invested in a waste oil incinerator at the central electricity generating plant.

On smaller islands that are not connected with the main waste collection system, owners and managers continue to invest in waste separation, minimization of incoming products, waste transfer,

incineration and/or composting.

South Africa

Year 2002

Policies

The National Waste Management Strategy has set in motion a process that will significantly transform the current approach to waste management in South Africa. In particular, it will result in: Improved delivery of basic waste management services to a large section of the population who currently receive inadequate or no waste management;

A shift in emphasis away from end-of-pipe treatment to pollution prevention and waste minimization (as part of more general shift towards cleaner production practices); life cycle approach/cradle-to-grave approach

Reduced risks to human health and the environment from improved waste management practices; and

More effective integration of waste management across all environmental media (land, water and air), through the adoption of a more effective integrated approach to legislation and institutional structures.

Industry is compelled by law to prepare hazardous waste management plans. Government will be introducing the Manifest System that will compel generators, transporters and disposers of waste to report annually on amounts and types of waste they handle.

The draft waste bill has a section on hazardous waste management.

Legislation

South Africa adopted the Polokwane Declaration that is targeting zero waste by 2020 and this will include waste minimization techniques.

Incentives

As part of achieving zero waste economic instrument will play a role in terms of product liability and other related strategies.

Hazardous waste is very costly and this forces companies to reduce waste generation therefore this is mainly driven by the market forces.

Industry

Some of South African industries are members of “The Responsible Care Initiative” that puts emphasis on cleaner production.

Growing industry associations where there is sharing of information/expertise in waste reduction.

Others

Training courses offered to industry’s middle management by the Basel Convention Regional Centre, Pretoria on the above and Environmental Sound Management of hazardous waste.

Tanzania (United Republic of)

Year 2002

Policies

Adoption of Sustainable Industrial Development Policy (1997); and
Advocating the cleaner production concept.

Incentives

A study on Economic Instruments for environmental has begun.

Industry

Some industries have adopted the cleaner production technology.

Tunisia

Year 2002

Policies

The National strategy on wastes has four objectives. They are: (i) to ensure that wastes management takes place without endangering public health and the environment; (ii) to encourage the reduction in wastes in both qualitative and quantitative terms; (iii) to encourage recycling and re-use of wastes; and (iv) to establish methods and infrastructure to ensure wastes disposal to the lowest possible cost in environmental and economic terms.

The National Programme for Solid Wastes Management (PRONAGDES) was launched in 1993. The aim of the Programme is to provide the country with units for the treatment of household wastes, facilities for the treatment of hazardous wastes, and produce appropriate solutions and management plans for all categories of wastes.

Legislation

Waste and waste treatment fall under the law n°96-41 of 1996 in which the following general objectives are defined: (i) prevention and reduction of wastes especially during fabrication and distribution of products (ii) valorization of wastes by re-use and recycling both as materials or energy source (iii) controlled final landfill as a last resort;

Decree n°97-1102 laying down conditions and methods for the collection and management of used bags and packaging;

Decree n°2002-693 (dated April 1st, 2002) laying down conditions and methods for the collection and the management of used lubricating oils and used oil filters. This decree defines the criteria and methods of recovery and regeneration of used lubricating oils, the collection and the valorization of the used oil filters;

Following enactment of law 96-41 on wastes and the control of wastes management and disposal, legal instruments (decrees) on the management of categories of hazardous wastes, based on the polluter pays and producer recovers principles, are in the process of drafting;

Standards on the concentration of pollutants in the industrial wastewater (metals, heavy metals, halogenated solvents, hydrocarbons, mineral oils, phenols, etc.) before junction to the public sewage works or abandon in the hydraulic and maritime property; and

The environmental impact assessment (EIA) mandatory is obligatory for all activities (industrial, agricultural or commercial) that cause risks for pollution or degradation of the environment.

Incentives

Companies that carry out hazardous activities are obliged to pay taxes on a yearly basis;

Companies that take measures to abate pollution may profit from special investment and tax tariffs; Exoneration of import tariffs and VAT for equipment that has to be imported and cannot be locally produced, and for VAT for locally produced equipment;

Deduction of taxes of a maximum of 50% of profits reinvested or investment realized for equipment mentioned by decree n°94-1191; and

The Fund on Pollution Abatement (FODEP). This fund has been installed by law n°92-122. It aims at helping the industries to invest in pollution abatement techniques. Projects are financed through this fund with the following financial scheme: 30% of the total project costs are to be financed with companies own means, up to 20% subsidy and for the remainder 50%, soft bank loans may be obtained. Projects are judged by the Ministry for the Environment through a fixed procedure.

Industry

The only-one industry of pulp and paper has replaced the Denora-Permelec process of electrolysis for the production of chlorine used to whiten pulp by a membrane process, which presents less risk for the environment. Thus, the release of significant quantities of mercury in wastewater has been avoided;

The new process of SOTULUB (the Tunisian Company of Lubricating Oils) specialized in the re-

refining and regeneration of waste mineral oil has permitted the avoidance of the generation of a significant quantity of hazardous wastes especially acid tars and used acid-treated clay;
The Tunisian industry of electric transforms has avoided the use of mineral oils containing PCB;
Two industries of asbestos-cement pipes, over three in Tunisia, have abandoned this process to the profit of plastic pipe process;

The Tunisia's only refinery has set up: (i) pre-treatment facilities to remove chemical pollutants (sulphur base chemicals, acids, etc.) and oil from wastewater (ii) treatment unit of sludge (high lead content);

The two industries of car batteries are recycling the lead fraction of the dead batteries;

8 industrial enterprises (electronics, mechanics, chemicals, oil extraction, etc.) have obtained ISO 14000 Certification and 100 enterprises are scheduled for ecological upgrading for the time frame 2004; and

29 industrial enterprises (textiles, tanneries, packaging and printing, chemicals, electronics, metal treatment, etc.) have adopted clean technologies

Others

Over 60 companies in Tunisia are working in the field of the management of wastes: household wastes, wastewater, plastic wastes, metal wastes, health care wastes, dead batteries and accumulators, used printer cartridges, radiological films, paper, sludge of wastewater treatment facilities. Most of these companies received subventions from the National Fund on Pollution Abatement (FODEP);

The Tunisian Company of Lubricating Oils owns and operates a 16000 metric tonnes/year capacity plant for the re-refining and regeneration of used mineral oils;

A public system (ECO-LEF) for the collection (remunerated collection) of used packaging and its treatment, recycling and reuse was created. It is financed by contributions from members (producers, packagers, distributors and importers). Major indicators of the ECO-LEF system (for the year 2002):

Number of "ECO-LEF" used packaging collection points: 49 points;

Number of the small-size enterprises set up for used packaging collection: 1050 (3000 jobs);and

Volumes collected: 3070 tonnes.

Experimental operation of a pilot unit for the treatment of used oil filters (500 tons/year). Industries involved in this project are the Tunisian Company of Lubricating Oils which takes care of recovery and regeneration of the oil fraction; a cement plant which collects the synthetic fraction and assures recovery of its energy content; and a foundry which handles the metal fraction; and
21 old industrial zones have been rehabilitated and renovated.

Zambia

Year 2002

Policies

The final draft of the national waste management strategy is being developed.

The Environmental Council of Zambia in conjunction with the industry association has been conducting training on cleaner production techniques.

The Environmental Council of Zambia conducts public awareness on proper management of hazardous materials. The Environmental Council of Zambia has also conducted projects that aim at disposal of hazardous material and reduction of generation of hazardous material.

Conditional licensing system for generation of hazardous waste has been introduced; the bigger the amount of waste generated, the more one pays.

Legislation

The Zambian Government has an Environmental Protection and Pollution Control Act which was enacted in 1990;

Hazardous Waste Management Regulations, 2001 have been developed to address all aspects of

hazardous waste management;

The pesticides and Toxic Substances Regulation came into effect in 1994. It addresses all aspects of chemicals management;

Guidelines on management of used oil, lead acid batteries and health care waste being developed; and

The Ozone Depleting Substances regulations of 27 of 2001 restricts importation of ODS and equipment containing ODS and management of Obsolete equipment.

Incentives

Still to be developed.

Industry

Implementation of cleaner production techniques; and setting up of environmental departments.

Others

Public awareness programmes.

UN Region: Asia and Pacific

Azerbaijan

Year 2002

Legislation

Under preparation.

Industry

Facilities and devices are constructed by organizations, which are dealing with neutralization and utilization of hazardous wastes.

Bahrain

Year 2002

Policies

A new incineration system for treating the generated healthcare wastes (i.e. clinical, pharmaceutical, infectious anatomical and chemical wastes) has been commissioned and is operating since April 2002 ,which is considered as a major milestone in environmental protection and part of national strategy to reduce and treat the hazardous wastes in the country; and

Environmental Affairs (EA) is approaching international agencies and organizations to assist in minimizing the quantity of industrial / hazardous of wastes generated in the country. Many meetings have been held with the major industries to chalk out practical and achievable plans and programs for waste minimization utilizing efficient and environmental friendly processes, methodologies and equipment.

Legislation

Healthcare Waste Management Standards: Ministerial Order No.1 of 2001 has been issued highlighting the collection, transportation, storage, transfer, treatment and disposal of hazardous healthcare waste generated in Kingdom of Bahrain. The emissions from healthcare treatment facilities are also streamlined as well as the management and disposal of effluent and solid waste residues; Article 5 states : The waste producer shall seek to reduce the generation levels of such waste in quantity and quality through developing the appliances and equipment used, adopt and use a clean technology, select the alternatives and raw materials that cause less damage to the environment and public health;

Hazardous Waste Management Standard: The draft standards for collection, storage, handling, transportation, transfer, treatment, disposal, recycling and reuse have been prepared and discussed

with the industries. The standards will soon be finalized and enforced in the country; and Used Oil Management Standards: The draft standards for management of used oil has been prepared highlighting the collection, storage, handling, treatment, disposal, recycling and reuse of oil and related products. The standards will soon be finalized and enforced in the country.

Incentives

None.

Industry

Several industrial companies (ALBA and GPIC) adopted ISO 14000 standards and were certified by ISO, in addition to the implementation of environment management systems.

Others

Ongoing projects on cleaner production, recycling, reduction of hazardous waste and elimination of hazardous waste.

Bangladesh

Year 2002

Policies

Environment Policy 1992 encourages reuse of various substances in the industrial sector in order to reduce the amount of waste/hazardous waste generated inside the country.

Legislation

Bangladesh Environment Conservation Act, 1995 is being enforced to reduce and eliminate generation of the hazardous waste.

Industry

Installation of effluent treatment plant in the polluting industries.

Cambodia

Year 2002

Policies

Application of the environmental assessment system and environmental license to new and ongoing industrial activities with regard to the hazardous waste management.

Legislation

Solid Waste Management Sub-Decree, 1999;
Water Quality Management Sub-Decree, 1999; and
Air Pollution Control and Noise Disturber Management Sub-Decree, 2001.

Incentives

Polluter pays principle have been applied for some individuals and industrial sectors.
Licensed charges for some industries.

Industry

Industries and waste generator have been complied with Cambodian Regulation and Provision of Basel Convention.
Some industries have been awarded with the ISO 14000 series certification.

Others

None.

Cyprus

Year 2002

Policies

A National Strategy for the Management of Wastes has been prepared, taking into consideration all the necessary measures for the reduction of the generation of wastes, as provided in the relevant E.U legislation.

The National Strategy for the Management sets the basic principle of the waste hierarchy "Generation of waste shall be avoided whenever possible, wastes shall be recovered/recycled whenever possible and wastes shall be disposed of in an environmentally compatible way."

Legislation

In accordance with the E.U and national legislation the environmental standards and the criteria to reduce and eliminate generation of hazardous wastes and other wastes are in elaboration.

Incentives

Proposals have been made to the Ministry of Finance to use economic instruments to encourage environmentally friendly activities or discourage polluting activities. Action is yet to be taken however.

Industry

Economic and consumer pressures have moved industry to introduce methods of waste reduction on a voluntary basis. Some of the initiatives that are in place include: total Quality Management programs such as ISO standards. These programs improve the overall operations of businesses and as a partial result of these efforts; a net reduction in wastes is achieved.

Indonesia

Year 2002

Policies

ISO 14001 - "Environmental Management System" - specification with guidance is in use. Waste generator will be evaluated by auditor.

Legislation

Article 19 paragraph (1) of Government Regulation No. 18/1999 Jo 85/1999.

Incentives

In the Act of Republic of Indonesia No 23/1997, regarding Environmental Management and Environmental Pollution included both criminal and economical sanctions such as, in article 43 mentioned "any person who in violation of applicable legislation intentionally releases or disposes of substances, energy and/or other components which are toxic or hazardous onto or into land, into the atmosphere or the surface of water, import, export, trades in, transport, stores such material, operates a dangerous installation, whereas knowing or with good reason to suppose that the action concerned can give rise to environmental pollution and/or damage or endanger public health or the life of another person is criminally liable to a maximum of six years imprisonment and a maximum fine of Rp. 300.000.000 (three hundred million rupiahs)."

Industry

With the partnership program in the hazardous waste management (Kendali Program), 141 industries comply with Indonesian Regulation. 15% of these industries treat their own waste by the existing technology and 73% of industries send their wastes to the treatment facility (WMI company).

Iran (Islamic Republic of)

Year 2002

Policies

Encouraging to apply ISO systems;
Restricting import and consumption of some hazardous chemicals;
Implementing EIA projects prior to any industrial development; and

Establishment of fining system for importing hazardous wastes for disposal on the basis of the quantity of wastes and their pollution rates.

Incentives

Utilizing the sum of improper disposal fine as financial assistance source for hazardous waste management activities.

Industry

Allocating budget from governmental financial resources and encouraging application of ISO systems in the industries; and

Conducting research and pilot project for hazardous waste recovery and disposal facilities.

Japan

Year 2002

Policies

Government of Japan established the Basic Environment Plan in 1994, and it was amended in 2000. At the same time, The Basic Law for Establishing the Recycling-based Society was enacted. This Basic Law aims to promote waste measures and recycling measures comprehensively and systematically as follows:

- (1) The first effort is to reduce production of wastes as much as possible;
- (2) The second effort is to re-use, as many times as possible, things that are no longer needed;
- (3) The third effort is to recycle, as resources, things that cannot be used repeatedly;
- (4) The fourth effort is to burn things that cannot be used as resources, and use the heat produced from their incineration; and
- (5) The last effort is to appropriately dispose of things that cannot be re-used or recycled and that must be disposed of, in a manner that does not contaminate the environment.

A new socioeconomic system needs to be created where responsibilities and costs on waste and recycling are shared among business, consumers, local government and the national government as necessary. In such system, there should be incentives to reduce waste generation and recycling at each stage of product development, manufacturing import distribution, consumption, collection and regeneration.

Legislation

"Waste Management and Public Cleansing Law", "Law for Promotion of Effective Utilization of Resources", "Container and Packaging Recycling Law", "Electric Household Appliance Recycling Law" etc.

Incentives

Policy financing for establishment of treatment facilities; and preferential tax treatment.

Industry

Under the Voluntary Action Plan on the Environment adopted by the Keidanren (Japan Federation of Economic Organization), measures are taken on promoting recycling and limiting the discharge of wastes.

Jordan

Year 2002

Policies

Encourage recycling;

Use production procedure that are environment friendly; and

Use alternatives for hazard inputs.

Legislation

Practice of applying hazardous waste treatment fees is in preparation.

Incentives

None.

Industry

Use production ways that are environment friendly; and
Use alternative for hazard inputs, if available.

Others

None.

Malaysia

Year 2002

Policies

Malaysian Agenda for Waste Reduction; and promotion cleaner production.

Legislation

In preparation to enhance existing provision in the Environmental Quality (Scheduled Wastes) Regulations to reduce wastes using best practicable means.

Industry

Cleaner production, waste minimization and ISO 14001 certification.

Others

Special capital allowance incentive to companies which generate wastes and intend to set up facilities to treat their own wastes covering all capital expenditure incurred.

Micronesia (Federated States of)

Year 2002

Policies

Environmental Action Strategies (FSM NEMS, 1992):

Improve disposal of solid wastes and sewage; and

Reduce use & abuse of hazardous chemicals.

Second FSM Economic Summit (1999):

Create strong regulatory climate for the environment sector; and

Develop technical support for existing and future environmental programs.

Philippines

Year 2002

Policies

a. Implementation of programs/ projects assisting industrial facilities in coming up with an Environment Management System;

b. Philippines developed a Business Agenda 21, promoting the use of cleaner production or cleaner technologies using waste minimization concepts; and

c. promotion of the Philippine Environmental Partnership program (PEPP).

Legislation

a. Presidential Decree 984: Pollution Control law of 1976;

b. Presidential Decree 1586: Environmental Impact Statement (EIS) System;

c. Republic Act 6969;

- d. Republic Act 8749: Clean Air Act of 1999; and
- e. Republic Act 9003: Solid Waste Management Act of 2000.

Industry

Compliance to Republic Act 6969 specifically on the registration and reporting requirements for hazardous waste generators.

Qatar

Year 2002

Policies

Industries have been suggested to recycle and re-use wastes wherever possible. Any new industry on operation is required to take a consent to establish as part of EIA procedure.

Legislation

The generator would make continuous effort towards minimization of hazardous waste and other wastes and make annual assessment of the efforts for submission to the SCE in Qatar.

Industry

Spent catalysts are sold or given to recycling companies; and
Waste oils are collected and taken offsite by contractor for recycling.

Republic of Korea

Year 2002

Policies

The order of priority in the national waste management strategy is: a) reduction of the amount of wastes, b) promoting of re-use and recycling, c) safe incineration, and d) sanitary landfill.

Legislation

Article 24.1 of the "Waste Management Act" prescribes that the generators of industrial waste shall reduce the amount of waste generated. The generators of more than certain amount of industrial waste shall comply with the Guideline of the Reduction of Industrial Wastes (Public Notice by the MoE and the Ministry of Commerce, Industry and Energy, 21 December 2001) pursuant to Article 24.4. Pre-treatment, such as reuse and recycling, is required for kinds of waste. In addition, the use of disposable goods and excessive packaging is regulated in accordance with Article 15 of the "Act Relating to Promoting Resource Saving and Recycling."

Incentives

Volume based waste fee system has been in place since 1995 to facilitate reduction of household waste and separation of recyclable wastes from non-recyclable wastes. Extended Producer Responsibility (EPR) system for recyclable products and charge system for non-recyclable products is in effect.

Industry

Industries and waste generators are making efforts to minimize the generation of wastes both to cut down the financial burden of their disposal and to comply with the Public Notice by the MoE and the Ministry of Commerce, Industry and Energy, 21 December 2001. Some retailers, such as department stores, have signed a voluntary agreement with the MoE that they will steadily reduce the use of disposable goods, and some fast food restaurants have decided not to use them.

Singapore

Year 2002

Policies

Avoid/reduce generation of hazardous wastes;

Use less hazardous chemicals;and

Use clean technology and recycle/re-use toxic industrial wastes where appropriate.

National Recycling Programme (NRP) for households was launched in April 2001 to increase recycling rate for household wastes.

An interagency task force led by the Economic Development Board was formed in May 2001 to draw up the framework and action plans to develop Singapore into a Centre of Excellence for waste recycling in the region in 10 years' time. The task force recommended a framework comprising the following four strategic thrusts:

To create a pro-environment culture both in the corporate world and in the community;

To develop an effective supporting infrastructure to help nurture the waste recycling industry;

To build a strong foundation for technology development and innovative application of technologies; and

To create a vibrant waste management industry.

(<http://www.nea.gov.sg/cms/pcd/PollutionControlReport2002.pdf>)

Legislation

Prior to Singapore's notification to the Basel Convention, the Pollution Control Department applied the Environmental Public Health (Toxic Industrial Waste) Regulations to regulate the export, import and transit of hazardous wastes.

In November 1997, Singapore enacted the Hazardous Waste (Control of Export, Import and Transit) Act (HWA) and its regulations that came into operation on 16 March 1998. The Act and its regulations enable Singapore to fulfill the obligations of the Basel Convention. Under the Act and its regulations, a permit is required for the export, import and transit of hazardous wastes scheduled under the Basel Convention.

Incentives

Private companies can apply to Agency for Science, Technology and Research (*STAR) for research funding on reduction of hazardous waste generation or recycling of hazardous wastes.

The National Environment Agency (NEA) has continued to provide a \$20 million Innovation for Environmental Sustainability (IES) Fund in 2002. Through this fund, NEA will provide seed funding for innovative projects undertaken by the industry and in the community that will help Singapore attain its goals of environmental sustainability. Companies could seek assistance in the development and test bedding of promising and innovative technologies on waste recycling.

http://app10.internet.gov.sg/scripts/nea/cms/htdocs/category_sub.aspcid=42

Industry

Cleaner production; and waste minimization/reduction/recycling/recovery programs.

The Waste Management and Recycling Association of Singapore (WMRAS) was established on 8 August 2001. Members of the association include companies in the waste management and recycling industry. WMRAS serves as a platform for the waste recycling companies to pool their resources, to collaborate and to work together to upgrade and raise the professionalism of the waste management and recycling industry.

(<http://www.nea.gov.sg/cms/pcd/PollutionControlReport2002.pdf>)

Sri Lanka

Year 2002

Policies

A National Strategy for Solid Waste Management has been formulated, where waste avoidance is prioritized over other forms of treatment and disposal. A National Industrial Pollution Management Policy is in place. The National Environmental Action Plan has advocated the establishment of a

Cleaner Production Center as the first priority for waste reduction, and accordingly, a National Cleaner Production Center has been established under the Ministry of Industries and implementing agency is the Federation of Chambers of Commerce and Industry (FCCISL), Sri Lanka. A National Plan for Hazardous waste management has been prepared.

Legislation

Hazardous waste regulations for internal management are in place; These regulations are being revised to incorporate List A and List B waste. Guidelines for the implementation of hazardous waste management regulations are in place. Environmental Protection License scheme and the Environmental Impact Assessment scheme under the National Environmental Act are in place; Guidelines on siting of industries have been formulated.

Incentives

Some fiscal incentives are given to industries under certain conditions to use advanced technology in order to minimize waste generation under E-Friends Loan scheme introduced by the National Development Bank.

Waste minimization programs are being carried out for selected industrial sectors. Loan assistance on preferential terms is provided by most of the banks if the industries seeking assistance are willing to meet the required environmental conditions as given in the Environmental Protection License.

Industry

Federation of Chambers of Commerce and Industries of Sri Lanka is the implementing agency of the National Cleaner Production Center; Promotion of waste minimization through environmental audits. Waste treatment plants are established in Industrial Estates. Initiatives for Waste minimization are taken; Sri Lanka Standards Institution facilitates industrialists to obtain ISO 14000.

Thailand

Year 2002

Policies

Provide an efficient hazardous waste management scheme that will cover the process of import, export, transport, separation, collection, treatment, and disposal;

Provide an emergency system to prevent and mitigate major hazardous waste accidents in the industrial sector, in transportation, and in storage of hazardous waste; and

Encourage and promote private sector to join the investment and handle of hazardous waste management at all stages, as well as clean productions and clean technologies.

Legislation

According to the Notification of the Ministry of Industry No. 6. [B.E. 2540 (1997)] issued pursuant to the Factory Act B.E. 2535(1992) on Disposal of Wastes or Unusable Materials, Factory operators having hazardous wastes which have such characteristics and properties as defined in Annex 1 of the notification (as described in waste stream) must carry out the disposal of the wastes or unusable materials as defined as follows:

Such hazardous wastes shall not be taken out of the factory except with prior approval from the Director-General of Industrial Works Department or the person assigned by Director-General of Industrial Works Department to take them out to detoxify, dispose, discard or landfill by method and at the place according to the criterion and the method defined in Annex 2 of the Notification; and Details on type, quantity, characteristics, properties and storing place of such hazardous wastes or unusable materials concerned as well as method of storage, detoxification, disposal, discarding, landfilling and transport according to "Form Ror. Ngor. 6", attached to the notification must be notified to the Department of Industrial Works within the limit of 90 days from the effective date hereof, except that factory operators who operate a factory after the effective date hereof shall notify within the limit of 90 days from the commencing date of factory operation.

Incentives

Tax differentiate, e.g. the different excise tax rate for recyclable batteries production which is rebated 5% of the excise tax, unleaded gasoline (ULG);

Tax exemption, e.g. equipment for the control, treatment or eliminate pollutants;

Deposit-refund system, e.g. bring-back program, this system will be used as a tool for subsidizing the consumer to return the remains of products containing hazardous substances such as dry cell batteries for final disposal or recovery;

The environmental fund is established for the environmental sound management activities in accordance with item 2 "Environmental Fund" of the Enhancement and Conservation of the National Environment Quality Act B.E. 2535 (1992); and

The Thai green label scheme project is established for developing the criteria on the clean or waste minimized products (e.g. no mercury added dry cell batteries, recyclable plastic products, etc.).

Industry

In cooperation and support from relevant authorized agencies, 6 categories including plastics, agro, pulp and paper, electroplating, dyeing and tannery industries have been in the process of developing clean technologies and waste minimization methods.

Others

The following methods have been used as support tools to reduce and/or eliminate generation of wastes:

ISO 14000s, ISO 18000, Life cycle Assessment and Greening of Supply Chain etc.;

Research on clean technologies and waste minimization e.g. research on cleaner production in the dyeing and synthetic rubber industries; and

Technical guidelines on the environmental sound management of hazardous wastes generated from communities e.g. laboratory waste, commercial waste, infectious waste, vessel and port waste.

Uzbekistan

Year 2002

Policies

National policy of hazardous industrial and municipal waste management is described in "Environmental Implementation Program in the Republic of Uzbekistan for 1999-2005" adopted by the Resolution 469 of the Cabinet of Ministers of the Republic of Uzbekistan (20 October 1999).

Legislation

"Plan of realization of activities for the National Center establishment for the working-out of programs of sustainable and environmentally sound productions" was worked-out and adopted by the Resolution 273-f of the Cabinet of Ministers of the Republic of Uzbekistan (15 June 1999).

Incentives

Payment for the releasing of the contaminating substances into the environment and disposal of waste in the Republic of Uzbekistan was introduced from 1 January 2002. Resolution of the Cabinet of Ministers of the Republic of Uzbekistan No. 490 (31 December 2001) "Forecast of main macroeconomic indices and National Budget of the Republic of Uzbekistan for 2002."

Industry

None.

Viet Nam

Year 2002

Policies

Prohibition of any act causing environmental degradation, environmental pollution or environmental

incidents; and

Wastes containing toxic substances must be properly treated before discharge.

Legislation

Law on Environment Protection of December 27, 1993;

Decree No 175-CP dated November 18, 1994 of the Government on the implementation of Law on Environment Protection;

Decision No. 155/1999/QD-TTg dated July 16, 1999 of the Prime Minister on issuing the Regulation on Hazardous Wastes Management; and

Decision No. 10/2001/QD-BKHCMNT dated 11 May 2001 of the Minister of Science, Technology and Environment on issuing of List of treated scraps for utilisation as material allowed to be imported into Vietnam.

Incentives

Individuals and/or organizations have the obligation to pay compensation fees (damages) according to relevant legislation if their activities or operations are causing harm to the environment.

Industry

In carrying out production, business and other activities, all organizations and individuals must implement measures for environmental sanitation and have appropriate waste treatment equipment to ensure compliance with environment standards and to prevent and combat environmental degradation, environmental pollution and environmental incidents.

UN Region: Western Europe and Others

Andorra

Year 2002

Policies

At the end of 2002, the Government approved the construction of new municipal waste incinerator which include the latest technologies.

During 2001 and 2002, the Department of Environment started a campaign at the end waste producer, which began with the skiing resorts, toxic waste producers enterprises like vehicle repair shops, printing houses, photo laboratories etc.

National Waste Plan (2000), which came into force in 2001, defines the government policy in the field of solid wastes. A very precise diagnostic has been done, and on that basis, recovery objectives have been fixed. The plan also foresees all the basic and essential facilities that must exist in the country. The National Waste Plan must be reviewed every 5 years.

Legislation

Andorra is currently drafting the Solid Waste Law, which will create a system that works with authorized managers, and which includes the liability for the generator of wastes.

Incentives

xxx

Australia

Year 2002

Policies

The eight Australian States and Territories have economic measures/initiatives in place to reduce and/or eliminate the generation of hazardous wastes and other wastes.

Electrical and Electronic Product Stewardship Strategy: The peak electrical and electronic industry associations (Australian Electrical and Electronic Manufacturers' Association, Consumer Electronics

Suppliers' Association, Australian Information Industry Association and Australian Mobile Telecommunications Association) are developing an industry wide voluntary product stewardship strategy. Their work is being developed in cooperation with an Environment Protection and Heritage Council Working Group composed of representatives of Australian, State and Territory environmental agencies. The strategy will address environmental issues in six priority consumer product categories: Personal computers and peripherals; Televisions, video cassette recorders, and home entertainment electronics; Major household appliances (whitegoods, stoves, etc); Small appliances (including personal care and electrical accessories); Lamps and Mobile phones. Australia's EnviroNET is a directory of Australia's environment industries including databases of environment management expertise, industry applications for environmental technologies, environmental education; plus a range of other resources to support development and uptake of Australian solutions to industry's environmental issues.

Incentives

Product Stewardship Arrangements for Waste Oil: These arrangements were introduced in 2001 by the Australian Government to provide incentives to increase used oil recycling. The arrangements comprise a levy-benefit system, where a 5.449-cent per liter levy on new oil, funds benefit payments to used oil recyclers. The Arrangements, administered by the Department of the Environment and Heritage, aim to encourage the environmentally sustainable management and re-refining of used oil and its re-use. In the year 2002, under these arrangements, Australians recycled approximately 194 million liters, or 80%, of their used oil.

Austria

Year 2002

Policies

Waste avoidance was already a basic principle of the Austrian Waste Management Act 1990. New legislation including the principles of sustainable development was prepared in 2001 and enforced in 2002 (Act on sustainable Waste Management; Fed. Law Gaz. I 2002/102).

Legislation

Branch specific concepts for hazardous waste management (including waste avoidance) were drafted by the Federal Ministry. Detailed information is available via the home page www.lebensministerium.at

Incentives

No new measures taken in 2001 and onwards.

Industry

No data available.

Others

A data base on projects on sustainable development (including waste management projects) is available via the internet; <http://taten.municipia.at/>

Belgium

Year 2002

Policies

Prevention of waste is very important in the European and the Belgian waste policy. Also the use of certain dangerous products is forbidden by European legislation.

Legislation

Flanders:

It is an aim of the Flemish policy to protect public and environmental health against damaging influences of wastes and to prevent dissipation of raw materials and energy by (in the following order of priority):

Preventing and reducing waste production and preventing or reducing the damaging features of wastes;

Promotion of waste recycling; and

Organising the disposal of all the wastes which cannot be prevented or recycled. (article 5 of the Waste Management Decree of 20.04.94).

On prevention:

In 1994, Flemish government started a PRESTI-programm (PREvention STimulation) to support professional associations who wanted to inform their members about environmentally sound management systems. The first step was the realization of studies per professional sector, the second step was dissemination of obtained knowledge to the members.

The sectors which have been studied are: road construction contractors; potato-peel companies; builders; bakers, icemakers and chocolate makers; brewers; motor body makers; recycling companies of man-made fibres; metallic equipment-dealing companies; vegetable processing companies; traditional metal processing companies; companies in graphical sector; industrial metal processing companies; furniture companies; natural stone processing companies; metal surface treatment companies; paper and cardboard processing companies; board material companies; rubber industry; painters; cabinetmakers; slaughters; stowing and package handling companies; dentists; paints making companies; textile companies; meat processing companies; manufacturers of packaging system, endurance systems and construction parts; hospitals; and metal melting and pouring companies.

Presti 1 was very successful, distribution of knowledge still goes on, some studies will be updated soon, further work is still going on with pilot companies that have introduced prevention measures (Presti 2 and Presti 3).

A following project, Presti 4 started in 1998 and is still going on. The Presti 4-programm is addressed to intermediary organizations that set up projects to stimulate companies to produce in an ecological way. Companies who want to participate in these projects have to sign an environmental commitment and work out some environmental actions during one year. These actions include reduction of waste, emissions, rational use of water and electricity etc. If the companies complete this 'action year' successfully they are rewarded with a certificate.

Based on the experiences of the former programmes, the Flemish Government will start with PRESTI 5 in 2003. This program is linked with the original Presti program, but in this program the prevention of waste and emissions by SMEs is the central objective. Also new targets groups like education, research bureaus, environmental organisations etc will be involved.

On recycling / recovery and final disposal:

For waste management the Flemish Region disposes of a large variety of policy instruments to succeed in the objectives namely to prevent as much waste as possible, and to recycle the waste that is still produced as materials or as energy and to use dumping only as the last resort. For its waste management, the Flemish Region does not only dispose of agreements on environment management, but also of environmental levies on waste elimination, of landfilling and incineration bans, of duties of acceptance, return collection duties, environment licences, subsidies, etc.

Wallonia:

The Walloon Government's action plan reflects the wish to reduce the quantity of hazardous waste and the degree of hazard represented by waste that are produced.

In order to reduce the quantity of waste, the Government is introducing a new waste reduction target: The "polluter pays" principle and the principle of producer responsibility in accordance with waste management plan;

Lowest priority to landfilling and introduction of landfill tax;
Highest priority to the waste treatment in the form of recycling encouraged by regional authority investments and increase in the private undertaking;
Adoption of cleaner process techniques by industries, using of resources more effectively and re-using or sale of by-products;
Adoption of more suitable consumption patterns by consumers, for example, buying products with minimal packaging or/and re-use; and
Use of agreements as management tools to promote the overall principle of answerability of waste generators and market orientation in the field of waste and recycling.

In order to reduce the degree of hazard represented by waste to be landfilled, following suitable treatment are used: physical treatment (solidification/ stabilization and deshydration); biological treatment (biological activity); and physico-chemical treatment (dechlorination; dechromatisation; and decyanurisation).

These objectives were translated into Government Action Plan and into a decree on waste on 27 June 1996.

Brussels:

During the implementation of the waste strategic plan 1998-2002 and more especially of the prevention plan of action, the IBGE-BIM led many informational and awareness-raising actions towards the general public. Several topics were approached, but with regard to hazardous waste, the batteries were under scrutiny.

This topic has been presented until now only in publications (a booklet "10 advices to stop the increase of garbage" and the journal "A minimum amount of garbage, we will get there!").

Article 4 of the Law for prevention and management of wastes of 07.01.91 allows the Government to take measures to prevent or reduce production of waste and its nocivity:

by encouraging development of cleaner technologies and technologies needing less natural resources;
by encouraging development of products conceived in a way that their production, their use or elimination does provoke as less as possible raise in amount or in nocivity of wastes; and
by developing appropriate techniques for elimination of dangerous substances in wastes.

Decision of 06.04.95 fixes environmental standards for the sector of textile cleaning. These conditions were set up after a sector campaign organized by the Clean Technologies Department of the Brussels Institute for Management of Environment.

Incentives

Ecotax: Since July 1993 a national law introduced taxes on certain consuming products that are considered to be harmful to the environment (soda packaging, batteries, pesticides, paper etc.).

MAMBO: MAMBO is the Dutch abbreviation of "Less Waste, More Profit". By means of a software package developed by the Flemish Waste Agency, companies are able to calculate the exact cost of their waste production. The objective is to bring about awareness about this topic and to focus on waste prevention.

Flanders applies the 'polluter pays' principle. Simultaneously, a price-differentiation distinguishes between the fraction for incineration or landfilling (the 'rest-fraction' or residual waste stream) and the fractions collected separately for recycling. The Flemish Government has also imposed additional environmental taxes on the residual waste stream. The purpose of these taxes is to stimulate prevention and recycling, and also to finance regional environmental policy.

Implementation of tax legislation on waste: In Flanders, environmental taxes are put on final disposal of waste materials, i.e. on incineration and landfilling, with exemptions on recycling. It constitutes a good instrument for discouraging production of waste materials at source and accordingly promote prevention.

Others

Flanders: The environmental management plan MINA1997-2002 which indicates the environmental policy of Flanders, describes some actions to reduce and/or eliminate generation of hazardous and

other wastes:

action 33: Developing and starting an active management for the prevention and disposal of asbestos-containing substances;

action 34: Provision of information for certain target groups to optimize soil remediations;

action 35: Development of an "active-soil" system for a better management of contaminated soils (prevention of diffusal of contaminated soils);

action 40: Development of a producer-responsibility in the waste fase. The idea behind this action is the fact that the producer is still responsible for its product when the product is waste and has to be recycled or disposed;

action 43: Development and promotion of a system of the covering of costs for household wastes. The aim is to make a combination of the principle which says that "the pollutor pays" and the environmental rentability of the system;

action 44: Development of a management plan for a better separated collection of waste arriving from small and average enterprises;

action 45: Prescription of the conditions to re-use waste as a secondary material;

action 46: Development of a programme for a better trading of recycled wastes;

action 47: Development of a management plan for collecting and processing organic waste for the years 1998-2001; and

action 48: Development of a management plan for collecting and processing municipal waste for the years 1998-2001.

Wallonia:

Development of production technology to minimize the production of hazardous waste; and

Development of technology to neutralize hazardous waste.

Canada

Year 2002

Policies

In Canada, both mandatory and voluntary plans and programs exist. They are set up by the federal and provincial governments and by municipalities. In general, provincial and municipal plans tend to be mandatory, whereas federal plans are voluntary. Some examples are as follows:

Section 188 of the Canadian Environmental Protection Act, 1999 creates a new authority for the Minister of the Environment. The Minister may require an exporter or class of exporters of hazardous waste or prescribed non-hazardous waste for final disposal to submit and implement a plan "for the purpose of reducing or phasing out" those exports. Once such a requirement is imposed, the Minister may refuse to issue an export permit if the plan is not submitted or implemented.

Section 191(g) authorizes the Government to develop regulations respecting these plans referred to subsection 188(1), "taking into account: i) the benefit of using the nearest appropriate facility, and ii) changes in the quantity of goods the production of which generates hazardous waste to be disposed of by an exporter or class of exporters."

The Toxic Substances Management Policy will continue to work for the health of Canadians and for the environment. This policy provides a two track approach to managing toxic substances. The first track is the virtual elimination from the environment of toxics substances that result predominantly from human activity an that are persistent and bioaccumulative and the second track encourages management of other toxic substances and substances of concern, throughout their entire life cycles, to prevent or minimize their release into the environment.

In 2001, the National Pollutant Release Inventory (NPRI), contained 266 specified substances. For the year 2001, reports for 202 of the 266 NPRI-listed substances were submitted by 2617 facilities. These increases can primarily be attributed to an increase in compliance promotion activities from NPRI regional offices. For an overview of changes to year 2001 reporting criteria go to:

http://www.ec.gc.ca/pdb/npri/NPRI_2001changes_e.cfm

Legislation

Canada does not apply legally defined technical standards regarding manufacturing and recycling processes in order to support Waste Minimization (Reduce, Reuse, Recovery & Recycle). Additionally, Canada has implemented efforts in product take-back obligations ("stewardship") and deposit refund schemes.

Incentives

Taxes and duties are levied on waste intensive products and waste treatment and landfilling. Some examples include provincial and local tipping fees, advance disposal surcharge for pesticide containers and taxes on new tires sold. Financial aid programs and economic incentives are applied extensively for both municipal solid waste and hazardous waste minimization. Financial aid is given to research and development, pilot plant design and construction, development of clean technologies, consulting services, eco-balances and eco auditing. Financial aid is granted by federal institutions, provincial administrations and by private funds. Some examples include:

Action 21, which is a federal government funding programme for public environmental awareness initiatives and local environmental projects;

Technology Partnerships Canada - Environmental Technologies which is a federal investment support programme for business in the form of interest-free loans. Support is given to the development of new technologies, processes and products;

a provincial waste reduction fund which provides a 50% cost share for waste reduction initiatives; and

A provincial financial assistance programme to the recycling industry. Subsidy of up to 50% of the capital costs, loan guarantees.

Industry

Economic and consumer pressures have moved industry to introduce methods of waste reduction on a voluntary basis. Some of the initiatives include:

Total Quality Management programs such as the ISO standards. These Programs improve the overall operations of businesses and as a partial result of these efforts, a net reduction in wastes is achieved;

The Canadian Chemical Producers Association program of "Responsible Care" has resulted in a "cradle to grave" or product stewardship approach in the chemical industry; and

The Ontario Printing and Imaging Association has introduced "The Empty Trash Can" program in an effort to promote reduced wastes and associated costs.

Others

In Canada, Waste Minimization is fostered by information services offering support to private households and industrial waste producers.

A provincial recycling council, information services on recycling;

A provincial recycling organization which provides information on recycling and also supports the management of a deposit-refund system for beverage containers and a programme on recovery and recycling of used tires; and

An association of municipal recycling coordinators offers information to private household.

Eco-labeling, Environmental Choice Programme. This voluntary program has developed environmental criteria against which products and services are assessed. Companies whose product or service passes testing and verification to ensure that they are environmentally sound, are licensed to use the EcoLogo.

Denmark

Year 2002

Policies

The Government's National Waste Plan, Waste 21, sets out the overall strategy for waste

management and introduces a series of initiatives for treatment of waste. As a result of Waste 21, Denmark has started the preparation of a national strategy for waste prevention. The reduction and/or elimination of hazardous waste is not only based on a separate strategy but is also based on bans and phasing out of chemicals which is implemented through the national strategy of chemicals.

Industry

Environmentally sound management, ISO- and EMAS- systems are widespread in industries. New initiatives are set out in the coming strategy for waste prevention.

Finland

Year 2002

Policies

The National Waste Plan Until 2005, which came into force on 1 August 1998, sets targets, among other things, for the reduction of the amounts and harmful properties of waste. The Plan presents the administrative and legal, economic and informative instruments to be used in implementation. The targets are set for and the measures geared to the years 2000 and 2005. The plan has been updated in 2002.

Regional waste management plans have been drawn out for 13 regions. The plans specify measures to be taken in the regions in order to carry out and develop the tasks provided for or regulated in or under the Waste Act. They present data on wastes and the current state of waste management, the developing targets set and measures necessary to achieve them. One of the developing targets dealt with in the plans is the minimization of generation of wastes.

Legislation

The Waste Act (1072/1993), which entered into force on 1 January 1994, introduces the general obligation to prevent waste generation and to reduce its quantity and harmfulness. In order to implement the general obligation, the Government may issue general regulations concerning the production and marketing of products. Such regulations have so far been issued for example on batteries and accumulators, ozone depleting substances, asbestos and impregnated wood.

The Environment Protection Act (86/2000) sets general regulations on the licensing of industrial facilities including waste disposal and recovery plants and major waste-generating industries. The Act aims at the reduction of the burden to the environment caused by various industrial operations as well as at the prevention of waste generation and reduction of their harmful effects. The Act replaced several previous regulations on facility licensing. According to the Act, the environment permit shall contain necessary regulations, among other things, in order to minimize the waste generated and diminish the harmful properties of wastes. The Act came into force on 1 March 2000.

Incentives

The Waste Tax Act (495/1996) came into force on September 1, 1996. The Act was amended in December 2002. According to the Act, from 1 January 2003 a State tax of 23 euros per tonne shall be paid on waste deposited at landfills operated by municipality or a body appointed by the municipality or a landfill which is operated primarily for the purpose of receiving waste by another party. The tax will be raised to 30 euros per tonne from 1 January 2005. Some waste types are exempt from waste tax.

Some subsidies are awarded by the government to projects aiming at environmental protection. Among waste management projects, in general, the priority is given to those projects which aim at the prevention of waste generation and the reduction of hazardousness of wastes.

Industry

Various industrial establishments and waste generators continuously develop their process technologies e.g. in order to eliminate generation of hazardous and other wastes. In recent years a

number of industrial establishments have also created their own environmental management systems on voluntary basis, for example, in accordance with the European Community Eco-management and Audit Scheme (EMAS), ISO 14001 or branch-specific programmes such as "Responsible Care" by the chemical industry. In December 2002, there were 45 EMAS-registered sites in Finland, and the number is continuously growing.

Others

Waste and hazardous waste minimisation are also promoted by: education and advisory services. It is a legal obligation for the Finnish Environmental administration (especially Finnish Environment Institute and regional environment centres) and local authorities to provide advisory services on wastes to all interested parties (industry, commerce, households etc.). Advisory services include preparation and dissemination of information material (brochures, guidebooks, websites etc.), information campaigns, on-line advice, and training courses. Advice is given on all necessary issues related to wastes and their management but the main focus nowadays is on preventive measures. Advisory services are also provided by regional waste management organisations, private companies, producer corporations and environmental NGOs. ecolabelling, such as Nordic Swan Label and European Union Ecolabel, research programmes and R & D projects, such as the Environmental Cluster Research Programme co-financed by several ministries and academies which aim at seeking new ways of saving the environment and natural resources and at developing them into environmentally friendly products, production technologies and infrastructure, and various R & D projects financed by the National Technology Agency TEKES (www.tekes.fi).

France

Year 2002

Policies

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

Legislation

Decree No. 98-638 from July 20th 1998 about how to take into account the environment requirements in the design and the manufacturing of packaging;

Decree No. 99-374 from May 12th 1999 about introducing batteries in the market and their disposal;

Decree No. 2002-1563 from December 24th 2002 about the disposal of used tyres; and

Decree No. 2003-727 from August 1st 2003 about the treatment of end-of-life vehicles.

Incentives

Taxes (General tax on polluting activities) on the disposal of hazardous wastes and other wastes.

Industry

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

Others

None.

Germany

Year 2002

Legislation

Recycling Management and Waste Act (1994, amended in 2002) with supplementary regulations, in particular:

Sewage Sludge Ordinance (1992, amended in 2002);

Battery Ordinance (1998, amended in 2001);

Waste Oil Ordinance (1987, amended in 2002);

CFC-Ordinance (1991);
Ordinance on Bio-wastes (1998);
Packaging Ordinance (1998, amendment in preparation);
Ordinance on the management of waste wood (2003);
PCB-waste Ordinance (2000);
Ordinance on Underground Waste Stowage (2002);
Technical Instruction on the Management of Hazardous Waste (1991);
Commercial Wastes Ordinance (2002); and
Waste Management Plans issued by the Federal States.
Federal Immission Control Act (1974, amended in 2002) with supplementary regulations; in particular: Ordinance on Waste Incineration Plants (1990, amended in 2003).
End-of-Life-Vehicle Act (2002) and End-of-Life-Vehicle Ordinance (1997, amended in 2002).
Council Regulation (EEC) No 1836/93 of 29 June 1993 allowing voluntary participation by companies in the industrial sector in a Community eco-management and audit scheme (EMAS).

Industry

Environmental aspects are implemented in many German Industrial Standards (DIN). There is a “Manual on the Consideration of Environmental Aspects in Standardization and Development of New Products” (2001; DIN-Fachbericht 108).

Many enterprises from different branches of industry and administration participate in the eco-management and audit scheme (EMAS) or have achieved an ISO 14001 certification. More information is available from the Focal Point or <http://www.emas-register.de> and <http://www.iso14001-register.de/index.html>.

The German Environmental Label comprises more than 100 different product criteria (e.g. tires, copiers, paper) and several thousand labeled products. For further information see <http://www.blauer-engel.de>.

Others

Program of the Federal Government “Research for the environment” from 1997 with emphasis on environmentally sound products, reduction of littering, ecological and social causes of waste generation, waste avoidance, precautionary waste management and closed loop recycling management.

Research projects by the Federal Ministry of Research and Education on sustainable business and integrated environmental protection in several industrial branches (e.g. plastics and rubber industry, metallurgical processes, agriculture, packaging industry, foundries, food processing, textile industry, wood processing). For further information <http://www.bmbf.de> or <http://www.fona.de>.

Iceland

Year 2002

Policies

Production of hazardous wastes and other wastes shall be reduced as much as possible. Reuse and recovery shall be encouraged to reduce the amount of waste for disposal. The use of economic instruments shall be increased for achieving these goals. Certain activities are required to submit green accounts.

Legislation

Act No. 7/1998, on hygiene and environmental control;

Regulation No. 805/1999, on waste;

Regulation No. 806/1999, on hazardous wastes;

Regulation No. 809/1999, on waste oils;

Regulation No. 609/1996, on packaging and packaging waste; and

Regulation No. 785/1999, on operating licences for activities that can cause pollution, prescribes

the use of best available techniques.

Industry

Implementation of environmental management systems.

Israel

Year 2002

Policies

A policy for waste reduction was adopted. More permits were issued for recycling and reuse of hazardous waste. The Ministry of the Environment encourages reduction, recycling and reuse of hazardous waste.

Legislation

In process.

Incentives

The Ministry of the Environment funded up to 40% of the cost for industry (facilities) that invested in hazardous waste reduction.

Italy

Year 2002

Legislation

Legislative Decree No. 22/97, Art. 3

Luxembourg

Year 2002

Policies

National Waste Management Plan adopted by Government on 15th December 2000; and Obligation for industries and Small and Medium Enterprises (SME) to establish internal waste management plans with the view of reduction and recycling of waste.

Legislation

Modified Waste Management Law of 17th June 1994.

Incentives

"SuperDrecksKëscht fir Betriiber" initiative taken since 1992 by the Ministry of Environment and the Chamber of Handicraft with the aims of:
advising industries and Small and Medium Enterprises (SME) in good ecological practice of internal waste management; and
giving a quality label to the companies with a good waste management practice.

Industry

Internal waste management according to internal Waste Management Plan and/or waste management practice according to "SuperDrecksKëscht fir Betriiber"-concept.

Others

None.

Monaco

Year 2002

Policies

No measures

Legislation

No measures

Incentives

No measures

Industry

No measures

Others

No measures

Netherlands

Year 2002

Policies

Multi Year Plan on hazardous waste;
Ten Year Program on waste (non-hazardous including household waste); and
Cleaner production program: industries are encouraged to reduce the amount of waste produced. Goal is the reduction of 10% relative to the amount of waste. Most measures that are taken are optimization of processes (better use of raw materials and internal recycling).

Legislation

Decree on landfill ban for specific hazardous and other waste.

Incentives

Tax on landfill; decision to increase tax for landfill of household waste and combustible non-hazardous waste; and
Tax-reduction for companies investing in environmentally friendly technology, specified in an official Tax-regulation. Hundreds of machines, systems, or specific additional installations are mentioned.

Industry

Specific measures at polluting industries (for example, a change over in the process of Zinc production reduces the amount of waste considerably); and
Voluntary agreements with industry to reduce the amount of waste.

Others

Governmental support: subsidies on quick scans focused on possibilities to reduce waste, advises to industry; and
Regulatory instruments: permitting procedures also take waste prevention into account. General rules for small and intermediate sized companies.

New Zealand

Year 2002

Policies

The New Zealand Waste Strategy has been developed to look for ways to minimise New Zealand's waste and improve its management. The Strategy includes four main work programmes:
Institutions and legislation - ensuring we have a sound legal framework for waste minimisation and management, with clear roles for central, regional and local government; ensuring good planning, and compliance with international conventions.
Waste reduction and materials efficiency - developing tools and techniques to reduce waste and maximise re-use, recycling and recovery; removing obstacles to the use of recovered materials, and

developing economic incentives to change wasteful behaviour.

Information and communication - collecting the right information on waste minimisation and management; enhancing community understanding of waste issues, and encouraging individual efforts to reduce waste.

Standards and guidelines - setting consistently high environmental performance standards for waste treatment and disposal, transport and storage; having all waste facilities account for the full cost of their operation and charge accordingly.

The strategy sets national targets for dealing with various waste streams. Some key targets relate to: Re-using and recycling high-volume wastes (eg, garden wastes, sewage sludge, and building and demolition wastes);

Minimising and managing hazardous wastes (eg, organochlorines, contaminated sites, and hazardous components in business waste);

Upgrading waste disposal facilities (eg, closing or upgrading substandard landfills and wastewater treatment plants); and

Charging waste generators the true environmental cost of treatment and disposal (eg, charging full cost at landfills).

Legislation

Resource Management Act 1991;

Hazardous Substances and New Organisms Act 1996; and

Guidelines for the Management of Hazardous Waste (under development by the ministry for the Environment).

Incentives

Encouragement for appropriate disposal pricing initiatives.

Industry

Sector based cleaner production initiatives.

Norway

Year 2002

Policies

No special measures are taken to reduce the amount of hazardous waste which is generated.

National policies are focused on collecting and disposal of hazardous waste to avoid that that hazardous waste are spread in nature or disposed together with non-hazardous waste, thus causing potential pollution.

Legislation

The Pollution Control Act and the regulation on hazardous waste are the main legislation about hazardous waste.

Several other regulations concern specific types of hazardous waste and associated problems, as batteries, waste oil, oily water, photographic chemicals, amalgam, PCBs, CFCs, fire and explosion hazards, export and import, chemicals in general, warning labels and health, environmental and safety activities in enterprises ("internal control").

Agreements between the Ministry of Environment and industry associations give industry the responsibility for dealing with collecting and disposal of certain types of waste. Several agreements are under preparation and will be implemented in 2003.

Incentives

Taxes or deposit are laid on products that will generate hazardous waste, such as lubrication oil, trichloroethylene, perchloroethylene.

A refund is provided when some types of hazardous waste, as waste oil, trichloroethylene, insulated glass units containing PCB are delivered to approved facilities.

Industry

The batteries-importing industry has developed a return scheme for used lead accumulators. In accordance to an agreement with the Ministry of The Environment, the industries producing insulated glass units and windows have developed a return scheme for discarded insulated glass units containing PCB. The scheme has been financed by a subvention from the Ministry in 2002, but it is intended that the scheme will later be financed by a charge on new windows.

Others

The regulation lays a demand of registration (declaration) for all hazardous waste when delivered by enterprises to firm authorized to handle hazardous waste.

Spain

Year 2002

Policies

The national strategy on hazardous wastes in Spain is defined on the National Plan on Hazardous Wastes. The Plan is currently under revision.

According to the Draft of the new National Plan on Hazardous Wastes (ending in 2008), the priority will be put on the prevention, by proposing a specific target of 15% reduction of the hazardous wastes currently generated.

This is an aggregated objective, which will be obtained by the contribution of every sector according to their real possibilities. A basic tool to establish the specific contribution of every sector to the prevention objective will be the integrated environmental permit to installations according to the IPPC scheme, and which will be relying on the definition of what is understood as the Best Available Technique (BAT) for every type of installation.

Besides this instrument, there exist other specific legal or economic instruments already in place or which will be created to help reaching the target, as:

deduction in taxes for companies, by 10%, of their investments in environmental assets (in place since 2001);

voluntary agreements with stakeholders; and

promotion of Environmental Management Systems and Schemes (ISO-14000 /EMAS).

Besides the priority aim of the prevention, the Plan also establish specific management targets for the hazardous wastes which will be generated. Namely:

Recycling: 30%

Energy recovery: 23% (6% as fuel for other processes and 17% incineration; and

Disposal: 44% 14% through physico-chemical processes and 30% through landfilling).

It has been assumed as an “unwanted” alternative that, due to social reaction against several hazardous waste management options, as energy recovery might be, the target for energy recovery could be reduced to 10%, which would be meaning that the disposal would be increased to reach 57% (43% in landfills).

The national strategy on municipal wastes in Spain is set on the National Plan on Municipal Wastes (2000-2006), published in the Official Gazette of 2 February 2000.

Its objectives are, inter alia:

to maintain in the year 2002, the quantity of municipal wastes generated, at the 1996 level, thereby reducing by 6 per cent the quantity of waste per inhabitant per year;

to reduce, prior to 30 June 2001, by 10 per cent, the annual generation of packaging wastes in relation to the quantity generated in 1996;

to ensure other levels of reuse, recycling and recovery for specific wastes selectively collected (glass, paper/carton, packaging of various origins, etc.) set out in the Plan;

to eliminate the uncontrolled spillage of wastes by the end of 2006 and in the same year, eliminate in controlled landfill sites 33 per cent of the municipal wastes generated, and in landfill sites which comply with directive 1999/31/EC of the European Community; and

to build "clean points" for the selective collection of domestic hazardous wastes (paint, solvents, oils, etc.), of which 200 had already been installed in the whole country by 1999.

The Plan foresees a total investment of 3.000 million Euros.

In addition to the National Plan on Municipal Wastes, various plans on specific waste streams have been issued through 2001, namely:

used tires (Official Gazette of 30/10/2001);

end of life vehicles (16/10/2001);

construction and demolition wastes (12/07/2001); and

sludge from sewage treatment plants (12/07/2001).

Legislation

(Note: most part of applicable Spanish legislation, whether EU legislation, national or regional legislation, can be accessed or downloaded through the webpage of the Ministry of Environment of Spain: www.mma.es)

Act 10/98 on Wastes is aimed, inter alia, at preventing the production of wastes and encouraging, in this order, its minimization, reuse, recycling and other forms of recovery, with the view to protecting the environment and human health. To that end, the Government will be able to establish norms for the various types of wastes, including specific provisions on the production and management of wastes.

Industries and activities generating hazardous wastes are subject to administrative authorization. The permit must determine the maximum quantity per unit of production as well as the characteristics of the wastes which can be generated, on the basis of certain criteria, including, the use of less contaminating technologies under economic and technically viable conditions, as well as technical characteristics of the installation in question. When applying the criteria for deciding on the less contaminating technologies, priority will be given to the principle of prevention of wastes. To that end, the Act foresees the use of various instruments as voluntary agreements on the management of wastes by those responsible for launching on the market products which after use become waste. Voluntary agreements should be approved or authorized by the relevant competent authorities, which in some cases may themselves participate in the agreements. The Act expressly requires that any potentially recyclable or recoverable waste should be destined for that purpose and its elimination avoided as far as possible (in the case of hazardous wastes, this requirement will be applicable from 1 January 2000).

The regional authorities of the Spanish State should have to draw up regional plans on waste. The national government, by integrating these regional plans, should draw up national plans on waste which should establish the goals relating to reduction, reuse, recycling, other forms of recover and elimination, the measures to adopt in order to attain these goals, the financial means and the procedure for reviewing the plans.

Act 11/97 on packaging and packaging wastes lays down goals for reducing the generation of packaging and recovering those produced, 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, which develops and implements the above mentioned Act 11/97 on packaging and packaging wastes requires packaging industries to prepare triennial forecasts indicating the goals for reducing the generation of packaging waste and their content of hazardous substances.

The attainment of previous goals will be ensured through voluntary sectoral agreements (between packers, dealers in packaging products, those involved in recycling activities, etc.) reached by establishing integrated management systems for packaging wastes and used packages.

Royal Decree 1378/1999 provides for measures for eliminating and managing PCB/PCTs as well as apparatus containing them. It sets the year 2010 as the deadline for the gradual elimination of PCBs, either directly, including apparatus that contain them, or indirectly through decontamination.

Further rules are being prepared including sectoral agreements on other specific waste streams such as out-of-use vehicles or used batteries and accumulators, which incorporate measures on the

minimization of the generation of hazardous wastes.

In 27th December the 2001, Decree 1481/2001 regulating the landfilling of wastes has been passed in Spain (it is the transposition of directive 1999/31/EEC) The costs supported today by users of landfills are, in general terms, far from reflecting the real cost of final disposal of wastes through landfilling, which in fact means a transfer of environmental costs to the society as a whole and to future generations. The new regulation will mean that the price the user of a landfill will pay for the elimination of his wastes will be the real price, including the cost of controlling the landfill for a minimum period of 30 years after it has been closed. This measure will apply to all new landfills and gradually (before the year 2009) to all existing ones. The rise in the cost of the landfilling of wastes will have a positive effect on more appropriate alternative methods of waste management from an environmental point of view (reuse, recycling, energy recovery), as well as on the prevention of the generation of wastes.

There are also other regulations which apply to specific waste flows and/or waste treatments, i.e.:
Management of Used Industrial Oils: Ministerial Order of 28/02/89 (Official Gazette num. 57 of 08/03/89), as modified by Ministerial Order of 13/06/90 (Official Gazette num. 148 of 21/06/90);
Used Batteries and Accumulators: Royal Decree 45/1996 (Official Gazette num. 48 of 24/02/96) as modified by Ministerial Order of 25/10/2000 (Official Gazette num. 258 of 27/10/2000);
Management of End of Life Vehicles: Royal Decree 1383/2002 (Official Gazette num. 3 of 03/01/2003); and
Incineration of Wastes: Royal Decree 653/2003 (Official Gazette num. 142 of 14/06/2003 and num. 224 of 18/09/2003).

Incentives

Subsidies or economic assistance reflected in the plans (mentioned above);
Every year the State grants subsidies for the environmentally sound collection and management of used oils, on a quantity which typically averages 6 million Euros; and
Sectoral agreements on the management of wastes (mentioned above).

Industry

Voluntary sectoral agreements on the management of wastes (mentioned above); and
Certification of Environmental Management Systems according to ISO 14000, more than 600 firms (as of 30.11.2000); and according to the Community Environmental Management Audit System (EMAS), 70 firms (as of 14.09.2000).

Sweden

Year 2002

Policies

EU Waste management strategy:
Prevention of generation of waste;
Reduce content of hazardous material in the waste;
Reuse or recovery of material or energy; and
Safe and adequate disposal of the waste.

Legislation

Producer responsibility of different kinds of waste;
Ban on landfill of sorted combustible waste from 1 January 2002;
Ban on landfill of organic waste from 1 January 2005; and
Ordinance on wastes sent to landfills.

Incentives

Tax on waste sent to landfill from 1 January 2000.

Turkey

Year 2002

Policies

Minimization of the waste production at the source;

The recovery and reuse of waste is the principle of our national regulation if recovery and reuse of wastes are impossible as technical and financial prospective. The wastes shall be eliminated without causing and damage to the environment and human health. Elimination systems must be selected based on the waste characteristics and the corresponding technologies; and

Establishment of sufficient elimination facilities, and control of such facilities in an environmentally sound manner.

Legislation

Communiqué on the Rules for the Incineration of Wastes as Alternative or Additive Fuels in Cement Rotary Kilns;

Regulation on the Control of Hazardous Wastes (published on 27 August 1995);

Regulation on the Control of Clinical Wastes (published on 20 May 1993); and

Regulation on the Control of Solid Wastes (published on 14 March 1991).

Incentives

Application of lower electric cost to waste disposal facilities, which produce energy.

Industry

The waste generators shall be liable to adopt the necessary measures for the minimization of waste production and to ensure waste management in a manner so that the harmful effects of wastes on the environment and the human health shall be minimized in accordance with the provisions of national regulation.

Also waste generators have to fill the waste declaration form every year and forward it to Ministry of Environment using the waste description code issued by the Ministry.

Responsible care is being implemented among the industrialists. There has been also Environmental Voluntary Declaration applied by the Ministry of Environment and Forest to some industries. Also, efforts are made by the industries/waste generators through recycling/recovery to reduce the generation of hazardous wastes.

Others

In order to enhance the recovery of waste pilot projects have been initiated in Istanbul, Kocaeli and Bursa provinces by the coordination of the Ministry under the umbrella of Turkish Union of Stock Markets and Chambers Commerce and Industry regarding the waste stock exchange.

United Kingdom of Great Britain and Northern Ireland

Year 2002

Policies

Waste Strategy 2000 for England and Wales was published in May 2000; Scotland's National Waste Strategy was published on 9 December 1999; Northern Ireland's Strategy on 22 March 2000; and Wales' National Waste Strategy "Wise about Waste" was published in June 2002.

Each strategy sets up a long term framework with challenging targets underpinned by realistic programmes to deliver more sustainable waste management; raising the awareness and participation of all stakeholders, including the public. The emphasis is on prioritising waste minimisation, achieving substantial increases in the recovery of value through recycling, composting, anaerobic digestion, and various Energy-from-Waste technologies.

The Prime Minister's Strategy Unit Report - 'Waste Not, Want Not', published in November 2002, looked at ways to fulfill the UK's obligations and targets (particularly under the Landfill Directive)

and to deliver more sustainable waste management. In its response, the Government accepted the majority of the reports' recommendations, and action has been taken to implement these commitments significantly in the increase of the landfill tax, the reformation of the Landfill Tax Credit Scheme and the creation of a new Waste Implementation Programme within Defra to deliver a package of strategic measures recommended by the report.

England/Wales: Waste Strategy 2000 set targets for the reduction of certain wastes going to landfill, and for the recovery of value (particularly through recycling and composting). These include targets to: reduce the landfill of industrial and commercial waste to 85% of 1998 levels; recycle/compost at least 25% of household waste by 2005; 30% by 2010 and 33% by 2015; and, recover value from 40% of municipal waste by 2005; 45% by 2010 and 67% by 2015. In March 2001 statutory performance standards were set for local authorities in England. These require them to, on average, recycle/compost double 1998/9 levels by 2003/4 and almost treble those levels by 2005/6.

Wales: The Welsh Assembly Government published its National Waste Strategy "Wise about Waste" in June 2002 which can be viewed on www.wales.gov.uk. The emphasis is on waste minimisation and re-use of materials, and includes targets to: achieve combined recycling and composting of municipal waste of 15% in 2003-04, 25% in 2006-07, and 40% in 2009-10 (with only compost derived from source segregated materials counting); reduce the landfill of industrial and commercial waste to less than 85% of 1998 levels by 2005, and less than 80% of 1998 levels by 2010; reduce hazardous waste by 2010 by at least 20% compared with 2000. The Welsh Assembly Government has so far allocated £79 million in additional resources to improve waste management in Wales for the period 2001/02 to 2004/05.

Scotland: The National Waste Strategy: Scotland sets voluntary targets for the reduction of municipal waste and industrial waste arisings and encourages increased recycling, composting with energy from waste where this has a place as the Best Practicable Environmental Option. Targets for recycling etc

will be established once the 11 Area Waste Plans have been established.

Northern Ireland: The Waste Management Strategy for Northern Ireland sets provisional targets for the reduction of waste to landfill and for increases in recycling and composting. These include targets to: recover 25% of household waste by 2005; recover 40% of household waste by 2010, of which 25% shall be by recycling or composting; reduce the landfilling of industrial and commercial wastes to 85% of 1998 levels by 2005; and, reduce the quantities of biodegradable municipal wastes being landfilled to 75% of 1995 baseline levels by 2010, 50% by 2013 and 35% by 2020. It is intended for these targets to become mandatory at the first Strategy Review point in 2003.

Legislation

The Producer Responsibility Obligations (Packaging Waste) Regulations 1997 (as amended) implement part of the EC Directive on Packaging and Packaging Waste 94/62/EC, in particular the recovery and recycling targets. These required that, by 2001, between 50% and 65% recovery and between 25% and 45% recycling of packaging waste had to be achieved and within this, a minimum of 15% of each material was to be recycled;

The GB Regulations, and parallel legislation in Northern Ireland, place obligations on certain businesses who place packaging on the market including, in particular, a requirement to carry out target levels of packaging waste recovery and recycling each year. These Regulations came into force on 6 March 1997 (1999 in Northern Ireland);

The Packaging Waste Recovery Note (PRN) is the evidence note system by obligated businesses to demonstrate compliance with their recovery operations. There is also a Packaging Waste Export Recovery Note (PERN) which is issued in respect of tonnages of packaging waste exported for recycling overseas (within and outside the EC). Only exporters who have been accredited as such by the relevant Agency (Environment Agency in England and Wales or Scottish Environment Protection Agency in Scotland) may issue PERNs;

The Packaging (Essential Requirements) Regulations 1998 took full effect in January 1999. They implement the Directive Provisions specifying essential requirements for packaging placed on the

market, which cover minimisation, avoidance of noxious and hazardous substances and the need for packaging to be recoverable (through at least one of the following: material recycling, incineration with energy recovery, composting or biodegradation);

On 1 August 2000, the Pollution, Prevention and Control (PPC) Regulations entered into force in England and Wales implementing the EU Integrated Pollution, Prevention and Control Directive (96/61/EC) for new processes. This is progressively replacing the Integrated Pollution Control (IPC) regulatory regime, applicable to the most potentially polluting industrial processes, which requires the use of BATNEEC (best available techniques not entailing excessive cost) to prevent the release of polluting substances or, where this is not possible, to minimise emissions and render them harmless. Separate systems are being introduced to apply the IPPC Directive to Scotland, Northern Ireland and the offshore oil and gas industries. Existing processes will be phased into the new regulatory regime on a sectoral basis up to 2007. IPC covers about 2000 processes whereas PPC will cover 5000-6000. The PPC regime, which requires the use of BAT (best available techniques), will also include a wider range of installations. Those regulated under PPC will be required to abide by the general principle that waste production should be avoided wherever possible; where waste is produced it should be recovered, or recycled, unless technically and economically impossible; and The technical and regulatory aspects of Council Directive 99/31/EC on the Landfill of Waste were implemented in England and Wales by the Landfill (England and Wales) Regulations 2002; these came into force on 15 June 2002. The Directive bans from landfill certain hazardous wastes, along with liquid waste, tyres, and infectious clinical wastes. It also requires the pre-treatment of waste before disposal to landfill. The Directive bans the co-disposal of hazardous and non-hazardous waste and will place strict controls on landfill sites, particularly those for hazardous waste. One likely effect of this will be to increase the cost of disposal of hazardous waste in the future, providing an incentive to reduce the amount of hazardous waste generated.

Incentives

Articles 5 (1) and (2) of the Landfill Directive deal with strategies for the reduction of biodegradable waste and sets targets to reduce the amount of biodegradable municipal waste going to landfill. These aspects of the Directive were implemented in the UK by the Waste and Emissions Trading Act 2003.

The Landfill Tax was introduced in October 1996 as the first UK tax with an explicit environmental objective. It was designed to promote the 'polluter-pays' principle by increasing the price of landfill to better reflect its environmental cost, and to promote a more sustainable approach to waste management. The 1998 Budget introduced changes to the Landfill Tax including an increase from £7 to £10 per tonne for active waste from 1 April 1999. The 1999 Budget introduced an automatic escalator which will increase the rate of tax for active waste by £1 per year, until the rate reaches £15 per tonne in 2004/5. The 2003 Budget announced that the rate will be increased by £3 in 2005-06 to £18 per tonne, and by at least £3 per tonne in the years thereafter, on the way to a medium-to-long-term rate of £35 per tonne. The rate of tax for inactive waste remains frozen at £2 per tonne.

Industry

Envirowise: Envirowise is a government-funded programme that aims to promote cost-effective waste minimisation strategies and cleaner technology. It offers free, independent advice on practical ways to minimise waste and convert turnover into profit. Envirowise offers a range of free waste minimisation consultation and reference products to businesses in the UK including the environment and energy helpline, publications (case studies, best practice guides and datasheets written by experts provide up-to-date information on waste minimisation issues, methods and successes) and waste minimisation clubs. www.envirowise.gov.uk.

Voluntary Producer Responsibility initiatives include:

Nickel-cadmium batteries (the industry-led REBAT scheme)

Electrical and electronic equipment- There have been a number of trial schemes carried out or supported by organisations such as the Industry Council for Electronic Equipment Recycling (ICER),

the Electronic Manufacturers Equipment Recycling Group (EMERG) and the European Trade Organisation for the Telecommunications and Professional Electronics Industry (ECTEL); and End of life vehicles- The Automotive Consortium on Recycling and Disposal (ACORD) signed a voluntary agreement in 1997 which sets out recovery targets.

ISO 14001: By the end of 2000 there were approximately 1700 organisations certified for the ISO 14001 scheme in the UK.

EMAS: By the end of 2000 it was estimated that 135 sites were registered for the EMAS scheme in the UK.

Others

Waste and Resources Action Programme (WRAP): WRAP is a government funded organisation which aims to remove barriers to waste minimisation, re-use and recycling, and to create stable and efficient markets for recycled materials and products. WRAP works with consumers, waste generators and re-processors, manufacturers, businesses and government. It has several work streams, focusing on generic recycling issues (financial mechanisms, procurement, waste minimization, collection and waste awareness) and specific material streams (paper, glass, organics wood, plastic and aggregates). More information on WRAP is available at <http://www.wrap.org.uk>.

UN Region: Central and Eastern Europe

Albania

Year 2002

Policies

Solid Waste Management Plan

The Law for the Management of Hazardous Chemical Substances will be completed in 2001; and The approval in July 2001 of the "Strategic Action Plan for healthcare waste management in Tirana city".

Legislation

Environmental Protection Law No. 7664 1/21/1993

Law on Public Removal of Waste No. 8094 3/21/1996;

Decision of Council of Ministers No 26 1/31/1994 on Hazardous Waste and Residues

Law No. 8364 dated 3 July 1998 amending the law No. 7664 of 21 January 1993 "On Environment Protection"; and

Decision No. 541 of Council of Ministers dated 25 September 1995 "On Duties that Ministers, Institutions and Physical and Juridical Persons have in Environmental Monitoring and Control Process".

Armenia

Year 2002

Policies

National policy is aimed to minimize wastes generation and their utilization. The Draft of the National "Law on Wastes" presupposes economic incentive measures for the enterprise carrying-out activity for the wastes recycling and utilization.

Legislation

Draft of the National "Law on Wastes" was prepared, taking into account the incentive measures for the elimination and/or reduction of hazardous wastes generation and other types of wastes. The national law presupposes penalty for the violation in the sphere of wastes management according to the Administrative Codex (article 201, paragraph 1; article 201, paragraph 2) and Crime Codex (article 237, paragraph 6) of the Republic of Armenia.

The Crime Codex was amended on June 9, 2004 and issues on chemicals and hazardous wastes management are set out in Chapter 27 «Crimes against Environment safety», articles 281-298, where the types and scopes of criminal penalties are determined in case of environmental pollution by chemicals and hazardous wastes as well as chemicals and hazardous wastes illegal management.

Incentives

According to the Chapter V “Provision of economic incentives on measures on wastes utilization and minimizing volumes of generated wastes” article 25 “Organizational economic measures aimed to ensure wastes utilization and minimizing the volumes of generation” of the draft National “Law on Wastes”, there are economic incentive measures, providing privileges to those enterprises, at which activities for the wastes recycling and utilization are implemented.

According to system on license issuing (“Order of licensing for recycling, treatment, storage, transport and disposal actions on hazardous wastes in the Republic of Armenia” approved by the No 121-N Governmental Decision of January 30, 2003), legal and natural persons engaged in recycling, treatment, storage, transport and disposal of hazardous wastes are obliged to apply for obtaining the license.

Industry

In accordance with the Chapter V “Provision of economic incentives on measures on wastes utilization and minimizing volumes of generated wastes”, article 27 “Stimulation of measures/actions aimed at utilization of wastes and minimizing the volumes of their generation” of the National “Law on Wastes” draft there are credit and fiscal privileges for wastes recycling, reusing, recuperating enterprises.

Others

In order to regulate the issues on hazardous wastes management and in accordance with the Basel Convention requirements the following documents were approved:

The Governmental Decision of the Republic of Armenia No. 874-? "Approval of the List of hazardous wastes of the Republic of Armenia" signed on May 8, 2004.

The Governmental Decision of the Republic of Armenia No. 1093-N on "Amendment to the Governmental Decision of the Republic of Armenia No.97 on December 8, 1995 and approval of the List of Banned Hazardous Wastes of the Republic of Armenia" signed on July 8, 2004.

Protocol Decision of the Government of the Republic of Armenia No. 26 "Endorsement of the National Profile on Chemicals and Waste Management" signed on July 8, 2004.

Belarus

Year 2002

Policies

National Action Plan on Rational Use of Natural Resources and Environmental Protection in the Republic of Belarus for 2001-2005 years, adopted 21.06.2001.

Legislation

Law on Waste, adopted 25.11.1993, amended 26.10.2000;

Decision of the Government on State Register of Technologies for Waste Recycling and on State Register of Facilities for Waste Neutralization and Disposal;

Decision of the Government on Adoption of Regulation on Order in Approval of Limits for Waste Disposal;

Decision of the Ministry of Natural Resources and Environmental Protection on Adoption of Rules for Development, Agreement and Approval of Instruction for Management of Industrial Waste;

Decision of the Ministry of Natural Resources and Environmental Protection on Adoption of Instructions on Procedure for Registration of Transactions for Alienation and Assignment (except transportation) of Waste to Another Person for a certain period of time;

Decision of the Ministry of Natural Resources and Environmental Protection on Adoption of Rules

for Issuing, Suspension, Cancellation of Permits for Disposal of Industrial Waste;
Decision of the Ministry of Natural Resources and Environmental Protection on Adoption of Classifier Waste Generated in the Republic of Belarus;
Decision of the Ministry of Natural Resources and Environmental Protection on Adoption of Rules for Accounting of Waste;
Decision of the Ministry of Natural Resources and Environmental Protection on Adoption of Form of Special Document for Accompanying of Transportation of Waste;
Decision of the Ministry of Natural Resources and Environmental Protection on Adoption of Rules for Norm-Setting Generation of Industrial Waste;
Decision of the Ministry of Natural Resources and Environmental Protection on Adoption of List of Waste that shall have Passports; and
Decision of the Ministry of Natural Resources and Environmental Protection on Adoption of Order on Determination of Level of Hazard of Waste and Establishing the Class of Hazard.

Incentives

Economic Mechanism in the field of waste management includes the following elements: economic incentives, fee-paying waste disposal and lending.

Economic incentives are made by exemption from taxes, for example, exemption from tax on profit received from selling of secondary raw materials. Disposal of waste is chargeable. The rate of the charge is set at differential basis depending on the level of toxicity of waste. What is more, the rate of the charge for disposal of waste beyond limits established by local authorities is five times increased. Lending is realized by giving grants from budget environmental fund. Grants are given for introduction of cleaner technologies, scientific research and development works on creating new types of environment oriented technique.

Industry

The generators of waste shall develop the norms for waste generation and get agreement on them from territorial bodies of the Ministry of Natural Resources and Environmental Protection. The waste generation norms help with operational quantitative control on waste generation and are used for development of waste disposal limits.

Bosnia & Herzegovina

Year 2002

Policies

National strategies for hazardous waste is not prepared.

Legislation

None

Incentives

None

Industry

None

Others

None

Bulgaria

Year 2002

Policies

National Waste Management Program accepted by the Council of Ministers' Decision No.254/20.04.1999.

Legislation

Regulation for the cases that require a permit for import, export and transit transportation of waste, and on the conditions and procedures for permit issuance, (repealing Regulation No 5 of 8 October 1998, on the permits for import, export and transit transportation of waste), adopted by Decree of Council of Ministers No. 166 dated 4 August 2000;

Regulation on the requirements for treatment and transport of waste oils and oil products, adopted by Decree of Council of Ministers No. 131 dated 13.07.2000;

Regulation on the requirements for putting into market of luminescent and other containing mercury lamps, and on the treatment and transportation of spent luminescent and other containing mercury lamps, adopted by Decree of Council of Ministers No. 260 dated 05.12.2000;

Regulation on the requirements for production and marketing of batteries and accumulators and for treatment and transport of spent batteries and accumulators, adopted by Decree of Council of Ministers No. 134 dated 17.07.2000; and

Regulation on the conditions and the order for the reduction of the pollution with end-of-life vehicle waste.

Incentives

Product charge for putting into market of batteries and accumulators, tires and vehicles.

Croatia

Year 2002

Policies

The value of this field needs to be typed again

Legislation

Law on Waste, Official Gazette, No. 34/95:
Article 5:

Incentives

The value of this field needs to be typed again

Industry

The value of this field needs to be typed again

Estonia

Year 2002

Policies

The environmental policy of the Estonian government has been provided by the National Environmental Strategy (1997) and the National Environmental Action Plan (NEAP: 1998), which also set guidelines for legal development. National Waste Management Plan (2002).

Legislation

Waste act, Packaging Act, etc.

Georgia

Year 2002

Policies

None.

Legislation

None.

Incentives

None.

Industry

None.

Others

None.

Hungary

Year 2002

Policies

The National Environmental Program contains 19 measures for waste reduction and recycling/reuse measures, including hazardous wastes.

The National Waste Management Plan was accepted by the Hungarian Parliament on November 2002. This Plan contains the financial and technical measures for implementation till 2008.

Legislation

Unless a legal rule provides otherwise, the producer shall prepare a three-year waste management plan for the prevention of the generation of its hazardous wastes, for the reduction of the hazard level and the quantity of its hazardous wastes, and for the recuperation and disposal thereof.

Unless a legal rule provides otherwise, the producer of hazardous waste shall draw up a material balance in respect of each of its activities resulting in hazardous waste.

On application, the National Inspectorate for Environment and Nature may authorize the drawing up of the material balance in a simplified form.

Incentives

The Central Environmental Fund supports the investments that lead to reduce, eliminate, recycling or final disposal of hazardous wastes.

Industry

None.

Others

None.

Latvia

Year 2002

Legislation

Waste Management Law, Law on Natural Resource tax.

Incentives

Natural resource tax for disposal of hazardous waste, subsidies for recovery of hazardous wastes.

Lithuania

Year 2002

Policies

National Strategic Waste Management Plan adopted by the Government of the Republic of Lithuania on 12-04-2002.

Legislation

Law on Environmental Protection;

Law on Waste Management;

Law on Packages and Packaging Wastes;
Minister's Ordinance on Waste Management Regulations;
Minister's Ordinance on Setting the Permits for Use of Natural Resources and Discharge of Pollutants into Environment, adopted on 30 November 1999; and
Law on Product Charges Amending the Law on Environmental Pollution Charges, adopted in 2002;
Minister's Ordinance on Rules on Waste Import into the Republic of Lithuania, Export from the Republic of Lithuania and Transit through the Republic of Lithuania.

Incentives

Product Charges.

Poland

Year 2002

Policies

The reduction of hazards posed by hazardous waste is one of the priorities of the "II National Ecological Policy". The National Plan on Waste Management is based on the intents of "II National Ecological Policy". The National Plan on Waste Management was established as the result of the provision contained in the Article 14 3 par. 4 of the Act on Waste of 27 April 2001. Resolution of 29 October 2002 No 219 of the Council of Ministers on the National Plan on Waste Management came into force in October 2002 (Journal of Law and Provision of 2003, No 11, Item 159)

Legislation

The new Act on Waste regulates the issues related to hazardous waste management. Compared with the previous Act, the new Act imposes more demanding standards for landfill and incineration of waste (in line with the EU requirements). The system of permits for the generation and further handling of hazardous waste will be maintained. The obligations of economic operators and the administration in the scope of information are expanded.

Incentives

The Act of 11 May 2001 on Economic Operators' Obligations in the Scope of Managing Certain Types of Waste and on the Product and Deposit Charges (O.J. of 2001, No.63, Item 639, as amended), came into force on 1 January 2002. It contains legal and economic instruments (the obligation to recover waste - or pay product charges) promoting the establishment of a system for collection and recovery of certain types of hazardous waste (waste oils, discharge lamps, batteries and accumulators).

Republic of Moldova

Year 2002

Policies

National Program for Waste Utilization, the principles of which are:
To prevent the generation of waste and reduce its harmfulness;
Waste materials should be reused, recycled or recovered, or used as a source of energy; and
Waste should be disposed of safely (by incineration or in landfill sites).

Legislation

The Law nr. 1515-XII of 16.06.93 on Environmental Protection;
The Law nr. 1236-XIII of 3.07.97 on Regime of Harmful Substances and Products;
The Law nr. 1347-XIII of 9.10.97 on Waste of Production and Consumption; and
Guidelines "ABC of waste".

Incentives

Payments for Environmental Pollution, including waste disposal, Law No. 1540-XIII of 25.02.1998

on payment for environmental pollution, based on the principle "polluter pays."

Industry

In accordance to national legislation, the industry/waste generator are obliged to use cleaner technologies; take in evidence all waste; use waste without any risk; and ensure waste disposal and recovery on the basis of the contract between economical agents and respective licence owner etc.

Romania

Year 2002

Policies

The Emergency Ordinance no. 78 / 2000 on Waste regime was approved by the law 426/2001. In accordance with art. 8 of this Emergency Ordinance the national competent authority shall elaborate Plans for management of wastes.

The Stage National Strategy for Waste Management and the Stage National Plan were elaborated in 2002 and approved by Governmental Decision 123/2003.

In accordance with art. 19 lit a) of the Emergency Ordinance no. 78/2000 approved by the law 426/2001, producers of wastes shall adopt technologies and solutions for reduction and elimination of generation of wastes.

Legislation

In accordance with art. 54 of the Emergency Ordinance no. 78 / 2000 approved by the law 426/2001, the drafts of Governmental Decisions for regulation of management of used oils, management of used batteries, incineration of wastes, landfills, and packaging and waste packaging are in preparation.

The Governmental Decision no. 173 / 2000 on regulation of PCB and similar compounds was adopted on 13 March 2000.

The Governmental Decision 662/2001 on waste oils was adopted on 12th July 2001.

The Governmental Decision 1057 on used batteries and accumulators was adopted on 18th October 2001.

The Governmental Decision 128/2002 on waste incineration was adopted.

The Governmental Decision 162/2002 on landfilling of waste was adopted.

The Governmental Decision 856/2002 regarding waste lists and inventory of waste (transposition of the New European Waste Catalogue).

Incentives

Economic instruments for reduction and elimination of generation of wastes are in preparation. These economic instruments shall be in relationships with provisions of the Law on Environmental Found no. 73 / 2000 as amended by Emergency Governmental Ordinance 93 / 2001. and republished in 2002.

Russian Federation

Year 2002

Policies

Decree of the president of RF # 444 of April 01, 1996 "On Conception of RF Transfer to Sustainable Development";

Decree of the President of RF # 1300 of December 10,1997 and # 24 of January 10.2000 "On Conception of RF National Safety";

Ecological Doctrine of the Russian Federation approved by the Order of RF Government # 1225-p of August 31,2002; and

Federation Integral program "Ecology and Natural Resources of the Russian Federation" (2002-2010) (Federation Program includes 6 programs, one of them- "Wastes").

Legislation

Federation Law #7-FZ of January 10, 2002 "On Environmental Protection";
Order of the MNR of RF # 115 of March 11, 2002 "On Approval of Methodic Guidelines on Development of a "Limits for Waste Generation/Waste Disposal" document", registered by the RF Ministry of Justice on June 9, 2002, registration # 3553;
Resolution of the State Statistical Committee # 180 of September 19, 2002 <<On Approval of Instruction Concerning Filling in the Form of Statistical Control # 2TP (Wastes) named " Data on industrial and domestic waste generation, use, treatment, transportation and disposal";
Resolution of the State Statistical Committee of July 25, 2002 <<On Approval of the Form for Federal State Statistical Control # 2TP (Wastes) named "Data on industrial and domestic waste generation, use, treatment, transportation and disposal";
Order of the MNR of RF # 734 of November 5, 2002 "On Organization of Federal Statistical Control Registration #2TP (Wastes) named "Data on industrial and domestic waste generation, use, treatment, transportation and disposal"; and
Order of the MNR of RF # 785 of December 2, 2002 << On Approval of Hazardous Waste Passport>>.

Incentives

Development of new approaches to the ecological payments aimed at decrease in waste volume generation. (Transfer from the principle "The companies that dispose waste should pay" to the principle "The companies- waste generators should pay").

Industry

Use of technological methods for waste minimization;
All enterprises- waste generators should keep statistical accounts; and
Cooperation of technologists, chemists, constructors with hygienists.

Others

Keeping of the state Waste Cadastre.
The Cadastre includes waste passportisation, keeping of waste data bank, waste recycling technologies, waste disposal facilities.
In 2001-2002 inventory of waste disposal facilities was carried out.
Increase in significance of ecological education.

Serbia and Montenegro

Year 2002

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;
- use of wastes in technological processes and other natural processes;
- use of wastes for generation of energy;
- to introduce low waste materials technology and recycling of wastes in interconnected industrial production;
- to introduce programmes for the enhancement of production 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 of 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 preliminary inventory of hazardous wastes (data from 1994) 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

Federal Level

The Law on Confirmation of Basel Convention, adopted by Federal Parliament at 24th 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, 29/97, 59/98, 44/99, 53/99, 73/2000) 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). Products are tested solely by authorized laboratories. 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 (Article 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, 16/93, 50/93, 24/94, 28/96, 29/97, 59/98) 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 Regulation on Criteria for Determining Location and Disposition of Waste Materials Deposit Sites ("Off.Herald RS", No. 54/92), Which sets out criteria for selecting disposal sites for hazardous waste materials.

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). 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).

The Regulation on Criteria for Selection of Localities, Methods and Procedures for Depositing

Waste Materials ("Official Journal of RM", No.56/00) sets out the conditions for selecting both temporary and permanent storage sites of waste containing hazardous material.

Incentives

Economic instruments were initiated in Environmental Policy Act (1993), as well as in Federal, as well as Republics (Serbia and Montenegro) Laws on Environmental Protection. However, enforcement is very poor and limited.

Industry

Serbia and Montenegro 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, 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.

Others

Environmental security, in particular, characterization, safe removal and permanent storing of all categories of wastes resulting from war activities is a difficult and expensive process.

Slovakia

Year 2002

Policies

Taking into account new waste management legislation valid since 1 July, 2001, after Act No. 223/2001 on wastes and amendment of certain acts has entered into force and taking into account deep changes in waste management a new Waste Management Programme of the Slovak Republic until 2005 was prepared instead of WMP until 2000.

According to the new Act of waste the purpose of waste management is:

to prevent and reduce waste generation by:

- 1.development of technologies saving natural resources;
- 2.production of products which as well as final products, increases the amount of waste in a minimal possible way and reduces environment pollution in a maximal possible way; and
- 3.development of suitable methods of disposal of hazardous substances found in waste dedicated to disposal.

to recover waste by recycling, reusing or by other processes allowing to gain secondary raw materials if prevention of waste generation is not feasible to achieve;

to use waste as a source of energy if material recovery is not feasible to achieve; and

to dispose of waste in environmentally sound manner and not endangering human health.

Legislation

Current legal status is covered by following regulations:

Act of the National Council of SR No. 223/2001 Coll. of Laws on Waste and on Amendment of Certain Acts as amended Act No. 553/2001 Coll. of Laws; Act No. 96/2002 Coll. of Laws; Act No. 261/2002 Coll. of Laws; Act No. 393/2002 Coll. of Laws; Act No. 529/2002 Coll. of Laws; Decree of MoE SR No. 283/2001 on Implementing Certain Provisions of the Act on Wastes as amended Decree of MoE SR No. 509/2002 Coll. of Laws;

Decree of MoE SR No. 284/2001 Coll. of Laws on Waste Catalogue as amended Decree of MoE SR No. 409/2002 Coll. of Laws;

Decree of MoE SR No. 234/2001 Coll. of Laws on Waste Classification according to Green, Amber and Red Lists of Wastes and on Standard Documents for Waste Transport as amended Decree of MoE SR No. 410/2002 Coll. of Laws; Decree of MoE SR No. 227/2003 Coll. of Laws; Decree of MoE SR No. 273/2001 Coll. of Laws on Authorisation, Providing the Expertise in Waste Management, the Appointment of Persons Authorised to Issue the Expertise and Examinations of Professional Skills of those Persons as amended Decree of MoE SR No. 399/2002 Coll. of Laws; Act of the National Council of SR No. 327/1996 Coll. of Laws on fees for waste landfilling as amended Act No. 553/2001 Coll. of Laws; Waste Management Programme (WMP) of the Slovak Republic until 2005; Act of the National Council of SR No. 529/2002 Coll. of Laws on Packages and on Change and Amendment of Certain Acts; Decree of MoE SR No. 5/2003 Coll. of Laws on Implementing Certain Provisions of the Act on Packages; Decree of MoE SR No. 25/2003 Coll. of Laws on specifications of processing of end-of life vehicles; Decree of MoE SR No. 516/2001 Coll. of Laws on tariffs for calculation of financial contribution to the Recycling Fund as amended Decree of MoE SR No. 337/2002 Coll. of Laws; Decree of MoE SR No. 733/2002 Coll. of Laws; Notification of the MoE SR No. 75/2002 Coll. of Laws on issuing the Decree No. 1/2002 which establishes the unified methods for analytical control of wastes; and Investment Strategy of Waste Management of the Slovak Republic (document is not still published).

Incentives

A fee for landfilling of wastes;
An economical support of installation of new technologies by European Union via Cohesive Fund;
Fees paid to Recycling Fund will be used for recovery of waste in the period from 2001 to 2005;
and
Local fees paid to the municipalities for collection, transport and disposal of municipal waste and construction waste (generators of municipal waste pay local fees).

Industry

According to the WMP of the SR until 2005 the most important technological and production measures allowing to achieve the prevention of waste generation are:

- a) implementation of BATNEEC in production;
- b) implementation of BATNEEC in infrastructure of the waste management;
- c) implementation of EMS;
- d) introduction of gas fuel into both the municipal and production spheres;
- e) reduction of the fossil fuels use; and
- f) exploitation of alternative energy sources (e.g. geothermal water).

Implementation of BATNEEC in waste management belongs to basic principles of the waste management strategy, that can significantly prevent waste generation in production as well as in waste processing in the future. Besides the quantitative indicators, also the positive influence on waste characteristics is the goal of the implementation of BATNEEC in order to minimize the risk of negative impacts on the environment and human health.

Slovenia

Year 2002

Policies

National Environmental Action Programme (1999);
Environmental Performance Reviews (1997);
Strategic Plan for Slovenia in the Area of Waste Management (1996);
Operational plan concerning the management of spent batteries and accumulators for period 2003
2006 (adopted by Government);

Operational plan concerning the management of PCB and PCT for period 2003-2006 (adopted by Government);
Operational plan concerning the management of waste oils for the period from 2003-2006 (adopted by Government); and
Operational plan concerning the management of packaging and packaging waste for period 2003-2006 (O.J. 29/02).
Measures taken for the reduction and/or elimination of the amount of hazardous wastes and other wastes generated are in accordance with EU waste management policies.

Legislation

Environmental Protection Act (1992) and from it deriving legislation on the field of waste management.

Incentives

Waste disposal tax (Decree on waste disposal tax, 2000); Oil tax; and Tax on vehicle.

Industry

ISO; ECO-LABELING blue angel; and awards for achievements on the field of protection of the environment and introduction of cleaner technologies.

The former Yugoslav Republic of Macedonia

Year 2002

Policies

National waste management plan is under preparation. According to the Terms of Reference waste minimization will be one of the tasks.

Legislation

Approximation of the legislation for waste with EU Regulations is postponed to 2004. One of the main issues is reduction of the amount of hazardous waste and other waste.

Ukraine

Year 2002

Policies

Verkhovna Rada (Parliament) of Ukraine 05.03.1998 No. 187/98-BP adopted the national strategy of wastes generation minimization. This strategy was included into the legislative document "The main directions of the state policy in the field of environment protection, natural resources use and ecological safety ensuring"; and

Verkhovna Rada of Ukraine 14.01.2000 No 1393-XIV passed the law "On the withdrawal from circulation, treatment, utilization, elimination or further use of unsound and hazardous products."

Legislation

Verkhovna Rada of Ukraine 14.09.2000 No 1947-III passed the law "On the National program of toxic waste management";

The Cabinet of Ministers of Ukraine accepted the National Program of Ukraine "Use of production and consumption wastes up to 2005" (28.06.1997 No 668);

The Cabinet of Ministers of Ukraine issued a resolution of 24.01.01 No. 50 "General requirements on the treatment, utilization, elimination or further use of withdrawn from circulation unsound and hazardous products"; and

The Cabinet of Ministers of Ukraine issued a resolution of 26.07.01 No. 915 (amended 26.07.02 No. 1084) "On the introduction of the system for wastes collection, sorting, transportation, treatment and utilization as secondary raw materials."

Incentives

The Cabinet of Ministers of Ukraine adopted the Resolution of 01.03.1999 No 303 "On the adoption of the procedure for normatives of levy settings for the environment pollution, and this levy collection"(amended 27.10.1999, 11.08.2000, 26.10.2001, 28.12.2001, 24.01.2002, 01.07.2002), which includes norms on the levies for waste disposal on the landfills (1999); and The Ministry of Environment and Natural Resources (now The Ministry of Environment Protection) issued an Order No. 181 of 15.05.2001 "On the adoption of the provisional method for the determination of expected losses from the environment pollution during the transportation of hazardous substances and wastes."

Industry

Preparatory activity for inventory and certification concerning waste generation is continuing by industries. The results of it will be used for the development of wastes generation decrease plans.

Others

On the basis of (iv) the Oblast (Regional) Administrations will identify the whole quantity of waste generated in the region and develop the regional plan on the waste generation decrease measures. This plan must be adopted by the Regional Council; and Beginning from the 1994 a number of educational measures was held in Ukraine (seminars, training courses) under the sponsorship of Lund University (Sweden), IDRC-AGRA (Canada), The World Bank, TACIS (Tebodin, ERM), etc. This activity is continuing.

UN Region: Latin America and the Caribbean

Antigua and Barbuda

Year 2002

Policies

Very few measures are taken to Reduce Hazardous Wastes. At the Household level, education to facilitate awareness in the reduction of Hazardous wastes is carried out.

Legislation

Draft Solid Waste Management Act encourages the reduction of hazardous wastes.

Incentives

None.

Industry

None.

Argentina

Year 2002

Policies

Hazardous Waste generators have to present a plan to reduce the generation of hazardous wastes by means of change of technology; segregation of streams; and recycling, when it is possible, in an environmentally sound manner.

The Environmental Authority (Competent Authority), has designed a National Plan of Reduction and Elimination of PCBs, which is under appliance.

Additional Plans of Elimination (other POPs and PTS, such as mercury compounds and articles such as batteries) are under preparation.

Legislation

National Law 24.051 - Decree 831/93.

Incentives

Environmental tax for generators, transporters of hazardous wastes and hazardous waste treatment plants. This tax is decreased in accordance with reduction of the generation of hazardous waste.

Industry

Industries are making efforts to replace the electrical devices with PCB and to eliminate them.

Others

Establishment of a Sub-Regional Centre for Training and Technology Transfer in Buenos Aires.

Barbados

Year 2002

Policies

The Policy Paper for Chemical Management was recently reviewed and updated. The paper is now entitled "Policy Paper: Management of Toxic Chemicals and Hazardous Waste". The policy paper now provides a policy statement and policy objectives for the management of hazardous waste. The overall aim would be to achieve life cycle management of chemicals and hazardous waste generated locally. The paper mainly makes provisions for shipment of hazardous waste off shore to certified facilities.

Legislation

The "Policy Paper: Management of Toxic Chemicals and Hazardous Waste" identifies four broad areas for legislative development. These areas are Import/Export/Re-Export; Handling and Transport; Business Operation; and Disposal.

Brazil

Year 2002

Policies

A policy dealing with biomedical wastes was approved by the National Environment Council; The National Environment Council is discussing policy projects dealing with civil construction wastes, incinerators, landfilling procedures and mercury fluorescent lamp wastes; The National Environment Council is discussing a national waste policy project that will be submitted to the National Congress; and The State Industrial Wastes Inventory is being implemented in 12 of the major waste generator States in Brazil.

Legislation

None.

Incentives

Landfill tax and other environmental taxes; financial aid programmes; subsidies; tax rebates; tax exemptions, environmental awards, etc.

Industry

Several industries, amounting almost 200 now, have been awarded with the ISO 14000 series certification.

Others

None.

Chile

Year 2002

Policies

Chile has implemented a policy of clean production in some production sectors.

Legislation

Guidelines have been developed for each sector included in the clean production programmes. Guidelines for recycling of used oils are under preparation.

Incentives

None.

Industry

Sound environmental management for pesticide containers; and
Hazardous waste components segregation in some waste streams.

Others

None.

Costa Rica

Year 2002

Policies

Policy: Risk to control any factor related with contamination, insecurity and dangers to the environment, the human health and the life of the population;
Prevention, mitigation and response to the population needs in disaster situations;
Assure the quality of potable water at national scale; and
Technical and sanitary management of solid, organic, chemical, biological, radioactive and toxic wastes, among others, in the health, industry and commerce facilities, and houses.

Legislation

General Health Law of Costa Rica.

Strategies:

Strengthening of the sanitary regulation based on main standards and technical recommendations;
Sanitary monitoring on achieving sanitary regulations; and
Development of scientific research towards the protection and the improvement of the human environment.

Incentives

None.

Industry

Application of some environmental principles (sustainable development, precautionary principle, preventive principle); and
Development of some mechanisms to reduce the generation of wastes in the starting point.

Others

Efforts have been made to obtain a significant reduction in the quantity of hazardous wastes in industry and agriculture; these initiatives have received support from the National Cleaner Production Centre (CNP+L), which is seeking to implant alternative technologies in industry, which might be less polluting and more environmentally-friendly and better for human health.

Cuba

Year 2002

Policies

Promoting the use of cleaner productions.

Others

New industries are using technologies which are reducing pollution and some technological changes in older industries are being made in order to reduce waste generation.

Dominican Republic

Year 2002

Policies

The Subsecretariat of Environmental Management is the institution responsible for imposing penalties on companies that generate wastes and do not manage them in an environmentally sound manner.

Legislation

The existing legislation is Act 64-00 (General Act on the Environment and Natural Resources). Regulations have been established for the more specific management of wastes.

Industry

Some industries manage their own wastes (they have treatment plants), others send their wastes to another country for disposal, and others engage in publicity campaigns for the conservation of the environment.

Ecuador

Year 2002

Policies

Action Plan for the implementation of the National Regimen for Hazardous Chemical Products;
Application of regulations about clinical wastes; and
Development of policies for cleaner production.

Legislation

National Regimen for Hazardous Chemical Products;
Regulation on clinical wastes;
Regulations about storage, transport and handling of dangerous chemical products;
Regulations about hazardous industrial chemicals, precautionary labeling, specifications;
Regulation for prevention and control of contamination of dangerous hazardous wastes;
National list of chemical products controlled & severely restricted by Environmental Ministry and
National List of chemical products banned in Ecuador;
National Policy of solid waste; and
Interinstitutional Cooperation and Coordination Committee for residue management.

Industry

Chemical industry is implementing the Responsible Care Program;
Implementation of the Cleaner Production Center in Ecuador; and
Some enterprises have adopted the ISO 14000 standard.

Honduras

Year 2002

Legislation

A regulation for the hazardous wastes is in preparation.

Industry

Cleaner Production, ISO 14000

Mexico

Year 2002

Policies

·Development and support of capacity building for the management of hazardous wastes at national level to minimize the transboundary movements;·Deregulation of wastes catalogued as hazardous through the procedure named Constancy of no hazard (example: drilling cut muds);·Implementing at national level the Convention amendments relating to transboundary movements of hazardous wastes among signatory countries;·Adequacy of the Legal Framework on wastes (General Law for Prevention and Integral Management of Wastes) and;·Prohibition for importing hazardous wastes which objective is the final disposal.

Legislation

·General Law of Ecological Equilibrium and Environmental protection (LGEEPA);·LGEEPA regulations on hazardous wastes;·General Law for Prevention and Integral Management of Wastes (It will operate as of January 2004) and;·Development of technical guides for hazardous wastes sound management within the Basel Convention framework (BPC'S, Leads Batteries, Electronic trash, etc).

Incentives

Promoting with the Secretary of Economy (that regulates industries and commerce) the deregulation of the Maquila Industry (Mexican assembly plants located near the USA-Mexican boarder where most production is exported to the United States) to avoid the wastes return to the country of origin (Exemption PITEX)*.* PITEX is the importing Temporary Program to produce Articles for Exportation, which is implemented in the Mexico's boarder with the United States of America.

Industry

·Technology development to treat the hazardous wastes in situ.·Demonstrate to authorities the no hazard of wastes, in order to reuse or recycle them.·Request management plans to demonstrate environmentally sound management.

Others

None.

Panama

Year 2002

Policies

Framework Law on the Management of Hazardous Wastes, which includes articles on waste minimisation.

Legislation

In preparation.

Incentives

In preparation.

Peru

Year 2002

Policies

Implementation of regulations under an Act based on the principle of minimization of solid wastes. In this regard it promotes:

Development and use of production and marketing technologies, methods, practices and processes which encourage the minimization or reuse of solid wastes and their proper handling; and

Encouragement of the Reuse of solid wastes and the additional adoption of processing practices and proper final disposal, etc.

Surveillance of enterprises which handle imported wastes for preventive purposes, identifying risks, proposing proper monitoring which does not endanger occupational and public health and the environment.

Promotion of recycling oriented towards the use of industrial waste exchanges and validation of clean technologies which market wastes presented as products subject to quality control.

Legislation

Act 27314 - General Solid Wastes Act, entered into force on 22 July 2000; Art. 24 y 45 and Development towards Guide for the Management of Solid Hospital Wastes.

Incentives

Certification of enterprises which handle solid wastes as solid waste service providers will be duly registered.

Implementation of a set of charges on the basis of technical criteria which ensure fairness in investment in obtaining the service.

Industry

Organization of the industry through industry unions for the purpose of dissemination of the regulations under the General Wastes Act so that all businessmen enjoy the benefits of being familiar with them, ensuring their certification and compliance with obligations and enjoyment of their rights. Cleaning up of activities related to Solid Wastes in their sphere of activity.

Others

Establishment of audit machinery which will guarantee the proper development of solid waste management.

Introduction of information systems which will allow monitoring of achievements and shortcomings in the area of solid waste management.

Saint Lucia

Year 2002

Policies

Continued collaboration with private sector on measures to reduce quantity and toxicity of hazardous waste generated;

Project proposal for the management of used lead acid batteries approved with St. Lucia chosen as one of the pilot countries;

Some training and capacity building in the areas of hazardous waste management (PCBs) conducted; Consultant report on Hazardous Wastes conducted to inform training needs and further policy development for reduction and/or elimination of hazardous wastes generated at the national level; and

Management plans being developed for the following categories of hazardous waste:

Waste oil

Spent agricultural chemicals

Biomedical waste

Asbestos

Equipment being procured for the treatment of biomedical waste.

Legislation

None.

Incentives

Provision of tax incentives and waivers of import duties on equipment and materials required for recycling and reuse of used oil and also on the used oil received from ships.

Industry

Efforts by private industry to conform to ISO, HACCP and other relevant international trade standards to reduce the quantity and toxicity of hazardous waste generated.
