

Section 4

WASTE MANAGEMENT LEGISLATION

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Waste Management - Overview

1. Introduction and Overview

This section of the Handbook deals with EC legislation in the waste management sector. It contains an introductory overview of the sector followed by individual fiches for selected pieces of legislation.

1.1 EU Policy

EU policy on waste management is set out in the Community Strategy for Waste Management⁹⁹ and is embodied in the Waste Framework Directive (2006/12/EC) and the supporting Hazardous Waste Directive (91/689/EEC, as amended) as well as in the Waste Shipment Regulation ((EC) No. 1013/2006, repealing Regulation 259/93 and Decisions 94/774 and 1999/412). Specific directives on numerous waste streams complement this framework. It can be said that the EU recognises seven overarching principles for waste management, which are described in the Box below.

Principles for Waste Management and Priorities for Implementing Waste Management Legislation

Principles:

- Waste management hierarchy: Waste management strategies must aim primarily to prevent the generation of waste and to reduce its harmfulness. Where this is not possible, waste materials should be reused, recycled or recovered, or used as a source of energy. As a final resort, waste should be disposed of safely (e.g. by incineration or in landfill sites).
- Self-sufficiency at Community and, if possible, at Member State level. Member States need to establish, in co-operation with other Member States, an integrated and adequate network of waste disposal facilities.
- Best available technique not entailing excessive cost (BATNEEC): Emissions from installations to the environment should be reduced as much as possible and in the most economically efficient way.

⁹⁹ First published as a Commission Communication to Council SEC (89) 934 Final, and latest version as revised and endorsed under Council Resolution of 24 February 1997 on a Community Strategy for Waste Management (OJ C 76/1 of 11.3.1997)

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- Proximity: Wastes should be disposed of as close to the source as possible.
- Precautionary principle: The lack of full scientific certainty should not be used as an excuse for failing to act. Where there is a credible risk to the environment or human health from acting or not acting with regard to waste, that which serves to provide a cost-effective response to the risk identified should be pursued.
- Producer responsibility: Economic operators, and particularly manufacturers of products, have to be involved in the objective to close the life cycle of substances, components and products from their production throughout their useful life until they become waste.
- Polluter pays: Those responsible for generating or for the generation of waste, and consequent adverse effects on the environment, should be required to pay the costs of avoiding or alleviating those adverse consequences. A clear example can be seen in the Landfill Directive 99/31/EC, Article 10.

Main priorities/challenges:

Ensuring an adequate network of safe and legal waste disposal and recovery facilities. Matching the capacity of waste infrastructure to the volume of waste generated is fundamental to good waste management. Waste management plans can help ensure the necessary capacity, but only if they are effectively implemented.

- Reducing and better managing certain waste streams. The achievement of certain EC waste reduction and management goals, such as the diversion of biodegradable waste from landfills and the collection of end-of-life vehicles and waste electrical and electronic equipment (WEEE), also depends on adequate forward planning and the development of the necessary organisational arrangements and recovery facilities.
- Combating the illegal waste trade and illegal waste disposal. Tackling the use of thousands of illegal landfills in several Member States requires strategic action across several fronts to comply with the Waste Framework Directive and the Landfill Directive: investments in legal facilities; better systems of national detection, enforcement and deterrence; and adequate site clean-up. Adequate controls on trans-frontier waste shipments are also essential. The Commission has taken horizontal action for lack of controls on illegal landfills and there have been several important rulings by the European Court of Justice.

In addition to these main principles and priorities/challenges, the EU's waste management policies also seek to achieve a number of other objectives, which are summarised below.

- A common definition of waste across Member States. Waste is defined by the Waste Framework Directive as "any substance or object in the categories set out in Annex I which the holder discards or intends or is required to discard" (Art. 1(a)). Annex I contains a "catch-all" definition of any substance not included in the previous specific categories. The intention behind such an approach is to provide a definition of waste that is as inclusive as possible, not exclusive. This approach can also be seen reflected in the rulings in this area of the European Court of Justice.

The wording of the directive is mandatory for all Member States and applies to all wastes irrespective of whether they are destined for disposal or recovery operations. In addition, a list of waste belonging to the Annex I categories and known as the European Waste Catalogue was published in January 1994 with Commission Decision 2000/532/EC, and itself amended by Commission Decisions 2001/118/EC and 2001/119/EC. The list, which provides a common terminology for various types of waste, is reviewed periodically and, if necessary, revised by the Commission.

The inclusion in the list of a substance does not necessarily mean that it is waste in all circumstances – it must also satisfy the definition of waste in Article 1(a) of the Waste Framework Directive. Council Directive 91/689/EEC (as amended) on hazardous waste contains a definition of hazardous wastes based on intrinsic hazard and lays down

stricter requirements for the handling and disposal of hazardous wastes. A separate list of hazardous wastes was first published by Council Decision 94/904, but replaced by Commission Decision 2000/532/EC.

- Encouragement of clean products. By encouraging the development, manufacturing and consumption of clean products, it should be possible to reduce the environmental impact of a product through its full life cycle. This can be done through improved use of resources, reduction of emissions from manufacturing, and waste management. Two possible tools for achieving this objective are to apply life-cycle assessment and environmental labelling schemes. The life-cycle assessment involves a study of the overall consumption of raw materials and emission of environmentally harmful materials to the environment for manufacture, distribution, use and disposal, providing manufacturers with information that can be used to plan the production of cleaner products. Environmental labelling schemes provide information to consumers on the efficient use of energy and raw materials in the full life cycle of the product. Consumers can then make a choice to purchase more “environmentally friendly” products and so influence manufacturing through market forces. Voluntary eco-labelling schemes are discussed further in the industrial pollution control and risk management sector. This “cradle-to-grave” approach can be seen further embodied and enhanced by European Parliament and Council Directive 2000/53/EC (as amended by Decisions 2002/525/EC, 2005/437/EC and 2005/438/EC) on end-of-life vehicles (see further below), Directive 2002/95/EC on waste electronic and electrical equipment, and, to a large extent, Directive 94/62/EC on packaging waste. These directives also encourage Member States to use mechanisms such as life-cycle assessments and producer responsibility schemes whereby the producers are made physically and financially responsible for the collection, recycling and disposal of their products.
- Encourage the use of economic instruments. This approach aims to influence environmental performance through market mechanisms. Various types of economic instruments are available such as taxes or fees on waste production, transport and disposal; tradeable permits on waste production; tradeable certificates on recycling; deposits on beverage containers; and import duties on waste that is difficult to dispose of. The European Environment Agency (EEA) has established (together with the OECD) a useful database on economic instruments in environmental policy, which can be located on the EEA’s website <http://smap.ew.eea.europa.eu/test1/fo1299244/url189167>
- Further guidance and discussions on environment-related taxes and the economic impacts of their application can be found in another OECD publication: <http://oberon.sourceoecd.org/vl=10225763/cl=19/nw=1/rpsv/ij/oecdthemes/99980061/v2006n9/s1/p11>
- Regulate the shipment of waste. Waste legislation seeks to regulate the shipment of waste between Member States, as well as to and from Member States to countries beyond the EU. For domestic waste shipments within one Member State, Member States are obliged to establish a supervision and control system that is coherent with the Community system. It is important to keep in mind that waste shipment in general should only be allowed for non-hazardous waste and where the receiving country can guarantee recycling, treatment and disposal according to environmental requirements equivalent to those that apply in the EU. For instance, amounts of packaging waste, WEEE and end-of-life vehicles can only be counted against the mandatory recycling and energy recovery targets applicable where the requirements are at least as stringent as in the EU. These requirements help to prevent large volumes of waste being exported abroad in line with the proximity principle (e.g. waste should in general be treated and disposed of close to where it was produced).
- Environmental protection and the internal market. Community waste legislation seeks to strike a balance between the need for a high level of environmental protection and the need for an appropriate level of regulation to ensure the functioning of the internal market

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(see Article 95 of the EC Treaty). This is to allow economic operators to act within the Community while creating a level playing field for waste by establishing common rules yet respecting the legitimate wish of Member States to define and implement waste policies and waste management measures at national level. This is seen particularly with regard to shipments of waste, which might affect the planning basis for waste management systems in the Member States (as illustrated by the common shipment of waste for recovery). Legislation on this matter is aimed at ensuring that waste is shipped to the closest possible disposal area and to ensure that countries do not export waste. In general, the Commission wants waste generated within the EU, and which cannot be recycled or used for energy recovery, to be disposed of within its borders. Another example of internal market protection is the maximum recycling and energy recovery targets under Directive 94/62/EC on packaging waste. These maximum targets are meant to prevent large discrepancies between countries with large capacities for recycling and those with lower capacities or less favourable economic conditions.

It is also useful to describe the evolution of the EC waste policy and the latest developments. Directive 75/343/EEC on waste (now replaced and recast by Directive 2006/12/EC) established the legislative framework for the handling of waste in the EU. It defines key concepts such as waste, recovery and disposal and puts in place the essential requirements for the management of waste, notably an obligation for an establishment or undertaking carrying out waste management operations to have a permit or to be registered, and an obligation for the Member States to draw up waste management plans. It also establishes major principles such as an obligation to handle waste in a way that does not have a negative impact on the environment or human health; an encouragement to apply the waste hierarchy; and, in accordance with the polluter pays principle, a requirement that the costs of disposing of waste must be borne by the holder of waste, by previous holders or by the producers of the product from which the waste came.

In 2002, the European Parliament and the Council adopted Decision No. 1600/2002/EC, which laid down the Sixth Community Environmental Action Programme. This programme called for the development or revision of the legislation on waste, including a clarification of the distinction between waste and non-waste; and for the development of measures regarding waste prevention and management, including the setting of targets.

This approach was reinforced by the Commission communication of 27 May 2003 towards a thematic strategy on the prevention and recycling of waste, which noted the need to assess the existing definitions of recovery and disposal. By way of follow-up, the Commission was called upon to extend Directive 2008/1/EC (former 96/61/EEC) to cover the whole waste sector; to differentiate clearly between recovery and disposal; and to clarify the distinction between waste and non-waste.

In November 2008, the Council and the Parliament adopted Directive 2008/98/EC revising Directive 2006/12/EC to clarify key concepts such as the definitions of waste, recovery and disposal; to strengthen the measures that must be taken in regard to waste prevention; to introduce an approach that takes into account the whole life cycle of products and materials and not only the waste phase; and to focus on reducing the environmental impacts of waste generation and waste management, thereby strengthening the economic value of waste. Furthermore, the recovery of waste and the use of recovered materials should be encouraged in order to conserve natural resources. This directive consolidates and simplifies the waste legislation by covering both non-hazardous and hazardous waste, and waste oils. It will repeal several directives in December 2010.

This directive also aims at preventing waste generation and at encouraging the use of waste as a resource. In particular, the Sixth Community Environmental Action Programme calls for measures aimed at ensuring the source separation, collection and recycling of priority waste streams. In line with that objective, and as a means of facilitating or improving its recovery potential, waste should be separately collected if technically, environmentally and economically practicable, before undergoing recovery operations that deliver the best overall environmental

outcome. Member States should encourage the separation of hazardous compounds from waste streams in order to achieve environmentally sound management.

The following section describes the EC legislation in the waste sector.

1.2 EC Legal Instruments

The main EC legislation on waste management is set out in the Box below, although it should be noted, as indicated in the relevant fiches for the main legislative acts, that these are supplemented by Community decisions. Most of the legal instruments on waste can be grouped into a hierarchy. The Waste Framework Directive and the Hazardous Waste Directive establish a framework for waste management. Within this framework there are two groups of daughter directives, one dealing with specific types of wastes (e.g. packaging waste, end-of-life vehicles, batteries and waste electronic and electrical equipment) and the other with requirements for the permitting and operation of waste disposal facilities (e.g. landfills and incinerators). A third group of legal instruments concerns the shipment of waste within, into and out of the EU.

Legislation in the Waste Management Sector

Waste Framework

- Framework Directive on Waste (Council Directive 2006/12). Note the recently adopted Directive 2008/98/EC of 19 November 2008 on waste, and repealing certain directives. This directive will repeal Directives 2006/12/EC, 91/689/EEC (hazardous waste) and 75/439/EEC with effect from 12 December 2010.
- Hazardous Waste Directive (Council Directive 91/689/EEC as amended by Council Directive 94/31/EC). Again, note that Directive 2008/98/EC will repeal this directive from 12 December 2010 and introduces some changes already from 12 December 2008.
- Commission Decision 2007/151/EC, amending Decisions 94/741/EC and 97/622/EC as regards the questionnaires for the report on the implementation of Directive 2006/12/EC of the European Parliament and of the Council on waste and on the implementation of Council Directive 91/689/EEC on hazardous waste

Specific Wastes

- Disposal of waste oils (Council Directive 75/439/EEC, as amended by Directives 87/101/EEC and 91/692/EEC, and partially repealed by Directive 2000/76/EC). Note that the Directive on Waste Oils will be incorporated by the new Framework Directive on Waste (2008/98/EC), which was adopted by the Council and the Parliament in November 2008. This directive will incorporate the provisions of the current Framework Directive on Waste as well as those of the Directive on Hazardous Waste and Waste Oils into one and the same legal framework.
- Directives on waste from the titanium dioxide industry (Council Directives 78/176/EEC, 82/883/EEC and 92/112/EEC). Note that these directives will eventually be repealed once the draft directive on industrial emissions is adopted (see Section 7 on IPPC for a more detailed description of this proposal and its impact on the current IPPC-related legislation).
- Batteries and accumulators containing certain dangerous substances (Council Directive 2006/66/EC).
- Packaging and packaging waste (Council Directive 94/62/EC, as amended).
- The disposal of polychlorinated biphenyls and polychlorinated terphenyls (PCB/PCT) (Council Directive 96/59/EC).
- Protection of the environment, and in particular of the soil, when sewage sludge is used in agriculture (Council Directive 86/278/EEC).

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- Electrical and electronic waste (European Parliament and Council Directives 2002/95/EC and 2002/96/EC).
- End-of-Life Vehicles (European Parliament and Council Directive 2002/53/EC).
- Directive 2000/59/EC of the European Parliament and of the Council on port reception facilities for ship-generated waste and cargo residues, as amended by Directive 2002/84/EC and Commission Directive 2007/71/EC.
- Directive 2006/21/EC of the European Parliament and of the Council of 15 March 2006 on the management of waste from extractive industries.

Processes and Facilities

- Incineration of waste (Council Directive 2000/76/EC).
- Directive on the Landfill of Waste (Council Directive 99/31/EC).

Transport, Import and Export

- Regulation (EC) No. 1013/2006 of the European Parliament and of the Council of 14 June 2006 on shipments of waste, as amended by Commission Regulation (EC) No. 1379/2007.
- Rules and procedures applying to shipments of certain types of waste to non-OECD countries (Council Regulation No. 1418/2007 and Commission Regulation (EC) No. 801/2007 concerning the export for recovery of certain waste listed in Annex III or IIIA to Regulation (EC) No. 1013/2006 to certain countries to which the OECD decision on the control of transboundary movements of wastes does not apply).
- Commission Regulation (EC) No. 1379/2007 amending Annexes IA, IB, VII and VIII of Regulation (EC) No. 1013/2006 of the European Parliament and of the Council of 14 June 2006 on shipments of waste, for the purposes of taking account of technical progress and changes agreed under the Basel Convention.
- Commission Regulation (EC) No. 669/2008 of 15 July 2008 on completing Annex IC of Regulation (EC) No. 1013/2006 of the European Parliament and of the Council of 14 June 2006 on shipments of waste. This regulation includes specific instructions for completing the notification and movement documents (Annex IA and Annex IB) of Regulation (EC) No. 1013/2006.
- Commission Regulation (EC) No. 1418/2007 of 29 November 2007 concerning the export for recovery of certain waste listed in Annex III or IIIA to Regulation (EC) No. 1013/2006 of the European Parliament and of the Council to certain countries to which the OECD decision on the control of transboundary movements of wastes does not apply.
- Commission Regulation (EC) No. 740/2008 of 29 July 2008 amending Regulation (EC) No. 1418/2007 as regards the procedures to be followed for the export of waste to certain countries.

In addition, it is important to note the proposed draft directive on industrial emissions, which will fundamentally change a number of waste-related directives in the sense that it consolidates and brings these under one and the same piece of legislation. The proposal for a directive on industrial emissions recasts seven existing directives related to industrial emissions into a single clear and coherent legislative instrument. The recast includes the IPPC Directive, the Large Combustion Plants Directive, the Waste Incineration Directive, the Solvents Emissions Directive and three directives on Titanium Dioxide. Minimum provisions covering the inspection of industrial installations, the review of permits, reporting on compliance, and the protection of soil will be introduced with consequent environmental improvements. The scope of the legislation will be clarified and amended to include some new activities bringing further benefits for the environment and human health. The streamlining of permitting, reporting and monitoring requirements and strengthened co-operation with the Member States to simplify implementation will reduce unnecessary administrative burdens by between EUR 105 and EUR 255 million per year. For more information in relation to this draft directive, consult the Europa website at:

<http://ec.europa.eu/environment/air/pollutants/stationary/ippc/proposal.htm>

There are links not only between the legislation within the waste sector, but also between this body of legislation and that in other sectors. The links between the Waste Framework Directive and Hazardous Waste Directive and the other waste legislation have already been explained above. The most important links with legislation in other sectors are identified in the Table below. Implementation of waste legislation, without co-ordination with the implementation of other related legislation, could lead to duplication of resources and over-complex bureaucracy.

Table - Summary of Key Inter-relationships between Legislation in the Waste Management Sector and other EU Legislation in the Environmental *Acquis*

Related Sector Legislation	Relevance
Horizontal Sector (see Section 2 of Handbook)	
Environmental Impact Assessment Directive (85/337/EEC, as amended) (see also under Section 2, the SEA Directive 2001/42/EC on the assessment of certain plans and programmes.)	Requires an EIA for new projects that are judged to have a significant impact on the environment. The results are to be made public and the views of the public taken into consideration in the consent procedure. Projects affected include waste disposal facilities.
Access to Environmental Information Directive (Directive 2003/4/EC)	Requires environmental information held by public bodies to be made available to the general public on request. Some of the waste directives require Member States to collect information. Any such information held by public bodies would be covered by this directive.
Reporting Directive (91/692/EEC)	Sets out provisions on the transmission of information and reports concerning certain EU directives from Member States to the European Commission. Waste directives have reporting requirements (see Section 6).
Directive 2003/35/EC on public participation in respect of the drawing up of certain plans and programmes relating to the environment	Includes provision on the involvement of stakeholders in the planning of certain activities including IPPC activities such as large-scale waste management operations
Regulation on the European Pollutant Release and Transfer Register (166/2006)	This regulation sets up a pollutant release and transfer register (PRTR) at EU level in the form of a publicly accessible electronic database. The public will be able to access this register free of charge on the Internet and will be able to find a wide range of information (type of pollutant, geographical location, affected environment, source facility, etc.). The register will contain information on releases of pollutants to air, water and land, as well as transfers of waste and pollutants, where emissions exceed certain threshold values and derive from specific activities. The register will also cover releases of pollutants from diffuse sources (such as transport).

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Environmental Liability Directive (2004/35/EC)	This directive covers direct or indirect damage to the aquatic environment and to species and natural habitats, where protected at Community level. The principle of liability applies to environmental damage and imminent threat of damage resulting from occupational activities, where it is possible to establish a causal link between the damage and the activity in question. The first liability scheme applies to the dangerous or potentially dangerous occupational activities listed in Annex III to the directive. These include those industrial activities that need an IPPC licence, such as waste management activities (including landfills and incinerators). Under this first scheme, operators may be held responsible even if they are not at fault.
Air Quality Sector (see Section 3 of the Handbook)	
Air Quality Framework Directive (96/62/EC)	Sets out a framework for a common strategy to address air pollution, covering objectives for ambient air quality, assessment of air quality, publication of information, and maintaining air quality. These objectives could affect waste management options (e.g. incineration).
Water Quality Sector (see Section 5 of the Handbook)	
Water Framework Directive 2000/60/EC	Aims to establish a framework for protecting the quality and quantity of surface water and groundwater resources. The development of waste management strategies and plans should take account of potential impacts of different options on water resources.
Urban Waste Water Directive (91/271/EEC) (as amended by Commission Directive 98/15/EC)	Sets prescribed standards for wastewater treatment based on the population size and nature of the receiving waters. This affects the volume and character of sludge produced and future waste management strategies.
Nitrates Directive (91/676/EEC)	Sets out measures to reduce the pollution by nitrates of receiving waters as a result of agricultural practices. This potentially affects the disposal of sewage sludge to land.
Dangerous Substances Directive (2006/11/EC) and related directives (but see Water Framework Directive 2000/60/EC)	Controls emissions of dangerous substances to receiving waters through permitting. This potentially affects the design, location and permitting of waste treatment and disposal facilities, for example on wastewater discharges and site drainage.
List 1 Substances Directive (86/280/EEC) (but see Water Framework Directive 2000/60/EC)	Specifies emission standards for prescribed substances for discharge to receiving waters. This potentially affects the design, location and permitting of waste treatment and disposal facilities, for example wastewater discharges and site drainage.
Nature Protection	
Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora, as amended	Waste management operations are normally not allowed on protected sites, including EMERALD sites, Natura 2000 etc.
Industrial Pollution Control and Risk Management Sector (see Section 7 of the Handbook)	

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IPPC Directive (2008/1/EC)	Implements integrated measures for the prevention and control of pollution. Requires permits for prescribed activities (including waste treatment and disposal), which set conditions including emission limits. Requires application of BATNEEC. This affects waste treatment and disposal facilities.
Large Combustion Plants Directive (2001/80/EC)	Sets emission standards for new and existing energy generating plants with a thermal input of 50 MW or more. This affects waste disposal by incineration, and the disposal of fly ash, slag and other by-products from gas cleaning.
Seveso II Directive (96/82/EC) (and see Council Decision 2001/792/EC)	Aims to prevent major accidents involving dangerous substances and limiting impacts on people and the environment. Wastes can be dangerous substances, and accidents can potentially occur during the collection, treatment, transport and disposal of wastes.
Chemicals and Genetically Modified Organisms (see Section 8 of the Handbook)	
Directive 67/548/EEC on the classification, packaging and labelling of dangerous substances	Sets rules on classification, packaging and labelling of prescribed chemicals. Requires notification of the placement of these substances on the market in Member States. This potentially affects the transport of materials recovered or recycled from wastes.
Regulation (EC) No. 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the registration, evaluation, authorisation and restriction of chemicals (REACH), establishing a European chemicals agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No. 793/93 and Commission Regulation (EC) No. 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC	Consolidates the chemical legislation and repeals a number of chemical laws. The REACH Regulation introduces a more systematic and stringent system of controls for the production, marketing and use of chemicals. The responsibilities on the part of chemical producers and importers have been extended, especially in terms of assessing the risks of chemicals.
Import and Export of Dangerous Chemicals Regulations (EEC/304/03)	Establishes a common system of notification and reporting on the transport of dangerous chemicals. Some wastes can be considered dangerous chemicals.

2. Development of a Sectoral Strategy and Implementation Plan

2.1 Introduction

EC legislation on waste management, in particular the Waste Framework Directive and the Hazardous Waste Directive, requires the competent authority in Member States to draw up waste management plans and specifies, in very general terms, the scope of such plans. Waste management plans are an essential tool in ensuring that the capacity of the waste management infrastructure corresponds to the actual volume of waste – that is, that there is a sufficient network of safe and legal waste disposal and recovery facilities to deal with the waste generated and/or imported. However, in order to be consistent and cost-effective, a waste management plan of any kind (e.g. national, regional or local) needs to be based on a strategy for managing waste and must be implemented effectively. Thus, in practice, a waste management plan as

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required by EC legislation should consist of two principal components – a strategy for managing wastes (an overall framework or “blueprint” that stipulates what actions will be taken and by when); and a plan for implementing the strategy (containing details of how these actions will be undertaken and by whom). Although the two components may be produced as a single document, it is usually advisable to keep them separate because each will need to be communicated to different audiences or target groups. In any event, strategy development must, by definition, precede the preparation of an implementation plan. This process should necessarily be that adopted in order to ensure compliance with the above-mentioned SEA Directive 2001/42/EC on the assessment of the impact of certain plans and programmes on the environment (see Section 2), including as concerns waste management (see Article 3(2)).

The purpose of this section is therefore to outline the essential principles, steps and decisions which need to be addressed in order to develop and implement an effective strategy for managing wastes and achieving compliance with EU policies and legislation on waste management. It is written mainly from the perspective of the national government agency or public authority charged with responsibility for planning, overseeing and controlling the management of wastes. However, many of the principles and techniques described here would be equally applicable to others involved in managing wastes – e.g. municipalities and other service providers.

A key proposition of this section is that the development of a waste management strategy and implementation plan is most effective when carried out in an integrated, holistic manner whereby all facets (political, legal, organisational, environmental, technical, social [including consultation], economic, etc.) relevant to future arrangements for managing and controlling wastes within a country, region or locality are systematically addressed. The rest of this section therefore considers the selection of an overall approach to strategy development, and briefly describes the sequence of steps required to formulate and implement a cost-effective strategy for managing wastes.

2.2 Possible Approaches

There are two broad approaches possible for developing a strategy for managing wastes. These may generally be described as the “integrated” approach or the “traditional” approach. The difference between the two approaches lies in their scope and methodology – it does not relate to the level of government at which a strategy is developed. The main steps involved in each approach are summarised in the Box below.

Approaches to Developing a Waste Management Strategy	
“Integrated” Approach	“Traditional” Approach
Prepare a survey and analysis of existing conditions, arrangements and practices relating to waste management generally within a region or area.	Identify and characterise existing and future sources and volumes of specific waste streams.
Identify significant problems/deficiencies associated with existing systems.	Identify the functions and activities necessary to handle and dispose of these wastes.
Define the strategic objectives for the future management of all wastes.	Determine the facilities, systems and other physical resources required to perform these functions and activities.
Identify and assess the options available for achieving the strategic objectives.	Formulate a strategy for managing these wastes based on these elements.
Select the preferred option(s) based on multi-criteria assessment.	Prepare a detailed strategy implementation plan.
Formulate an integrated waste management	

strategy.

Prepare a detailed strategy implementation plan.

An integrated approach investigates and systematically considers the entire spectrum of existing waste management policies, institutions, activities, practices and facilities within a country, region or area, and then endeavours to resolve comprehensively the strategic question “What changes or improvements need to be made in order to be able to reach our overall goal for managing wastes?” This approach is wide ranging and holistic and aims ultimately to arrive at a fully integrated strategy for managing wastes.

The traditional approach begins by investigating the types and quantities of wastes which are (or will be) generated within a country, region or area, and then seeks to answer the specific question “What facilities, systems and resources are needed to manage these wastes in the future?”

The traditional approach is used either because of resource constraints or because it is based on a political decision. This approach has a narrow focus, primarily on the nature of the waste streams, and therefore tends to lead to the adoption of “technical fixes” for handling and managing each type of waste. This has been the customary way of developing a waste management strategy, but can be subject to numerous practical limitations or drawbacks, for example:

- The resulting strategy/implementation plan may fail to identify and tackle the root causes of some of the existing problems and deficiencies concerning waste management.
- Not all of the multitude of factors which could determine the ultimate success or failure of the strategy, and their dynamic inter-relationships, may have been identified and properly considered.
- Not all of the underlying key assumptions and the various pre-conditions on which the strategy is founded may have been fully recognised or understood.
- Not all of the potential risks and consequences of the failure to fulfil the key assumptions or pre-conditions on which the success of the strategy depends may have been considered.
- In trying to solve or mitigate the environmental problems associated with a particular waste stream, a strategy may inadvertently create problems or adverse impacts in other environmental media.
- Weaknesses in the underlying logic, and a lack of transparency in the way in which the strategy has been formulated, may give rise to fundamental objections by those who will be affected by the strategy.

On the other hand, an integrated, objectives-oriented approach provides a broader, more logical and consistent framework for strategy development and subsequent implementation. It also reveals far more clearly the process by which the final strategy has been formulated and, accordingly, makes it less susceptible to misinterpretation or criticism. It is also more consistent with Community environmental policy, as well as with the Community’s Sixth Environmental Action Programme.

The development of an integrated waste management strategy and implementation plan generally requires considerably more time and effort, and is therefore likely to cost significantly more to prepare and finalise, than the “traditional” approach. However, experience suggests that the resulting strategy and plan are likely to be much more robust, defensible and cost effective, and consequently have a much greater prospect of succeeding. Likewise, the time and money invested in preparing an integrated waste management strategy and plan will be well spent if this avoids potentially expensive mistakes and modifications later on, or delays due to strong

resistance from the public and other affected interest groups. Further, as wastes are “goods” within the free movement of goods provisions under the EC Treaty (see Article 28), having an “integrated” approach involves making provision to ensure that the overall result intended in a waste management plan is the least disruptive to environmental and economic operations.

2.3 Strategy Development

2.3.1 Key stages

The development of an integrated and cost-effective waste management strategy involves the following key stages:

- 1) Definition of scope and goal of strategy – for example, taking due account of the objective that the Community as a whole be self-sufficient in waste management terms, covering the whole country, set at municipality level.
- 2) Forecast of future amounts and composition of waste and socio-economic aspects.
- 3) Review and analysis of the existing situation.
- 4) Identification and definition of the problems and deficiencies associated with existing arrangements and systems for managing wastes.
- 5) Definition and analysis of strategic objectives.
- 6) Identification and evaluation of options for achieving the defined objectives.
- 7) Formulation of the strategy.
- 8) Preparation of a strategy implementation plan.
- 9) Provision for periodic review.

The main components for each of these stages are outlined below.

2.3.2 Definition of scope

The purpose of this initial step is to define the geographical areas and sectors as well as the time period for which the strategy will be developed. This would involve a clear definition of areas – e.g. municipalities and/or waste management districts that are included; which sectors – e.g. households, industry, agriculture etc.; and finally the time period over which the strategy will be implemented – e.g. five years, ten years or even longer. Furthermore, it is important to identify which organisations are involved or have interests in waste management activities, thereby outlining which organisations should be involved in the further development of strategies in the field.

2.3.3 Review and analysis of the existing situation

The purpose of this initial step is to gather, review, analyse and document sufficiently comprehensive data and information on all the relevant aspects of the existing situation regarding wastes and waste management. The range of data required is illustrated in the first Box below.

One of the most important tasks which must be undertaken during this initial stage is to determine the sources, types and quantities of wastes generated in the strategy area, their present fate, and how these might change in the future. The definitions of waste types contained in the European Waste Catalogue, whilst essential for performing a range of functions such as the regulation and control of waste management, are too specific to be used directly for strategy development. For this purpose, a method of broadly grouping and categorising wastes needs to be adopted. The second Box suggests a way of grouping and categorising wastes for the purposes of strategy development.

All of the categories of waste need to be investigated and considered in developing a comprehensive, integrated waste management strategy and implementation plan. A waste management system may be planned and developed to address any one, or a combination of, waste streams. However, experience indicates that it is generally much more cost effective to plan and develop integrated systems for managing all of the waste streams that arise in a given region, community or organisation.

For strategic planning purposes, detailed data are not necessary, but it is important that the overall data are as reliable as possible. This can be done through cross-checking data from different areas and holding in-depth discussions with the people involved. Establishing a databank system at national level is an important step in order to put in place an effective strategy for reducing waste.

If the strategy will require waste minimisation, basic data on industry and manufacturing processes will be needed.

Scope of Data Required for a Diagnostic Study of Existing Conditions

Regional Characteristics

- Demographic and socio-economic characteristics
- Land use and water resources
- Environmental characteristics, quality and sensitivity
- Existing transportation networks
- Nature, distribution and stage of development of industry

Nature and Scale of Waste-Related Problems

- Sources, types and quantities of wastes
- Waste-stream analysis, including all stages from collection to landfill and including recycled materials
- Current health risks/impacts from waste-related pollution
- Current impacts of wastes on air and water quality
- Extent of land contamination related to existing/past waste management practices
- Occurrence of major incidents involving wastes
- Status quo and efficacy of waste management system including technical, institutional and economic aspects
- Efficacy of the existing organisational arrangements for managing wastes
- Current level of activity directed towards waste minimisation and recycling
- Standard/quality of existing waste storage and collection arrangements
- Standard/quality of waste transport systems
- Quality and adequacy of existing waste processing/treatment facilities
- Standard/quality of existing landfill sites
- Extent of uncontrolled dumping of wastes
- Extent and nature of stockpiling of wastes

Legislation and Enforcement

- Requirements of existing EU and national waste-management policies and legislation

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- Status and anticipated requirements of pending EU and national policies and legislation
- Adequacy of the existing regulatory regime
- Adequacy of existing monitoring arrangements
- Efficacy of the existing arrangements and procedures for enforcement
- Current and proposed environmental quality objectives and emission standards

Public Perceptions and Attitudes

- Public perceptions and attitudes towards waste management generally, e.g. existing public concerns and expectations
- Is the community willing and able to accept higher financial costs of improved waste management standards?
- Public attitudes to the selection and siting of new waste management facilities
- Attitudes of industry to the goals of improved waste management performance and standards, and increased costs
- Attitude of public to increased costs of improved waste-management system

Financial Issues and Constraints

- Current arrangements for financing and recovering the costs of waste-management services and facilities
- Current extent of private sector involvement in the provision of waste-management services and facilities
- Can waste producers afford the short-run financial costs of meeting higher standards?
- Is government able to finance the transition to higher standards and, if so, to what extent?
- Are external sources of finance available in the form of loans and grants?
- Existing policies and attitudes regarding competition for the provision of waste management services and facilities

Suggested Waste Categories for the Purposes of Strategy Development

- Municipal solid waste (MSW): includes household waste and wastes of a similar nature to household waste produced by commercial premises, institutional wastes (schools, government offices, etc), market wastes and street/drain-cleaning wastes
- Garden and bulky waste
- Organic waste
- Hazardous wastes: special wastes that, being toxic, infectious, irritant, explosive, flammable, or having carcinogenic, teratogenic or mutagenic effects, are or may be harmful to human health or the environment
- Other industrial wastes: wastes of an industrial origin not requiring special methods of handling, treatment and disposal. Many industrial wastes fall under this category e.g. most construction wastes
- "Special" wastes: wastes which, because of their nature or quantity, require special methods of handling, treatment and disposal (for economic and/or environmental reasons in particular)
- Healthcare (hospital and clinical) wastes: a particular type of special waste, some of

<p>which must be considered as obnoxious or potentially hazardous</p> <ul style="list-style-type: none"> • Ash and slag from combustion processes: typically relates to ash or slag from solid fuel-fired processes for steam-raising and/or power production, some of which (e.g. fly-ash from waste incineration plants) may be potentially hazardous • Agricultural wastes: in particular wastes from intensive cropping and livestock production • Sludge: in particular from water and wastewater treatment • Mining wastes • Construction waste • Waste streams covered by producer liability provisions (e.g. batteries, packaging, end-of-life vehicles, electronic and electrical waste)

2.3.4 Problem identification, definition and analysis

Having reviewed and analysed the existing situation regarding wastes and waste management, the next step is to identify and define clearly all of the significant problems or deficiencies associated with the existing and future (based on forecasts) waste management arrangements. The waste strategy and implementation plan will need to address these problems and to establish a hierarchy of cause and effect relationships for each of the negative features of the existing arrangements. As expressed here, an effect means a logical consequence or impact (direct or indirect) of some failure, deficiency or other negative condition. In order to eliminate or mitigate an adverse effect, it is necessary to devise and implement measures that specifically address the underlying cause(s) of that effect – any other actions are likely to fail or, at best, result only in a temporary alleviation of the unwanted effect. Thus, by identifying and defining all of the specific problems to be addressed by the strategy, a fundamental logic is introduced into the strategy formulation process.

Problem identification and definition can be assisted by applying a variety of analytical techniques. For example, logical framework analysis can be used to identify (a) the principal areas of concern, (b) key problems for each area, (c) main causes of the problems, and (d) their significant effects. A simplified example is given in the Table below.

Table - Simplified Example of a Logical Framework Analysis

Area or Activity	Key Problems	Principal Causes	Principal Effects
Institutional framework	Insufficient capacity	Insufficient resources (technical, human and financial)	Inappropriate or ineffective waste-management systems
Policy and legislation	National policy on waste management not sufficiently developed. Existing legislation governing waste management inadequate.	Existing policy does not address all key areas of performance for waste management. Proposed new legislation not yet implemented.	No clear basis for determining priorities, performance requirements or targets. Required standards for waste management difficult/impossible to implement and enforce.
Waste arising	Data on sources, nature and quantities of wastes inaccurate and/or unreliable.	Regular monitoring of waste types and quantities not carried out effectively.	Planning, management and control of waste management services made more difficult.

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Waste prevention	Waste producers not aware of potential opportunities for, and benefits of, preventing wastes.	Information on opportunities and techniques for waste prevention not generally available. The true costs of environmentally sound waste management are not perceived or met by waste producers.	Resources, including resources for waste management, are not used efficiently. Requirements for waste treatment and disposal are higher than need be.
Sorting and recycling	Limited or no demand for some recyclable materials.	Low quality and market value of some recyclable materials. Lack of local market outlets for some recyclable materials.	Without intervention, scope for further recovery and recycling of some materials severely constrained. Waste of resources.
Waste treatment and disposal	Available facilities and capacities for treatment and disposal of wastes inadequate.	Legislation and standards not effectively enforced.	Pollution of air, water resources and land.

This technique can be extended to include all significant aspects or activities concerning waste management – e.g. financing of facilities and services.

When endeavouring to identify, define and analyse the problems associated with existing arrangements and practices, it is important to try to be as specific as possible, and to articulate the true nature of their causes and effects. It is also important that definitions of problems and their underlying causes are expressed as a “negative state”, i.e. a condition that has, through various measures and actions, the potential to be transformed eventually into a positive state.

It is usually advisable to involve the main stakeholders in this process. This not only normally provides useful input into developing the strategy itself, but can also help to gain broad acceptance of the final strategy. Consultations can take place through the circulation of briefing notes or the organisation of workshops, and involve interested ministries, local government planners, NGOs and principal waste producers.

2.3.5 Definition and analysis of strategic objectives

Once all of the problems to be addressed by the waste management strategy have been defined precisely as “negative conditions”, the next step is to transpose these into specific strategic objectives (expressed as “positive conditions”) that are either necessary or desirable, and that are realistically achievable. This is accomplished by reformulating each of the problems identified and defined in the problem analysis into a hierarchy of objectives and means-ends relationships. This will produce an objectives tree containing all of the objectives that will need to be achieved by the waste management strategy. The highest-level objective or goal represents the overall purpose of the strategy.

If formulated correctly, the strategy goal and objectives will inversely reflect the existing problems associated with waste management in the specific country or region. These will therefore vary both from country to country, and from region to region within a country. However, as all Member States in the EU must achieve and maintain certain minimum standards and requirements laid down in EU policy and legislation, the overall goals and higher-level objectives of waste management strategies will (or should) be similar throughout the EU. It is with respect to the lower-level objectives, and the related means-ends relationships, where the main differences between strategies will occur.

The overall goal or purpose of an integrated waste management strategy might be expressed along the following lines:

- To establish and maintain a system for managing wastes in the relevant country, region or area that meets the stipulated performance standards and requirements, and minimises the overall adverse impacts on the environment.

Some of the higher-level objectives of an integrated strategy could be, for example:

- To meet the policies and legislation of the EU within the designated time frames.
- To select and apply waste management practices, systems and technologies that are proven and appropriate to local cultural, environmental and economic conditions.
- To develop and progressively introduce a more comprehensive and effective regime for regulating and controlling waste producers, waste management practices and facilities.
- To adopt and apply progressively, to the extent that is possible in practice, equitable arrangements for recovering the full economic costs of waste management from waste producers (the polluter pays principle).

Whatever the objectives, it is important that they are capable of being (and are) translated into measurable indicators, e.g. performance criteria and target dates for completion. Otherwise, there is no clear basis for monitoring and evaluating progress towards fulfilling the overall goal and subsidiary objectives of the strategy.

2.3.6 Identification and evaluation of options (for achieving the objectives)

This step involves identifying, evaluating and comparing different options or alternatives (the potential “means”) for achieving the various strategic objectives (the “ends”). Adopting and applying the concept of the “best practicable environmental option” (BPEO) provides a rigorous and systematic methodology for identifying and evaluating different options (technical, environmental, organisational, economic, etc.) for achieving the strategic objectives.

In this context, the BPEO may be defined as “the option (or combination of options) which, in meeting the strategy objectives, minimises the overall adverse impacts on the environment at an acceptable cost”. This methodology is particularly useful for addressing sensitive or contentious issues. The basic stages involved in a BPEO analysis are:

- identify the objectives and the constraints
- collect data and information
- generate the options
- screen options
- evaluate options
- identify the preferred option(s)
- implement and monitor the preferred option(s)

As a general rule, this sequence of activities should be adhered to, in order to avoid any pre-judgment or bias. For the purposes of strategy development, much of the information required to carry out a BPEO analysis should already have been obtained during the initial review of the existing situation. Likewise, the strategic objectives and related constraints should already have been established based on the results of the problem analysis. However, in order to evaluate options in sufficient detail, it may sometimes be necessary to gather further data and/or to elaborate the objectives specific to an option.

A full audit trail should be established, in order to monitor progress and to be able to explain and justify judgments and conclusions to others not immediately or directly involved in the analysis. Ideally, the analysis should also be subject to independent peer review in order to validate the methods used and confirm (or otherwise) the conclusions reached.

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The screening process should be undertaken in several stages, progressively eliminating the less suitable or less appropriate options. This will ensure that time and effort are devoted primarily to the detailed evaluation of a small number of practicable options. It will be necessary to develop and agree upon a set of criteria for screening and evaluating all of the options identified. These criteria will need to establish the minimum requirements and relative weightings (importance) which should be assigned, for example, to considerations such as:

- technical suitability and performance
- operational reliability and security
- environmental performance and risk
- costs and cost-effectiveness
- social acceptability
- long-term sustainability.

2.3.7 Strategy formulation

Strategy formulation essentially involves consolidating and documenting the outputs and proposals from preceding steps into an overall framework and system for the future management of wastes, the setting of priorities, and the development of programmes for their realisation.

Where the BPEO analysis enabled a preferred set of options for achieving the strategic objectives to be clearly identified, then it is usually a relatively straightforward task to configure a strategy around that set of options. However, in practice there may be several possible routes to achieving a specific strategic objective, each depending on certain assumptions and pre-conditions, and a decision to proceed along one route might preclude the possibility of proceeding along another. Accordingly, the aim should be to formulate a strategy based upon a set of options which has the greatest prospect of succeeding but which also preserves, as far as possible, the availability of alternatives in the event of any difficulties or failures.

It is recommended that the document comprising the waste management strategy should generally contain, as a minimum, the elements presented in the Box below.

2.3.8 Strategy implementation plan

The final step in the strategy development and planning process is to prepare an implementation plan. Unlike the strategy itself, which is typically aimed at a very wide audience, the implementation plan is primarily intended for the use of those charged with executing the strategy. It therefore needs to elaborate in considerable detail all of the tasks and activities which must be undertaken in order to realise the various objectives, proposals and programmes contained in the strategy.

It is recommended that the document comprising the strategy implementation plan should generally contain, as a minimum, the elements presented in the second Box.

It should also be borne in mind that completion of a waste management strategy and implementation plan represents only the initial element of what should ultimately be an iterative process. Needs and circumstances relating to waste management can and often do change. It is therefore vital that both the strategy and implementation plan are continually monitored and regularly reviewed to ensure that the various objectives, measures and underlying assumptions are still valid/appropriate, and that the timescale for achieving the overall goal of the strategy is still realistic.

Recommended Minimum Content of a Waste Management Strategy

- Policy statement incorporating the overall goal and strategic objectives – EU and national.

- Statement of the key principles and criteria upon which the strategy is founded.
- Summary of the key data and assumptions on which the strategy is based.
- Description of the main elements/features of the strategy:
 - nature of wastes and waste arising, and related forecasts
 - key existing problems/deficiencies
 - applicable legislation, standards and regulations – EU and national
 - future institutional and organisational arrangements for managing wastes
 - measures for preventing, reducing, recovering, recycling or reusing wastes (including economic instruments and voluntary agreements)
 - standards, methods and technologies for storage, collection and transportation
 - technologies/techniques to be applied for treatment and final disposal
 - measures and procedures for clean-up and restoration of waste sites
 - methods and procedures for detailed planning, assessment, development and operation of waste
 - management facilities
 - methods to be adopted for financing and recovering costs of waste management facilities and services
 - approach and methods for educating, informing and communicating with the public/key interest groups
- A programme for implementing the required institutional and organisational changes.
- Description of the main systems and procedures to be developed and applied for implementing the strategy.
- A programme for developing the required physical facilities for waste management.
- Estimates of the human resources required to implement the strategy.
- Estimates of the magnitude and timing of the capital and operating expenditures required in order to provide and operate the physical facilities for waste management.
- A programme for funding facilities, infrastructure or other types of project related to waste management, and for introducing or improving systems for cost recovery.
- A programme for communicating the strategy to the public and other key interest groups.
- Overall timetable for achieving the goals of the strategy and for reviewing the strategy.

Recommended Minimum Content of a Strategy Implementation Plan

- Identification of the authorities/agencies responsible for strategy implementation.
- Identification and definition of all the key tasks and activities required in order to implement the adopted strategy.
- The sequence, timing and linkages of key tasks and activities.
- Key implementation decision points and milestones.
- Detailed timetables for implementation.

- Detailed estimates of the resources required and related costs.
- Cash flow projections for the overall plan and for all plan sub-components.
- A detailed financing plan.
- Supporting data and explanatory text, as required – e.g. identifying and detailing the allocation of responsibilities for key implementation tasks; indicators of achievement to be used.

3. Institutions and Relevant Parties

3.1 Stakeholders

A large number of stakeholders have an interest in, or may be affected by, waste management. The principal stakeholders and their roles in the process of developing and implementing a sectoral strategy to achieve compliance with EU policies and legislation on waste management are identified in the Box below. The following subsections focus on the main groups of organisations that need to be involved in waste management, followed by issues on communications.

3.2 National Government Institutions

National governments are ultimately responsible for achieving and maintaining compliance with EU policies and legislation on waste management. They have a duty and obligation to secure compliance in a manner and within a programme either stipulated in the relevant EU instrument, or agreed with the responsible EU institution. They are also responsible for developing and implementing national waste management strategy. The national waste management strategy could be part of, or at least should comply with, the national environmental strategy.

Typically, the primary responsibility for achieving and maintaining compliance is delegated to a single national institution, e.g. a ministry or department of environment. However, other ministries or departments in national government will inevitably need to be involved in some way at various stages in the planning and implementation process. For example, ministries with responsibilities for agriculture, economy, export/import, foreign affairs, local government, public health, trade and industry would all potentially be affected by the implementation of EC waste legislation.

The lead ministry (presumably the environment ministry) should identify which other ministries (see above), national government agencies and bodies need to be involved and given competence in the process of planning and implementing EC waste legislation. For example, the development of the waste management strategy described in Section 2 is likely to require technical inputs from other government organisations such as specialised agencies, a national standards institute, a national statistics institute and existing public regulatory or waste service bodies. The role and input of each type of organisation to be involved must be carefully identified and agreed between the lead ministry and the organisation concerned.

Principal Stakeholders and Their Roles in Waste Management	
Stakeholders	Roles
Central government (e.g. a ministry or department)	<ul style="list-style-type: none"> → Implementation and maintenance of compliance with EU policies and legislation on waste. → Develop and implement national waste management strategy.

Environmental agencies working on behalf of central government (e.g. regulatory authority, national standards laboratory)	→	Provision of planning, regulation and technical assistance.
Regional and local government	→	Provision of planning, regulation, and monitoring.
Municipalities	→	Collection, treatment, recovery and disposal and some planning and regulation.
Waste management companies	→	Provision of waste management, collection, recovery and disposal services.
Industrial/commercial waste producers	→	Prevention, minimisation and recycling of waste. Duty to ensure proper handling, recovery and disposal of waste. Monitoring and reporting on waste production, recovery and disposal.
Public	→	Separation at source, recycling and minimising and prevention of domestic waste. Payment of waste collection, recovery and disposal services. An interested and affected party within the proximity of waste management facilities.
NGOs	→	Representing the public interest. Lobbying on planning and environmental issues.
Research institutions (e.g. universities)	→	Technical research, <i>inter alia</i> , to develop new waste management technologies, or conduct environmental analysis.

The lead ministry should identify and appoint the competent authorities required to take responsibility for functions prescribed in the legislation. The lead ministry must ensure that the competent authorities have the required legal powers and resources (financial, technical, and logistical) to meet their obligations. Competent authorities are discussed further in Section 3.3 below.

3.3 Competent Authorities

The types of functions to be undertaken by competent authorities to implement EC waste management legislation are illustrated in the Box below. These range from legal and administrative functions to highly specialised, technical ones.

Candidate countries may already have institutions which carry out some of the tasks indicated in the Box below, for example existing regulatory bodies. Alternatively, expertise may exist in a number of agencies, but may need to be brought together in a single organisation. Special consideration needs to be given to the requirements for specialist staff, as the expertise or sufficient staff resources needed may not be readily available within the country.

Competent authorities can be appointed for one or more functions across several environmental sectors. For example, the drafting of legislation may be undertaken, or at least co-ordinated, by a single body. Again in the area of regulation, various directives across the environmental sectors require permitting of installations and emissions. Therefore consideration should be given to the

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interaction between the competent authorities appointed in the waste sector, and those operating in other sectors, particularly air, water and industrial pollution control.

Examples of Activities That Are Specifically Required to Be Undertaken by a Competent Authority in respect of EC Legislation on Waste (references are to directives unless otherwise stated)

This list is only indicative and not exhaustive.

Planning and Implementation

- Preparation of waste management plans (2006/12/EC and 94/62/EC)
- Preparation of hazardous waste management plans (91/689/EEC)
- Classification of landfill sites (99/31/EC)
- Mining
- Incineration of waste
- Waste shipments

Technical Standards

- Set emission limit values for certain pollutants (00/76/EC)
- Prescribe rules for measuring/standardising measurements (00/76/EC)
- Approve sampling and monitoring programmes (00/76/EC)
- Set maximum permissible periods for stoppages affecting emission standards (00/76/EC)
- Ensure stack height sufficient to safeguard human health and environment (00/76/EC)
- Set standards for location, set up and running of landfill sites (99/31/EC)

Regulation

- General requirement to ensure and verify compliance with directives and standards (2006/12/EC, 87/101/EEC, 00/76/EC, 94/62/EC, 99/31/EEC)
- Registration of establishments for which permits are not required (2006/12/EC, 91/689/EEC, 99/31/EC)
- Permitting of establishments e.g. waste recovery, waste disposal installations, landfill sites (2006/12/EC, 78/176/EEC, 87/101/EEC, 2000/76/EC, 99/31/EC). There are general permitting requirements in Directive 2006/12/EC and the newly adopted Directive 2008/98/EC (replacing the former directive from December 2010), whereas more specific requirements are laid down in specific pieces of legislation such as the Landfill Directive or Incineration Directive. In the case of larger establishments, permitting might fall under the IPPC Directive (2008/1/EC). It should be noted that a directive on industrial emissions has been proposed, which will further consolidate and streamline the permitting, monitoring and reporting for various waste activities in the industrial sector
- Authorisation of exemptions for conditions different to those stated in the directives (2000/76/EC, 99/31/EC)
- Inspection of sites (2006/12/EC; 99/31/EC (and see also 2008/1/EC))
- Request, receive or hold information (87/101/EEC, 91/689/EEC, 94/62/EC, 96/59/EC, 99/31/EC)
- Examine trends in the state of technology development and/or the environment to revise, where necessary, permits granted to establishments (87/101/EEC; 99/31/EC; 2001/80/EC)

- Ensure that plants and sites do not operate while failing to comply with emission standards (2000/76/EC, 99/31/EC)
- Ensure that waste is only accepted at landfill sites if they comply with specified rules (99/31/EC on landfills and Council Decision 2003/33/EC establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 of and Annex II to Directive 1999/31/EC)
- Monitor quantities of certain wastes (96/59/EC, 99/31/EC)

Reporting

- Determine appropriate procedures and forms for information (Decisions 2000/76/EC, 94/62/EC, 99/31/EEC, as amended)
- Report to the Commission e.g. on decisions to delay implementation, permissions for conditions not given in directives, results of verification of implementation (2000/76/EC, 99/31/EEC)

The closest form of integration for cross-sectoral competent authorities would be provided either by a single national body, or by regional bodies operating under the same management system. This type of structure would help to avoid duplication in many areas and provide economies of scale through shared facilities and resources. Alternatively, a sectoral approach could be adopted, but mechanisms would be required to ensure close co-operation and co-ordination between the different sectoral authorities.

Competent authorities with strategically important roles or requiring specialised technical expertise should be established at the national level in order to provide consistency of approach and make efficient use of scarce resources. Examples are functions for legal responsibilities and drafting of legislation, national planning, and setting technical standards. Where local experience or local accountability is important, competent authorities can be established at the regional or local level – for example in local planning, permitting and inspection of facilities.

3.4 Regional and Local Government

The role of regional and local government in the context of waste management is important for two reasons. Firstly, most countries have a tiered administrative structure in which certain powers are devolved to the regional (counties, department, *Länder*) or local level of government (local planning authority or municipality). This decentralisation is stronger in federal countries but exists elsewhere, and usually includes waste management services. Consequently, the implementation of central government functions would not in itself be sufficient to implement the waste directives. Secondly, waste generation and disposal occurs at the regional/local level, requiring tools for planning, regulation and monitoring.

Under the new waste management strategy, responsibilities for waste management may still continue to be devolved to the regional and local authorities. These responsibilities may include approval of sites for waste management facilities and the provision of services (collection, transportation, treatment, recovery and disposal) for municipal waste or regulatory functions. Local authorities would also be responsible for issuing bye-laws relating to waste management which support the implementation of national legislation – for example, rules relating to when and how waste is collected.

Where regional or local government takes on more than one role, there is a potential for conflicts of interest to arise. This has happened in some Member States where local government was given responsibilities for certain waste management services and regulation (see the Waste Framework Directive fiche).

The relative roles of regional and local government in waste management may also vary according to economies of scale and waste type. Some countries have a very large number of

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small municipalities with individual responsibility for managing municipal waste. These are frequently too small to be able to construct suitable disposal facilities to the high standards demanded by EC legislation at an affordable cost. In this case, inter-municipal co-operation can be very beneficial in achieving groupings with enough waste to make suitable facilities affordable. This regional approach can also be appropriate for hazardous waste disposal. However, the regions tend to be larger given the lower overall quantities and economies of scale imposed by the need for specialist staff and facilities.

If the regional approach is to be promoted, the existing policy, legal and administrative framework governing local government bodies needs to be reviewed to ensure that there is an adequate basis for inter-municipal co-operation. In some countries there may actually be legal obstacles to such co-operation. Where this is not the case, it is still necessary to examine carefully the nature of any forms of voluntary agreements, joint ventures or associations between local government bodies to ensure that issues such as resource sharing and liability are addressed appropriately.

3.5 Private Sector Involvement

The interests of private sector organisations in waste management may be manifested in a variety of ways, for example as producers of wastes, providers of waste management-related services, investors in waste management facilities, developers of new methods and technologies, and technical advisers.

In all EU Member States, private sector organisations are major stakeholders in waste management to an extent which has yet to evolve in the candidate countries. In some Member States, the private sector has a major role in the management of most types of wastes, while in others the private sector focuses on the management of industrial wastes, with municipal wastes managed primarily by local government.

While the private sector can provide valuable finance and offer substantial improvements in efficiency, it is not a panacea for efficiency per se. If a public sector monopoly is simply transferred to the private sector, inefficiency may be replaced by profiteering. Any successful programme of privatisation will need to ensure a strong element of competition and regulation. Existing public sector bodies, which often have many years of experience, should also be allowed to compete on level terms.

If privatisation is undertaken, the public service element should still be recognised, especially in the case of municipal waste. Municipalities should not simply abdicate responsibility for the quality of the service in favour of contractors, as they are ultimately accountable to the public for service provision.

3.6 Communication and Consultation

Planning and implementation of waste management legislation will require co-ordination between government, competent authorities and other stakeholders. Consequently, communication is important for effective implementation of the legislation.

During the development of a waste management strategy, a communication programme should be conducted whereby the views and opinions of interested and affected parties are solicited by national government in order to assess the acceptability and practicability of all aspects of waste legislation and the proposals for its implementation (see Section 2). Parties which should be consulted include:

- other central government ministries
- regional and local government
- industrial waste producers
- private sector waste management companies

- the general public, as producers of household wastes
- environmental NGOs.

For example, it is common in the EU for national governments to consult industry on new standards or regulations. This provides industry with an opportunity to inform government about the potential impact of the proposals on the viability of their business; to provide technical advice which may not be available to government, for example on the practicalities of procedures or techniques; and to start planning for the introduction of the new regime.

Once the waste management strategy has been determined, clear lines of communication are needed between the competent authorities to support the roles and activities of the various bodies involved. Government will also need to continue a dialogue with interested parties such as industry, NGOs and the public – for example to update guidance notes on BATNEEC, and BAT reference notes (BREF), to encourage producers to move up the waste management hierarchy, and to disseminate information on existing, revised or new government waste management policies and legislation.

In the longer term, achieving compliance with the EU's principles of waste management will require a major change in values and attitudes to the environment by all levels of government, industry and consumers. A programme should be developed for education and awareness raising. As an example, NGOs can be expected to contribute positively to public debate on waste minimisation and the adoption of the waste management hierarchy, and should be encouraged to do so.

Public consultation forms another element of communication. Several directives specifically require Member States to make information available to the public and consult them on certain issues (see Section 1 and the horizontal legislation sector, particularly with regard to the directives on EIA (85/337/EEC) and access to environmental information (Directive 2003/4/EC)). An example from another sector is the WEEE Directive (2002/96/EC) on waste electrical and electronic equipment.

4. Technical Issues

The general purpose of technical standards is to establish minimum technical requirements for the quality of certain goods or resources, and/or the operation and performance of specified activities. Such standards can take many forms, for example:

- international – e.g. World Health Organisation (WHO) guidelines and standards;
- European – e.g. EU guidelines and standards;
- national – e.g. technical instructions/regulations developed and introduced by government; formal standards issued by national standards bodies;
- sectoral – e.g. technical guidelines or specifications developed by industrial or professional associations applicable to a particular sector or type of activity;
- mandatory – e.g. EU standards relating to the incineration of hazardous wastes; and
- voluntary – e.g. EN ISO 14000 series, the international and European standard for environmental management systems;

and relate to different targets, for example:

- products – e.g. batteries; waste storage containers;
- activities – e.g. discharges or emissions of a pollutant; operation of a waste treatment facility;
- environmental media – e.g. air quality; water quality; and

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- procedures – e.g. for acquiring, and providing access to, environmental information.

Within the Member States, EU technical standards take precedence over all other standards and, accordingly, national standards need to reflect and complement any relevant EU standards. However, given that existing EU standards relating to waste management are still fairly limited in number and scope, there is likely to be a need for national governments or other institutions to develop additional technical guidelines and standards covering a range of issues and activities which are not presently covered by EU guidelines and standards.

In this respect, the candidate countries should examine, and consider adapting for their own purposes, some of the extensive range of technical standards that have been developed and introduced in EU Member States.

Some of the EU standards relating to certain types of processes (e.g. some emissions from waste incineration) and waste streams (e.g. waste oils, titanium dioxide) are clearly set out in directives. Others, however, will be at the discretion of the Member State (such as additional requirements relating to the emission of dioxins and furans from incinerators, and the standards for storage of PCBs). In addition, there is likely to be a need for Member States to issue technical standards/guidelines on the operation of waste management facilities.

The definition of discretionary standards generally requires an iterative process based on the development of outline policies, leading to the preparation of outline plans, technical reviews and an assessment of the affordability of the options. At one or more stages, the competent authority responsible for developing a standard should consult with interested parties including regulatory bodies, waste producers and NGOs, in order to obtain their views, and should revise the policies and plans accordingly.

Technical standards and related guidance should be developed centrally, under the auspices of an organisation with appropriate technical expertise. This could be undertaken at ministry level or, where extensive technical expertise is required, by a specialised standards institution or regulatory body. Standards should be clear and unambiguous, achievable by those to whom they apply and, in the case of mandatory standards, practicable to monitor and enforce. Within the field of technical standards, the BREF notes provide guidance on the best available techniques for industrial processes, including aspects of waste management.

5. Regulation and Enforcement

5.1 Overview

Legislation governing waste management is not in itself sufficient to ensure that its objectives are met in practice. In order to be effective, legal measures must be properly administered and enforced, which in turn requires that adequate systems, procedures and resources are deployed for this purpose.

The regulatory function at municipal/local government level consists of three primary tasks:

- issuing licences or permits for waste management facilities and activities;
- monitoring and inspection to ensure that licence or permit conditions are being adhered to; and
- taking enforcement action if they are not.

A discussion on the competent authorities required to undertake these functions can be found in Section 3 above.

5.2 Licensing/Permitting

Waste management licences/permits are intended to control the facilities and activities authorised by the licence for the purposes of preventing the pollution of the environment, harm to human health and adverse effects upon the amenities of the community. In general, the Waste Framework Directive contains general provisions on the licensing of waste management installations. More specific requirements are laid down in the directives dealing with certain waste management forms (e.g. Landfill Directive, Waste Incineration Directive) or with certain waste streams. However, in some cases the overarching provisions in the IPPC Directive (2008/1/EC) apply, which is often the case for larger incineration plants, and for industrial plants producing large quantities of hazardous and/or non-hazardous wastes.

The principal tasks relating to the issuing of licences or permits are:

- licensing of waste storage, treatment and disposal facilities;
- licensing of certain waste recovery facilities/operations;
- licensing/registration of waste collection services and waste brokers;
- registration of exempt facilities and activities;
- assessing and verifying the qualifications and suitability of licence applicants and holders;
- reviewing licences/registrations, and related conditions, on a regular basis; and
- varying, suspending or revoking licences where conditions are breached, or in other specified circumstances.

In general, the licensing of waste management facilities and the registration of related exemptions represents the most demanding task of the competent authority with respect to licensing. Technical judgments and decision making are important elements of the licensing process, which is therefore more than merely an administrative task. It will be necessary, for instance, to provide thorough technical training for waste regulators and inspectors. Guidance on best practices for training and qualifications for environmental inspectors can be found at the IMPEL site at: <http://ec.europa.eu/environment/impel/countries.htm>

The licensing system should include a tendering procedure which complies with the public procurement directives. To be effective, licences need to have conditions attached specifying, for example, the types and quantities of wastes permitted to be handled/disposed of/ etc. as well as technical requirements, operating methods, and safety/security precautions. Such conditions should be justifiable, comprehensive in scope, unambiguous and enforceable. They also need to be applied consistently and, for this reason, a common framework for issuing and administering licences should be established through, for example, the development and use of guidelines for the determination of licence applications, and the supervision, revocation and surrender etc. of licences.

In drafting licence conditions, the regulator must endeavour to satisfy two basic objectives. Firstly, the operator should not be unduly constrained from being able to operate in a cost-effective manner. Secondly, the competent authority needs to retain the means of imposing controls which are (a) required by legislation and (b) necessary in the public interest. A good test for the validity of licence conditions is whether they are (i) unambiguous, (ii) necessary, (iii) lawful and (iv) enforceable. In this context, licence conditions are normally of three basic types:

- conditions which set absolute but relatively straightforward obligations and requirements;
- conditions which set absolute environmental performance standards, but which may give the operator some discretion as to how to meet the standards;
- conditions which require the operator to carry out an activity in accordance with an operating or working plan (prepared by the operator).

If a waste management facility or company is totally or partially owned by a local authority, the licensing and monitoring of facilities should be carried out by a separate regulatory authority.

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In setting conditions, the competent authority should reflect the interests of other statutory bodies, the public and any other person or group that may be affected by the facility or activity by, for example, publishing details of licence applications and consulting with interested or affected parties. The competent authority should also establish and maintain a public register of waste management licences and related information.

Modifications to licences may take place at the initiative of the competent authority or the licence holder. (Where modifications are necessary to give effect to Community obligations there should be an effective legislative framework to provide for this.) Modification of licence conditions is usually required when changes in a facility or activity will affect the activities authorised by the licence. Where such changes demonstrably achieve or improve upon existing standards, and do not compromise the primary objectives of the licence, the competent authority should generally allow them without requiring modifications to the licence conditions. If changes are so significant that they might prejudice the primary objectives of the licence, then these should be the subject of modified or new conditions.

Licensing procedures must incorporate minimum requirements regarding the suitability of licence holders, in terms of their technical competence, financial capacity and past record of compliance with environmental legislation. This is a particularly important requirement of the new directive on the landfill of waste.

5.3 Monitoring, Inspection and Enforcement

Monitoring, inspection and enforcement are intended to ensure that those who require a waste licence hold one, and that any conditions attached to the licence are complied with, as well as to ensure that other legal requirements and mandatory standards are being met.

The principal tasks relating to monitoring, inspection and enforcement are:

- monitoring and inspection of licensed waste management facilities;
- monitoring and inspection of waste carriers and brokers;
- monitoring and inspection of exempt facilities and activities;
- monitoring and control of movements of certain types of waste;
- monitoring and control of trans-frontier shipments of waste;
- identification of unlicensed/illegal facilities or activities; and
- taking enforcement action in respect of breaches of waste licences and related conditions, and/or other legal requirements/mandatory standards.

The essential features of an effective monitoring, inspection and enforcement regime are:

- legally well-defined inspection and enforcement powers;
- suitably stringent sanctions to encourage compliance;
- sufficient, appropriately qualified and motivated human resources;
- sufficient and appropriate technical resources (equipment, etc.);
- clear, properly documented operational systems and procedures; and
- comprehensive systems for storing, recording and retrieving data and information (and also one which provides for public access, with due regard to commercial confidentiality – see further Section 2 of this Handbook and the Access to Environmental Information Directive).

Without these elements, it is difficult, if not impossible, to give effect to established policies, legislation and standards governing waste management. As such, this aspect of the regulatory

function should be seen as crucial to the achievement of compliance with EC directives on waste management.

Routine monitoring and inspection of licensed operations should include regular visits by competent authority staff in order, for example, to examine records, take samples of wastes and assess operational performance. In addition to such formal visits, the competent authority should have the right to conduct unannounced inspections. The findings of such inspections should be communicated to the operator in writing as soon as possible. Any breach of licence conditions or other offences should be acted upon immediately, especially if these may give rise to significant pollution or risks to public health. The competent authority should have the requisite powers to amend or revoke licences (with a right of appeal for the licence holder) and, if circumstances demand, to initiate remedial actions. In addition, consideration should be given to granting the competent authority powers to take civil or criminal action for serious infringements of licence conditions or other legal requirements. Penalties should be sufficiently severe to act as a deterrent to the infringement of laws or licence conditions.

In EU Member States, monitoring and inspection of waste management facilities is normally undertaken by the same organisation which is responsible for issuing permits. However, some countries have favoured an independent inspectorate to provide impartiality. In all EU countries, some or all of the costs of inspection and enforcement are recovered through licensing fees and other charges, and revenues generated from the imposition of financial penalties. Furthermore, the permitting, monitoring and inspection functions should be carried out by an authority at a higher level.

The introduction and application of formal environmental management and audit systems to waste-related activities and facilities can help to reduce the overall burden of monitoring and enforcement, for example the EU Eco-Management and Audit Scheme (EMAS) and the EN ISO 14000 series. Such systems and standards are being increasingly applied in the waste management sector throughout the EU.

5.4 Data Collection and Reporting

A summary of the type of data collection and reporting required under EC waste legislation is provided in the Table below. Procedures and methods for reporting are given in the Reporting Directive (91/692/EEC) and Commission Decision 200/532/EC, as amended, on the waste catalogue. Further details are also provided in the specific waste acts.

All organisations with responsibilities for reporting should be made aware of their responsibility during the implementation phase. For example, competent authorities should be made aware of their reporting duties while they are being established, and operators of facilities should be made aware of their obligations when they apply for licences/permits.

A large amount of data and information on the quantities and types of waste produced, and facilities for their recovery, treatment and disposal, needs to be collected. The competent authority with responsibility for regulation will generally be best placed to collect this information. Consideration should be given to setting up a suitable database for storing and retrieving such data, which could then be used as a basis for reporting both to the national government and to the Commission. Most EU Member States have opted for the regulatory authority to be the body with responsibility for reporting to the Commission. Other options that could be considered include the ministry, if this is not the regulatory authority, or a central statistical office.

The Commission has issued several decisions concerning the use of questionnaires by Member States to report information. Commission Decision 94/741 relates to Directives 75/439/EEC (waste oils), 2006/12/EC (waste framework) and 86/278/EEC (sewage sludge and soil), while Commission Decision 97/622 relates to Directives 91/689/EEC (hazardous waste framework) and 94/62/EC (packaging and packaging waste). Commission Decision 1999/412/EC sets up a questionnaire for the reporting obligation of Member States relating to Regulation 1013/2006. In addition, Decisions 2000/738/EC and 2001/753/EC require questionnaires to be used for Directives 1999/31/EC (on landfills) and 2000/53/EC (as amended by Decisions 2002/525/EC,

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2005/437/EC and 2005/438/EC) (on end-of-life vehicles). The need for questionnaires has arisen due to the significant differences in the format and content of previous reports from the Member States. In the area of waste shipments, the questionnaire is used to complement the existing reporting requirements under the Basel Convention.

The collection of data will also require inputs from local authorities and waste management operators, as they will be the basic providers of reliable waste data. Therefore, in preparing the waste management strategy, resources should be allocated for this.

Table - Examples of Reporting Requirements in the Waste Legislation

Body Responsible	Receiver of Information	Type of Information
International		
European Commission	European Parliament	Report on the implementation of directives (e.g. 91/689/EEC)
European Commission	European Council	Proposals on procedures for environmental monitoring (e.g. 78/176/EEC)
European Commission	Special committees	Specific information, e.g. on technological issues (e.g. Directive 75/439/EEC)
European Commission	Other Member States	Report on implementation of directives across Member States (e.g. 2006/12/EC) Make available to competent authorities of Member State information from other Member States (e.g. 78/176/EEC, 91/689/EEC)
Member State	European Commission	Notification of transposition of legislation and submission of main text of national law (all directives) Plans and programmes e.g. waste management plans, plans to reduce certain pollutants (e.g. 78/176/EEC, 91/157/EEC, 91/689/EEC) Reports at set intervals e.g. 3 or 5 years, on implementation of directives (e.g. 2006/12/EC, 86/278/EEC 75/439//EEC, 91/689/EEC) Reports at set intervals (e.g. 3 years) to prevent and programme reduction in waste (e.g. 78/176/EEC) Information on technical expertise and experience gained in implementing the directive (e.g. 75/439//EEC, 2000/76/EC) Derogations or delays in implementation (e.g. 2000/76/EC, 91/689/EEC, 92/112/EEC) Information on measures to ensure implementation of directives (e.g. 75/439//EEC, 91/157/EEC) Evidence that plants do not require additional mitigation measures (e.g. 78/176/EEC) Information on establishments, waste materials, processes etc (e.g. 78/176/EEC, 91/689/EEC)
Within Member State		
Member State	Public	Public information campaigns on storage and collection of wastes (e.g. 87/101/EEC, 91/157/EEC) Permits (e.g. 94/67/EC)
Competent authority	Public	Information on obligations of directive, emission limit values (e.g. 2000/76/EC)
Producer and transporter of wastes, operators of waste treatment and disposal facilities	Competent authority	Data on the quantity, quality, nature, origin, destination, frequency of collection, mode of transport, and treatment of wastes (e.g. 2006/12/EC, 86/278/EEC, 87/101/EEC) Exceedances of emission limit values (e.g. 2000/76/EC)

Sewage sludge producers	Users of sewage sludge	Data on sludge (86/278/EEC)
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6. Priorities and Timing

6.1 Prioritising the Implementation Tasks

In preparing their strategies and implementation plans, the candidate countries will need to prioritise the various major tasks to be undertaken.

The process of preparing a waste management strategy (Section 3) should determine the existing environmental problems and options for resolving them, the relative costs and benefits of these options, the financial investments and other resources required to implement the selected options, programmes for their implementation, the effects of their implementation on the economy, etc. The priorities and timescales for implementation will therefore need to be established by the candidate countries during this process, and formalised in the implementation plan. The following section identifies some of the issues to be considered in setting key priorities and the factors that will influence the implementation timetable.

6.1.1 Legislative considerations

Candidate countries must transpose all of the European directives into national legislation by the date of accession. However, consideration should be given to the order in which the various items of legislation are transposed.

Implementation of the Waste Framework Directive and Hazardous Waste Directive (91/689/EEC as amended) must be given a high priority, as these provide the structure and foundation for the daughter legislation. Furthermore, the waste framework legislation should be prioritised and programmed in conjunction with key legislation in other sectors e.g. IPPC, Air Quality Framework, and Reporting Directives.

Similarly, prioritisation of the daughter directives under both framework directives on waste needs to take account of implementation requirements in other sectors. For example, the implementation of the Urban Waste Water Treatment Directive (91/271/EEC) needs to be programmed in conjunction with legislation governing waste management so that acceptable disposal routes for sludge are available prior to the commissioning of new (or upgraded) wastewater treatment plants.

Legislation implementing international treaties should be given a higher priority where applicable, e.g. the legislation on transboundary movement of wastes.

Consideration should also be given to providing a robust legal framework allowing for amendments to legislation and, where necessary, to environmental permits, in order to ensure the easier and swifter implementation into national law of Community law obligations, and compliance thereafter with such obligations.

6.1.2 Environmental considerations

As landfilling is the most commonly used and widespread method of waste disposal in the candidate countries, and poorly designed and managed and/or inadequately controlled landfill sites can cause significant pollution and other environmental hazards, it may be considered more appropriate to concentrate initially on implementing policies and legislation aimed at improving and controlling the standards and practices for landfilling in preference to other methods of waste treatment and disposal. Measures to mitigate the impacts of existing and old landfills and those to establish new landfills are both very expensive. Candidate countries will need to determine which option would be the most effective and efficient.

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As regards incineration, a number of long-term effects of incineration should be taken into consideration: effects on waste minimisation (incinerators should operate at full capacity to make the investment feasible); and effects on landfill planning (incineration reduces the volume of solid waste but creates toxic residues that need safe disposal). Planning has to ensure that prevention (minimisation of the generation of waste) and recycling (including composting) are given priority over other options.

6.1.3 Cost-effectiveness

Legislation intended to implement measures which have the ability or potential to achieve the greatest environmental benefits per unit of cost or expenditure should usually be given a higher priority than legislation with lower anticipated cost-benefit ratios. However, legislation which is likely to require major investments in new facilities should not be ignored or postponed, as the candidate countries will need to plan for their development, financing and construction, and prepare the public and industry for their eventual introduction.

6.1.4 Economic considerations

The candidate countries need to consider which items or aspects of legislation are likely to have significant consequences for their economies. Legislative requirements affecting commercial and industrial sectors that make a major contribution to the economy should be addressed before those relating to small or non-existent industries. For example, all of the candidate countries will need to address the disposal of waste batteries and accumulators, packaging, waste electrical and electronic equipment, discarded vehicles, PCBs and PCTs, and sewage sludge. However, not all candidate countries have a significant titanium dioxide industry or generate large quantities of waste oils. Legislation introducing producer responsibility for certain waste streams such as packaging and packaging waste, end-of-life vehicles, electronic and electrical equipment in particular requires major changes in approach to the manufacture, distribution and consumption of packaging materials across all economic sectors, and the achievement of quantified targets for recycling and reduction of packaging waste. Producer responsibility legislation shifts the responsibility and burden of costs for waste management from municipalities to producers (e.g. manufacturers, retailers and suppliers). By facing this additional financial burden, producers tend to take a more cost-efficient approach, which makes economic sense but does not always guarantee the best environmental results.

The European Union and various national governments provide financial assistance for waste management projects in candidate countries – for example, the EU's IPA instrument. In developing their waste management strategies, candidate countries should investigate these sources of finance as well as look to positive, cost-efficient examples from the current Member States.

6.2 Timescales

In principle, candidate countries must implement and comply with waste management legislation. Possible transitional periods will be subject to the enlargement negotiations between each candidate country and the EU. Implementation tasks that will tend to be especially time-consuming are:

- Developing and approving waste management strategies and implementation plans.
- Developing appropriate institutional arrangements and tools for regulation and enforcement.
- Planning, designing and constructing new infrastructure and facilities, including waste management collection, recycling and disposal facilities. These include cost-intensive installations such as landfills and incineration plants.
- Providing permits for new infrastructure and facilities, and inspection and supervision of

all existing ones.

There may be instances where implementation of a specific requirement cannot be achieved by the date of accession, for example due to the long lead times associated with planning, financing and constructing certain types of waste treatment or disposal facility. The negotiation of appropriate transitional arrangements with the Commission, such as extended periods for implementing and achieving compliance with specific requirements of EC legislation has to be based on well-defined and justified requests and detailed, tight, economically feasible and legally binding implementation plans, the putting into effect of which already has to start during the pre-accession period. New investments in waste management infrastructure and facilities in candidate countries should be in line with the environmental *acquis* upon accession, particularly those investments receiving funding from the EU.

7. Economic and Financial Issues

7.1 Introduction

This section provides guidance on economic and financial issues relating to the implementation of legislation on waste. The first two subsections indicate the types of costs that will be incurred during implementation, while the last two subsections discuss cost recovery and the use of economic tools. Examples of unit costs related to specific items of legislation are provided in the fiches where appropriate.

7.2 Institutional Development

Implementation of the waste directives will require the training of staff. Without sufficient and suitably trained staff, systems for waste management planning, regulation and enforcement cannot be effectively implemented. It is therefore important to ensure that adequate budgets are provided to enable the responsible institutions to perform their functions effectively. Salaries need to be set at levels that enable staff with the necessary experience and training to be attracted and retained. A training needs assessment should be carried out to ensure that, once staff are recruited and working, any skills deficiencies can be remedied within a reasonable period of time.

Human resources are required for:

- developing and setting environmental/technical standards and guidelines;
- waste management strategy development and implementation planning at central and local levels;
- issuing licences/permits;
- supervision, monitoring and inspection of waste management facilities and activities;
- initiating and pursuing enforcement actions; and
- data collection, analysis and reporting.

It is not possible to generalise on the costs of establishing the institutional structure, which will depend on the size of country, the degree of industrialisation, the choice of organisational structure and local salary levels. The aspects that are likely to incur the greatest incremental costs, to the extent that they are not already available, are:

- additional professional and technical staff (and their training/development);
- acquisition of the necessary sampling and monitoring equipment;
- laboratory testing and analytical services; and

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- data collection, storage, analysis and reporting.

7.3 Facilities

It will be necessary to upgrade the quality and environmental performance of existing facilities and ensure that new facilities are provided to the environmental standards that have been set as part of the national policy and strategy. Finance needs to be raised for capital investment expenditures and the recurrent costs incurred during operations. Ultimately, the full costs of facility provision and operation should be recovered from waste producers. Finance should preferably derive from the private sector, normally in the context of producer liability legislation. However, neither industry nor the public sector can be expected to provide such finance without having first established an adequate cost-recovery system based upon sound legislation (see Section 7.4 below), and a foolproof regulatory system which does not permit competitors, from the public or private sectors, to operate at lower standards. The capital for facilities for municipal waste management may initially need to be financed (or co-financed) by the municipalities themselves, especially for “historic” waste. (e.g. where producers marketed products prior to the date of entry into force of producer responsibility legislation). However, it is expected that municipalities will bear the main financial burden for specific waste streams such as organic waste, household chemicals and medical waste for a considerable time to come.

The costs incurred in establishing new facilities will depend on the number, type and capacities of the additional facilities required. Indications of approximate unit costs for new waste management facilities of different types in existing Member States are given in the appropriate fiches. The actual costs will depend, *inter alia*, on the technologies selected, local conditions and economies of scale and, especially for landfill, on the costs of acquiring suitably located land for which the necessary permits can be obtained.

A study prepared on behalf of DG ENV¹⁰⁰ has identified that the capital investment required for the ten new Member States in order to comply with EC waste management legislation for their accession in 2004 was between EUR 9.7 and 22.7 billion. The lower estimate is based on a scenario with extensive landfilling while the higher estimate is based on optimum re-use and recycling.

A number of more detailed studies have also been produced, although they may not be directly comparable. A study on the costs of implementing EC waste management legislation in Slovakia¹⁰¹ estimated the total capital costs (net present value in 1999 at 5%) to be EUR 1.17 billion. A study on the costs of environmental approximation in Poland¹⁰² shows a total investment requirement for waste management of EUR 3.695 billion. A similar study for Latvia¹⁰³ shows capital costs of EUR 237.9 million. The last two studies only estimate the impact of the hazardous waste and landfill directives, which have the greatest cost impact. Also, the 2001 report¹⁰⁴ from the Danish Environmental Protection Agency gives good examples of the costs that the new Member States faced in their transposition and implementation of the EC waste management legislation.

The EU and various national governments provide financial assistance for waste management projects, including the development of appropriate institutional frameworks, e.g. ISPA and Phare.

¹⁰⁰ *Compliance Costing for Approximation of EU Environmental Legislation in the CEEC*, EDC Limited, May 1997

¹⁰¹ *Provision of Technical Assistance in the Approximation of Waste Management legislation in the Slovak Republic*, DISAE project SR-104. Halcrow Group Limited, February 1999.

¹⁰² *Costing and Financial Analysis of Approximation*, DISAE project POL-101. AgriConsulting Europe, June 1998

¹⁰³ *Development of the Latvian Approximation Strategy and Programme*, DISAE Project LAT-103. Halcrow Group Limited, July 1998

¹⁰⁴ “The Environmental Challenge of EU Enlargement in Central and Eastern Europe”, report obtainable on the web at http://www.mst.dk/udgiv/Publications/2001/87-7972-044-7/html/default_eng.htm

In developing their waste management strategies, candidate countries must investigate these sources of finance.

7.4 Cost Recovery

There are two important aspects of financing to be considered with any waste management strategy and implementation plan. These are:

- how to finance capital investment expenditure for the provision of waste management facilities and equipment; and
- how to finance the recurrent costs incurred during operation.

Accordingly, a policy for recovering the costs of waste management needs to determine:

- the total amount of recurrent funding needed each year; and
- how this will be provided.

The minimum amount of recurrent funding required will be that which is necessary to finance the direct operating expenditures and any debt service obligations incurred in providing a facility or service – i.e. sufficient revenues must somehow be generated to cover annual cash outflows. If the objective is for the facility or service to become self-financing, then it will also be necessary to generate and set aside funds sufficient to maintain asset values, finance long-term liabilities and provide a return on investment.

The full costs of providing waste management services are substantial and rising in real terms. As these costs have risen, so governments in Member States have become increasingly reluctant to allow these costs to be met from central or local government taxation. In line with the polluter pays principle, most Member States have already reduced or eliminated any subsidies for waste management, whilst the remainder are in the process of doing so. This has meant that organisations directly responsible for the provision of waste management facilities and services have been obliged to move towards a position where their service charges recover the full costs of the services provided.

There are two broad ways of recovering the costs of waste management:

- user charges, where a charge is paid (directly or indirectly) by the users of a specific service, e.g. waste collection, treatment or disposal; and
- earmarked charges, levied, for example, on a specific product or activity, and where the resulting revenues are earmarked for expenditure on waste management-related purposes such as to finance the provision of waste recycling facilities (see Section 7.5 below).

Charging waste producers for the management of their wastes, at a fixed rate and/or at a variable rate related to the quantity or quality of wastes produced, is now almost universal throughout the EU. Typically, householders are charged a fixed rate for their waste management services, while commercial and industrial waste charges are usually weight or volume related. However, EU municipalities are increasingly turning to variable rate charging (or a combination of fixed and variable rate charging) for the management of domestic and similar wastes.

Methods of variable charging range from simply setting a price for refuse sacks or labels, to sophisticated systems where waste containers incorporating micro-chips are able to relate the container to its owner (allowing the producer of the waste to be billed accordingly). Most of these financial mechanisms aim at creating incentives for waste minimisation and at municipal waste separation and recycling, such as “pay per garbage bag” or more favourable waste management charges for less frequent waste collection (e.g. every two weeks).

Whichever charging methods are used, progressively raising user charges for waste management to levels which reflect the true long-term costs of managing wastes in a legally compliant and environmentally safe manner (known as long-run marginal costs – LRMC) is

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potentially the single, most effective policy measure open to the candidate countries for encouraging the reduction of wastes requiring disposal and for ensuring that the necessary facilities and services are provided.

It should be appreciated that LPMC pricing implies not just aiming to recover the full costs of current waste management facilities and services, but setting charges at levels which reflect the full costs of providing future facilities and services that comply with current and impending EC environmental legislation. Currently, certain waste management activities and services in the candidate countries, particularly for the management of municipal solid wastes, are effectively subsidised. This tends to create distortions in the market for waste management services and to discourage the development of environmentally desirable attitudes and patterns of behaviour amongst waste producers.

Although desirable, applying such a policy is not simple in practice and would need to consider, *inter alia*, such factors as:

- the state of the economy;
- public acceptability;
- affordability, particularly for the poorer members of society; and
- the enforcement capacities and capabilities of the regulatory authorities.

Nevertheless, a policy of progressively increasing prices for waste management services and facilities in real terms (i.e. over and above the general rate of inflation) and removing market distortions is probably unavoidable if the candidate countries are eventually to achieve full compliance with EC waste legislation.

7.5 Application of Other Economic Tools

The use of economic tools or instruments in environmental policy has long been promoted by economists as a (potentially) more efficient way of achieving environmental goals. Environmental costs are usually underestimated and often not internalised and therefore constitute external costs to society as such. It is essential to take into account environmental concerns when calculating the costs of implementing waste management strategies. For example, the costs of establishing new landfill sites would need to include the costs of mitigating measures to protect the environment. The major advantage of economic tools is that, in theory, they incorporate environmental concerns and costs directly into the market price mechanism and therefore possess all the efficiency properties of competitive market pricing. The efficiency properties of economic tools, however, depend crucially on (a) the flexibility and effectiveness of other related environmental policy instruments, and (b) marginal cost differentials for different waste management/pollution abatement options.

The implementation phase of new economic tools can often bring surprises. The need to carry out detailed research and assessment studies in order to understand complex economic and business linkages is sometimes recognised only after the first phase of implementation. This underlines the importance of proper preparation, even if the political climate seems to offer the opportunity for the rapid introduction of a new economic tool.

Ideally, the design and application of such tools should satisfy the following criteria:

- Economically efficient – it should interfere as little as possible with well-informed resource allocation decisions in competitive markets, and provide a continuous incentive for seeking least-cost solutions.
- Environmentally effective – it should be aimed at mitigating specific pollution or resource usage problems.
- Fair – it should not be significantly regressive, i.e. it should not impose a disproportionate cost burden on the least-well-off members of society.

- Administratively cost-effective – it should involve low administrative and compliance costs.
- Compatible – it should be compatible with other European and national legislation and policies.
- Financially effective – it should be able to generate appropriate amounts of revenue for financing necessary expenditures.

Some examples of economic tools applied within the EU are given below.

Waste disposal taxes/levies have been introduced in several EU Member States, most commonly for the landfilling of wastes. The basic aim of such taxes/levies is to discourage the disposal of wastes and thus promote waste management options that are higher up the waste management hierarchy, such as waste reduction and recycling. The revenues from such taxes are frequently earmarked for specific related purposes. A potential concern associated with such taxes is that they may have the unwanted effect of increasing the incidence of illegal disposal practices. Note that under Article 10 of the Landfill Directive, a duty is imposed on Member States to ensure that the operator of a landfill site charges “full costs” for setting up, running, closing and aftercare related to that landfill site.

Product charges (or input charges) are added to the price of certain products that are considered to cause adverse environmental effects during their manufacture, use or disposal. Such charges can be found in most EU countries. Examples include disposable razors, disposable cameras, batteries, beverage packaging, paper and plastic bags, virgin construction materials, disposable plates and cutlery, and plastic window and door frames.

Deposit refund schemes entail the application of a surcharge or deposit on certain products, where a partial or total refund may be made when specified conditions are met. These schemes have been used for many years and are widely applied in EU Member States, particularly for beverage containers and, more recently, packaging waste. Some are mandatory whilst others involve voluntary producer responsibility schemes – an example is the German “green dot” scheme for packaging wastes, where the manufacturers of packaging products have established a nationwide system for collecting and recovering packaging wastes bearing a green dot. A tax may be levied on drinks containers if they are not part of a deposit refund system, if they are not reusable, or if a minimum percentage is not recycled. This has resulted in a significant increase in the use of deposit refund systems during the last decade. These schemes are generally very effective and may achieve as much as an 80 to 100% return of waste packaging and used containers. An example of quite a radical solution in this regard is to be seen in the End-of-Life Vehicles Directive 2000/53/EC (as amended by Decision 2002/525/EC, 2005/437/EC and 2005/438/EC).

Tradeable permits could be used for waste generation but there are currently no such schemes operating across the EU. However, the UK has introduced a system of tradeable certificates for packaging recycling/recovery, which serve to confirm the achievement of recycling and recovery targets for packaging wastes. The UK is also in the process of launching a system for landfills with the main aim of bolstering the implementation of the Landfill Directive (1999/31/EC), which may be of interest to candidate countries.

The UK’s Waste and Emissions Trading Act, adopted in 2003, requires local authorities to progressively reduce the amount of biodegradable waste going to landfill. This will be achieved by setting tradeable landfill allowances so that councils with low landfill rates can sell their unused landfill allowances to councils with high landfill rates.

The new legislation requires each of the territories of the UK to produce a strategy to reduce the amount of biodegradable waste which may be sent to landfill. Tying in with the Landfill Directive, the new law will see each of the four UK nations setting their own annual targets for the amount of biodegradable material going to landfill. The allowances that will be given to waste disposal authorities will be calculated so that the system will be able to reach the directive’s targets in 2010, 2013 and 2020. Those unable to get away from high landfill rates need to buy landfill allowances from authorities with low landfill rates.

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It is envisaged that this system will enable authorities in cheap landfill areas to make reductions in their own landfilling while selling permits to areas where landfill may be more expensive. There is also a certain scope in the bill for landfill allowances from one year to be used in a different year. Landfill allowances will not be tradeable by anyone other than waste disposal authorities. The Environment Agency will monitor the system throughout the UK.

It remains to be seen whether such trading schemes might hinder the development of efficient waste management in the relevant areas by providing an easy way out for local communities willing to pay the price for extra capacity. If such a system were compatible with Community waste management law and the EC Treaty as a whole, it might prove of interest for a Community-wide scheme.

8. Summary of Key Issues

Achieving and maintaining compliance with EU policies and legislation on waste management presents a major challenge for the candidate countries. In order to minimise the associated administrative burden and costs, this challenge needs to be managed in a systematic and cost-effective manner. With this in mind, the governments of the candidate countries should endeavour to focus their efforts and actions on addressing those issues and requirements that are fundamental to EU approximation in this sector, in particular by ensuring that:

- the totality of policies, legislation, legal mechanisms and standards adopted at the national level achieve the objectives and results aimed at by EU policies and legislation;
- a single national government agency is given the overall responsibility and requisite authority for planning and managing the process of achieving compliance with EU policies and legislation;
- a strategy and detailed plan for the future management of wastes is prepared and implemented;
- arrangements are put in place for the effective involvement and participation of all other bodies or interest groups that have a significant role or function to perform in relation to waste management;
- appropriate competent authorities are designated or established, and their respective duties, functions and powers are clearly defined;
- sufficient human and technical resources are allocated to allow all key functions and tasks to be performed properly, especially those relating to regulation and enforcement;
- the resources and expertise of the private sector are mobilised and utilised in appropriate ways.

A well-prepared, integrated strategy provides the means by which these and all other significant issues relating to waste management can be systematically identified and addressed. A checklist of the key questions that should be considered in preparing and implementing such a strategy is presented in the Box below.

Checklist of Key Questions to be Considered in Preparing and Implementing a Waste Management Strategy

Is there sufficient, comprehensive knowledge and understanding of the existing arrangements, methods and practices for managing wastes, in particular concerning:

- sources, types, and quantities of wastes now and in the future?
- existing waste management systems and facilities?
- existing health risks/environmental impacts of waste management?

- existing legislative, institutional and regulatory requirements/arrangements?

Have all the significant problems/deficiencies associated with the existing arrangements and practices for managing wastes, and their underlying causes and effects, been identified, defined and systematically analysed, in particular problems or deficiencies in:

- the legislative/institutional/regulatory framework?
- available data on the origins and fate of wastes?
- waste management practices and facilities?
- communications with key stakeholders?

Do the strategic policies and objectives for the future management of wastes address each of the problems or deficiencies identified, and have these objectives been translated into measurable and verifiable indicators?

Have the measures/actions selected for achieving the strategic objectives been arrived at after a thorough assessment of all available options against clearly stated criteria, in particular:

- legislative/institutional/organisational options?
- environmental/technical options?
- economic/financial options?
- social/communicative options?

Does the resulting strategy contain all of the elements and requirements for accomplishing the overall goal (i.e. compliance with EU policies and legislation) and subordinate objectives for waste management, in particular:

- a policy statement?
- strategic principles and criteria?
- key data and underlying assumptions?
- a description of the main elements/features of the strategy?
- specific measures and programmes for achieving the overall goal and objectives?
- estimates of the human, financial and other resources required to implement the strategy?

Is there a comprehensive and detailed plan for implementing the final strategy, providing, in particular:

- definitions of all key tasks necessary for implementing the adopted strategy?
- allocation of responsibilities for key implementation tasks?
- key implementation decision points and milestones?
- detailed timetables for implementation?
- detailed resource/cost estimates?
- cash flow projections and a detailed financing plan?

Have arrangements and supporting systems been established for monitoring and periodically reviewing progress in implementing the strategy, and rectifying any shortcomings or difficulties?

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The Directives on Waste from the Titanium Dioxide Industry

Official Titles:

Council Directive 78/176/EEC on waste from the titanium dioxide industry (OJ L 54, 25.2.78), as amended by Council Directive 83/29/EEC of 24 January 1983 amending Directive 78/176/EEC on waste from the titanium dioxide industry (OJ L 32, 3.2.1983)

Council Directive 82/883/EEC on procedures for the surveillance and monitoring of environments concerned by waste from the titanium dioxide industry (OJ L 378, 31.12.1982)

Council Directive 92/112/EEC on procedures for harmonising programmes for the reduction and eventual elimination of pollution caused by the titanium dioxide industry (OJ L 409, 31.12.1992)

1. Summary of the Main Aims and Provisions

The aim of Council Directive 78/176/EEC is to prevent and progressively reduce pollution caused by waste from the titanium dioxide industry with a view to the elimination of such pollution. It also seeks to harmonise laws on waste from the titanium dioxide industry in order to avoid distortion of competition within the internal market. Member States must draw up programmes, with targets, for reducing and eliminating pollution caused by waste from the titanium dioxide industry. They must also carrying out monitoring and take remedial action in certain situations where pollution has resulted. The two other associated directives elaborate on certain requirements of this directive.

Council Directive 82/883/EEC lays down the procedures for carrying out surveillance and monitoring of the effects on the environment of the storage, discharge and dumping of titanium dioxide waste. Council Directive 92/112/EEC lays down procedures for harmonising the programmes for the reduction and elimination of pollution caused by titanium dioxide waste from existing industrial plants.

It is important to bear in mind the proposed draft directive on industrial emissions, which will fundamentally change a number of waste-related directives in that it consolidates and brings them under one and the same piece of legislation. This draft directive will directly affect the titanium dioxide directives as they will be repealed and instead covered by the new directive on industrial emissions. Since the titanium dioxide directives are more than 15 years old, they are subject to the ongoing process at EU level of streamlining and simplifying EC legislation (in accordance with the Commission's action plan "Simplifying and improving the regulatory environment"). The Commission consulted interested parties on a draft working document prepared for the simplification of the titanium dioxide directives. On the basis of the consultation,

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the Commission proposed including the simplified provisions of the three titanium dioxide directives in the revised IPPC Directive.

Minimum provisions covering the inspection of industrial installations, the review of permits, reporting on compliance, and the protection of soil will be introduced with consequent environmental improvements. The streamlining of permitting, reporting and monitoring requirements and the strengthened co-operation with Member States to simplify implementation will reduce the administrative burden by between EUR 105 and EUR 255 million per year.

The scope of the installations producing titanium dioxide will not change according to the current text of the proposal. Chapter VI contains minimum technical requirements for titanium dioxide installations. Also, Articles 63 to 64, Parts 1, 3 and 4 of Annex VIII contain emission limit values and reporting requirements for installations producing titanium dioxide. The draft directive would introduce a number of changes to the current legislative framework on titanium dioxide including:

- clarification and strengthening of the concept of BAT;
- revision of the minimum emission limit values (by introducing more stringent values) for installations producing titanium dioxide to align them with BAT standards regarding certain polluting substances.

For more information in relation to this draft directive, consult the Europa site at: <http://ec.europa.eu/environment/air/pollutants/stationary/ippc/proposal.htm> and at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52007PC0844:EN:NOT>

2. Principal Obligations of Member States

2.1 Council Directive 78/176/EEC

2.1.1 Planning

- Draw up and implement programmes for the reduction and elimination of pollution caused by titanium dioxide waste from existing industries (Arts. 9 and 10, and Council Directive 92/112/EEC).
- Appoint a body to carry out monitoring of the disposal of waste and of the environment in which waste is disposed (Art. 7)

2.1.2 Regulation

- Ensure that titanium dioxide waste is disposed of without endangering human health or harming the environment (Art. 2).
- Encourage the prevention, recycling, processing and re-use of titanium dioxide waste (Art. 3).
- Prohibit the discharge, dumping, storage, tipping and injection of titanium dioxide waste unless prior authorisation is issued by the competent authority in the Member States
 - in which waste is produced;
 - in which waste is discharged, stored, tipped or injected; and
 - from whose territory waste is discharged or dumped (Art. 4).
- Ensure that competent authorities only grant authorisations under Article 4 in accordance with specified conditions (Arts. 5, 6 and Annex 1).
- Ensure that the construction of new industries is subject to prior authorisation, environmental impact surveys, and the use of materials, processes and techniques which

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are least damaging to the environment (Art. 11).

- Monitor the waste disposed of and the effects of the disposal of titanium dioxide waste on the environment (Art. 7, Annex 2 and Council Directive 82/883/EEC).
- Take steps to remedy specified situations and, if necessary, require the suspension of operations (Art. 8).
- Take steps to prepare for the more stringent emission limit values that will be introduced by the new draft directive on industrial emissions, which will revise the existing values to bring them up to date with developments in BAT.

2.1.3 Consultation and Reporting

- Consult with other Member States on:
 - the appointment of a monitoring body for cross-frontier pollution (Art. 7); and
 - remedial measures (Art. 8).
- Report to the Commission on:
 - information relating to prior authorisations (Arts. 13, 4, 5 and 6);
 - results of monitoring and surveillance operations (Arts. 13 and 7; Council Directive 82/883 Art. 7);
 - measures taken to remedy specified situations (Arts. 13 and 8);
 - general information concerning materials, processes and techniques provided by applicants for authorisations for the construction of new industrial plants (Arts. 13 and 11);
 - programmes for the reduction and elimination of pollution (Art. 9);
 - the prevention and reduction of pollution (Art. 14 and Council Directive 91/692/EEC);
 - measures taken to comply with the directive (Art. 15); and
 - texts of national law adopted in the field covered by the directive (Art. 15)

2.2 Council Directive 82/883/EEC

2.2.1 Planning

- Determine the frequency of sampling and analysis for each of the parameters listed in the annexes, in accordance with specified minimum requirements (Art. 4 and annexes).
- Determine the exact locations from which samples are to be taken (Art. 4).

2.2.2 Monitoring

- Carry out surveillance and monitoring of the environment affected and of neighbouring zones unaffected by the discharge, dumping or storage of titanium dioxide waste (Arts. 3, 4 and annexes).
- Ensure that laboratories use the specified comparable reference methods of measurement for determining parametric values and that they use sampling methods and procedures that do not significantly affect the analytical results (Art. 5).

2.2.3 Consultation and Reporting

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- In cases where an authorisation is also required to be issued by another Member State, consult with the Member State on the content and implementation of the monitoring programme (Art. 13).
- Report to the Commission on:
 - cases where it is not possible to identify a neighbouring zone deemed to be unaffected by disposal of waste (Art. 4);
 - measures taken to comply with the directive (Art. 14); and
 - transposition, with texts of the main provisions of national law adopted in the field covered by the directive (Art. 14).

2.3 Council Directive 92/112/EEC

2.3.1 Planning

- If quality objectives are used as the means for achieving the targets laid down in Article 6, prepare a programme demonstrating that these measures achieve an equivalent effect to limit values, in terms of environmental protection and avoiding distortion of competition (Art. 8).

2.3.2 Regulation

- Prohibit the discharge (from any source) and dumping (from ships or aircraft) of specified types of titanium dioxide waste into inland and marine waters (Arts. 2, 3 and 4).
- Reduce discharges of specified types of titanium dioxide waste in accordance with specified targets relating to the total value of waste per tonne of titanium dioxide produced (Art. 6).
- Reduce discharges of specified pollutants (dust, sulphur dioxide and trioxide, and chlorine) into the atmosphere in accordance with specified targets (Art. 9).
- Ensure that all waste from the titanium dioxide industry is avoided or reused where this is technically and economically feasible, and is reused or disposed of without causing harm to human health or the environment (Art. 11).

2.3.3 Monitoring

- Monitor the values and reductions specified in the directive in relation to each establishment producing titanium dioxide (Arts. 9, 10 and annex).

2.3.4 Reporting

- Report to the Commission on:
 - derogations from deadlines for compliance with bans and restrictions (Arts. 5 and 7);
 - programmes demonstrating the effectiveness of quality objectives where these are chosen as a means for achieving the required reductions in discharges (Art. 8);
 - measures taken to comply with the directive (Art. 12); and
 - transposition, with texts of the main provisions of national law adopted in the field covered by the directive (Art. 12).

2.4 Additional Legal Instruments

A number of other legislative instruments are relevant to the management of waste from the titanium dioxide industry and must also be borne in mind during the implementation of this directive. These include:

- Waste Framework Directive (91/156/EEC amending Directive 2006/12/EC on waste)
- Hazardous Waste Directive (91/689/EEC, as amended by Council Directive 94/31/EC)
- Integrated Pollution Prevention and Control (IPPC) Directive (2008/1/EC) (see Section 7 of the Handbook)
- Sulphur Dioxide Air Pollution Directive (1999/30/EC relating to limit values for sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead in ambient air) (see Section 3 of the Handbook)
- Environmental Impact Assessment Directive (85/337/EEC, as amended by Council Directive 97/11/EC and Directive 2003/35/EC), and SEA Directive 2001/42/EC (see Section 2 of the Handbook)
- Directive on Access to Environmental Information (2003/4/EC) (see Section 2 of the Handbook)
- Also note the draft directive on industrial emissions, which will revise the current legislation on titanium dioxide.

3. Implementation

3.1 Key Tasks

The key tasks involved in implementing these directives are summarised in the checklist below, organised in chronological order (where possible) within each subheading.

3.2 Phasing Considerations

Experience within Member States suggests that priority should be given to the following tasks.

- Drawing up and implementing programmes for the reduction and elimination of pollution caused by titanium dioxide waste from existing industries.
- Transposing the requirements of the directives into national legislation and policy.
- Detailed planning, design, permitting, procurement and construction of new or upgraded facilities for the manufacture of titanium dioxide.

These tasks should therefore be planned to commence during the initial phase of implementation.

DIRECTIVES ON WASTE FROM THE TITANIUM DIOXIDE INDUSTRY - KEY IMPLEMENTATION TASKS	
1	Planning
1.1	Determine how many, if any, existing or planned facilities will be regulated under these directives. As part of the survey, include details on which processes they will operate (sulphate or chlorine).
1.2	Designate competent authority(ies) for the authorisation and monitoring of the disposal of waste from the titanium dioxide industry.

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1.3	<p>Determine whether there is a need for, and if so draw up and implement, programmes for the reduction and elimination of pollution caused by titanium dioxide waste from existing industries. Programmes should include:</p> <ul style="list-style-type: none"> • general targets for the reduction of pollution from liquid, solid and gaseous waste; • intermediate objectives; • information on the state of the environment concerned; • measures for reducing pollution; • methods for treating waste directly caused by the manufacturing process; • total number of establishments for which reduction/elimination programmes have been established.
2	Regulation, Monitoring and Enforcement
2.1	Put in place legislation prohibiting or placing conditions on the dumping or discharge of titanium dioxide waste.
2.2	Establish a procedure for issuing authorisations for operations of existing titanium dioxide plants.
2.3	Establish a procedure for issuing authorisations for the construction of new titanium dioxide plants.
2.4	Introduce a waste minimisation programme in accordance with Directive 92/112/EEC.
2.5	<p>Introduce an environmental monitoring and surveillance programme in accordance with Directive 82/883/EEC. This should include procedures for:</p> <ul style="list-style-type: none"> • checking the quantity, composition and toxicity of waste to ensure that authorisation conditions are complied with; • testing the toxicity of waste to aquatic organisms in accordance with Annex II(A)(2) of Directive 76/176/EEC; • monitoring compliance with limit values and quality objectives established under Directive 92/112/EEC; • sampling programme for monitoring the receiving environment. This should include specifying environments that are included and neighbouring zones included, identifying sampling sites, and determining sampling frequency.
2.6	Establish specifications for analysis of samples. These should include all the parameters and reference methods (or equivalent reference methods) listed in the annexes to Directive 82/883/EEC; and procedure for monitoring gaseous SO _x emissions as specified or equivalent to that set out in the annex to Directive 92/112/EEC.
2.7	Establish an enforcement system to ensure that prohibitions and authorisation conditions are complied with.

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2.8	<p>Develop procedures for identifying what and when remedial action should be taken in the event that:</p> <ul style="list-style-type: none"> • authorisation conditions are exceeded; • toxicity limits are exceeded; • monitoring results indicate a deterioration in the environment; or • a deleterious effect on the legitimate use of water and the environment is observed. <p>The procedures should include the possibility of requiring the suspension of waste disposal operations; and of consultation with other Member States where the discharges from establishments in one country affect the environment of other countries.</p>
3	Reporting
3.1	Establish reporting and data recording systems to ensure that the data required (see below) are collected
3.2	Report to the Commission on transposition, implementation, surveillance and monitoring, programmes and evidence from existing industries.

4. Implementation Guidance

Drawing upon the collective experience of the Member States, a number of general observations and suggestions for implementing these directives are presented below.

4.1 Planning

- The first step is to determine whether there are any processes that are likely to be subject to the directives. There are no such facilities in many countries, in which case no further action is required, although transposition into national law is still necessary to cover the eventuality of a facility being developed at some time in the future.
- It will be necessary to draw up and implement programmes for the reduction and elimination of pollution caused by titanium dioxide waste from existing industries and to determine sources of finance for improvement schemes.
- Extensive survey work will be required to define the extent of pollution and to identify possible solutions in the terms of the directives.
- Estimate the impact that the draft directive on industrial emissions will have on the titanium dioxide installations in terms of their capacity to comply with the new, more stringent emission limit values and the costs that these more stringent requirements will have for industry and for the public sector in terms of revising operating licences, monitoring and inspections.

Example of Arrangements to Identify and Improve Facilities

In one Member State (UK), only three establishments were identified as falling under the scope of the directives. All three plants discharged most of their waste to two estuaries causing serious local water pollution. Extensive survey work was carried out to assess the extent of pollution and to identify possible solutions.

A five-year phased programme of improvement works was developed, which included the redesign and relocation of the outfalls to deeper water. Following the adoption of Directive 92/112/EEC, the emission limits in that directive have been applied to the industry through the

IPPC authorisation process.

4.2 Regulation

- It will be necessary to appoint a competent authority. This is likely to be the authority(ies) with responsibility for IPPC, since the problem is multi-sectoral.
- Waste reduction programmes should be introduced in accordance with the Waste Framework Directive and satisfy the provisions for atmospheric discharge limits and waste limits or quality objectives as set out in Directive 92/112/EEC.
- An environmental monitoring and surveillance programme must be introduced in accordance with Directive 82/883/EEC. The programme should be co-ordinated with other similar programmes as defined in the Member State's waste management plan.
- National law and regulation by the competent authority should ensure that it is mandatory for producers, users and disposal companies to provide monitoring information.
- A sampling and laboratory service organisation needs to be appointed to carry out the required monitoring. As the Commission will use the data, laboratories will need to be able to produce results that are comparable between countries and should be accredited.
- Cross-border consultation will be necessary where discharges affect the environment of another Member State. Consultation should also take place between Member States on the monitoring programme.

5. Costs

The main types of costs arising during the implementation of the titanium dioxide directives are illustrated, as far as possible, in the checklist below.

Checklist of the Types of Cost Incurred to Implement the Directives

Initial set-up costs:

- carrying out surveys of existing plants;
- preparation of an improvement plan.

Capital expenditure:

- installation of effluent treatment plant;
- other environmental improvements.

Ongoing running costs:

- operating costs of improvements;
- inspection and monitoring.

There are three main cost factors in implementing the directives – the administrative costs in developing the improvement programme, the ongoing costs associated with regulating the industry, and the costs associated with improvement schemes and evaluation.

The costs associated with the development of the improvement programme will be largely borne by the competent authority, which will need to undertake a detailed survey of existing sites.

The costs of regulation should be borne by the industry on a cost recovery basis. Costs relate to permitting, monitoring, investigative work to assess the impact of discharges on the environment,

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and the costs of assessing what improvements are required. As this is a specialised industry, the costs of monitoring and surveillance could be charged on the basis of work done, or could be related to the general cost recovery programmes that will be in place for the regulation of other industries. The costs of sampling and biological survey work carried out in estuary and coastal areas are significantly higher than for discharges to inland waters or to land and air.

Improvement costs will result from the need to incorporate effluent treatment at existing titanium dioxide production facilities, to neutralise acidic discharges and to eliminate metallic contaminants. The removal processes themselves will produce solid wastes or sludge that will also incur a disposal cost.

The new draft directive on industrial emissions, introducing more stringent emission limit values for the titanium dioxide industry, is likely to have some impact on implementation costs. However, it should also be emphasised that the simplification and consolidation of the seven pieces of existing EC legislation will have an overall beneficial effect on costs for the public sector, as many procedures will be streamlined. Hence, overall this draft directive will rather lower costs for both industry and the public sector.

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The Waste Oils Directive

Official Title: Council Directive 75/439/EEC of 16 June 1975 on the disposal of waste oils (OJ L 194, 25.7.75), as amended by Directive 1987/101/EEC, Directive 91/692/EEC and Directive 2000/76/EC, as amended by Council Directive 87/101/EEC of 22 December 1986

1. Summary of Main Aims and Provisions

The purpose of the directive is to create a harmonised system for the collection, treatment, storage and disposal of waste oils, without harming the environment. Member States are required to establish systems for the registration, permitting and supervision of activities involving the processing or disposal of waste oils. The highest priority for managing waste oils is given to regeneration, followed by combustion, then destruction or controlled storage or disposal.

Note that this directive has a different definition of “disposal” from the definition in the Waste Framework Directive. The Waste Oils Directive defines “disposal” more widely, while in the framework directive disposal is only final disposal. In the Waste Oils Directive, disposal is defined as comprising treatment (defined as recovery operations – regeneration and combustion), destruction, storage and disposal, i.e. also processes other than “final” disposal.

Article 8(1) of and the annex to this directive were repealed from 28 December 2005 by Directive 2000/76/EC on the incineration of waste.

The new Waste Directive (2008/98/EC) will consolidate and recast waste legislation. It will incorporate the provisions of Directive 75/439/EEC into its text, thus the latter directive will be repealed as from December 2010. The management of waste oils should be conducted in accordance with the priority order of the waste hierarchy, and preference should be given to options that deliver the best overall environmental outcome. The separate collection of waste oils remains crucial to their proper management and the prevention of damage to the environment from their improper disposal. It should be noted that one paragraph of the new directive on waste will apply already as from 12 December 2008, the date as from which the directive enters into force. It concerns Article 10(4) on reference methods of measurement for determining the PCB/PCT content of waste oils, and subjects certain non-essential elements of the Waste Oils Directive to a faster and more efficient “comotology” procedure (not involving voting by the Member States in the Council and Parliament).

2. Principal Obligations of Member States

2.1 Planning

- Ensure that waste oils are collected and disposed of (within the wider meaning of the term “disposal” as defined in the directive) without causing avoidable damage to human

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health and the environment (Art. 2).

- In managing waste oils, give priority to processing by regeneration, then to combustion, and finally to safe destruction, controlled storage or (final) disposal (Art. 3).
- Public awareness measures according to Article 5 (1): Carry out information and promotional campaigns to ensure that waste oils are stored appropriately and, as far as possible, collected (Art 5.1).
- If necessary, require undertakings to collect/dispose of (within the wider meaning as defined in the directive) waste oils (Arts. 5 (2) and 14) by imposing a public service obligation. In those cases, devise economic measures in accordance with Article 15.

2.2 Regulation

- Prohibit:
 - the discharge of waste oils into waters or onto soil;
 - the uncontrolled discharge of waste oil residues; and
 - emissions to air, as a result of processing, in excess of permitted levels (Art. 4).
- Optional: prescribe Article 3 measures (Art. 5 (3)).
- Optional: prohibit the combustion of waste oils (Art. 16 (2)).
- Require any undertaking that collects waste oils to be subject to registration and supervision (optional authorisation requirement) (Art. 5).
- Require any undertaking that disposes of (see note above on definition of “disposal”) waste oils to be subject to prior authorisation (through permitting) (Art. 6).
- Subject the authorisation of undertakings that regenerate or use waste oil as fuel to the fulfilment of appropriate environmental and health protection measures including BATNEEC (Art. 6).
- Take measures to ensure that the operation of regeneration will not cause unavoidable damage to the environment. This should include measures to ensure that:
 - risks associated with the quantity and toxic and dangerous characteristics of residues are reduced to a minimum and that the residues are disposed of in accordance with the Hazardous Waste Directive (Council Directive 91/689/EEC); and
 - base oils derived from regeneration do not constitute toxic and dangerous waste, and do not contain PCBs or PCTs in concentrations beyond prescribed limits (Arts. 7 and 10).
- Require any waste oil holders who cannot dispose of waste oils themselves in a way compatible with the directive to place waste oils at the disposal of a registered/authorised undertaking or undertakings that carry out the collection and/or disposal of waste oils (Art. 9, (4) and (5)).
- Require establishments which produce, collect, hold, and/or dispose of waste oils above certain quantities to keep records and, if requested, to provide relevant information to competent authorities (Arts. 11 and 12).
- Prohibit the mixing of waste oils with PCBs and PCTs, or with toxic and dangerous waste, when collecting or storing waste oils.
- Ensure that any waste oils containing PCBs or PCTs are disposed of without damage to human health or the environment, or are regenerated to the extent prescribed (Art. 10).

- Require that waste oils that are contaminated by toxic or dangerous substances are disposed of in accordance with the Hazardous Waste Directive (Council Directive 91/689/EEC) (Art. 10). Note that Article 10(4) of the Waste Oils Directive will be replaced by Article 10(4) of the newly adopted Directive 2008/98/EC on waste regarding the reference methods for measurement for determining the PCB/PCT content of waste oils, and will subject certain non-essential elements of the Waste Oils Directive to a faster and more efficient “comotology” procedure (not involving voting by the Member States in the Council and Parliament).

2.3 Monitoring and Enforcement

- Carry out inspections of undertakings to ensure compliance with permits (Art.13).
- Examine trends in the state of technical development and/or of the environment, with a view to revising permits granted to waste oil management undertakings (Art. 13).
- Where the option to allocate waste oils to types of processing set out in Article 3 (i.e. regeneration, combustion, destruction, storage or tipping) is adopted, institute appropriate control measures to ensure that objectives set out in Articles 2 and 4 of the directive are achieved (Art. 5(3)).

2.4 Reporting

Report to the Commission on:

- measures regarding regeneration (Art. 7);
- technical expertise and experience gained and the results of applying measures required under the directive (Art. 17);
- measures taken to comply with the directive (Art. 18 and Council Directive 91/692/EEC);
- the main provisions of national law adopted in the field covered by the directive (Art. 19).

2.5 Additional Legal Instruments

A number of other legislative instruments (addressed within Section 4 of the Handbook unless otherwise indicated) are relevant to the disposal of waste oils and must also be borne in mind during the implementation of this directive. These include:

- Waste Framework Directive (Council Directive 91/156/EEC of 18 March 1991 amending Directive 2006/12/EC on waste)
- Hazardous Waste Directive (91/689/EEC, as amended)
- Waste Incineration Directive (2000/76/EC)
- Regulation on Shipments of Waste (EC) No. 1013/2006, Regulation (EC) No. 120/97 and Regulation (EC) No. 2557/2001
- Regulation on Shipments of Waste (EC) No. 1013/2006, as amended by Commission Regulation No. 1379/2007
- Commission Decision 96/302/EC establishing a format in which information is to be provided pursuant to Article 8(3) of Council Directive 91/689/EEC
- Environmental Impact Assessment Directive (85/337/EEC, as amended by Council Directive 97/11/EC and Directive 2003/35/EC) (see Section 2 of the Handbook)
- SEA Directive (2001/42/EC) (see Section 2 of the Handbook)

3. Implementation

3.1 Key Tasks

The key tasks involved in implementing this directive are summarised in the following checklist, organised in chronological order (where possible) within each subheading.

THE WASTE OILS DIRECTIVE - KEY IMPLEMENTATION TASKS	
1	Planning and Provision of Infrastructure
1.1	Designate competent authority(ies) responsible for performing duties arising under the directive. Responsibilities would include: <ul style="list-style-type: none"> • registering (or authorising) undertakings collecting waste oils; • issuing permits for the disposal of (according to the wider meaning of “disposal” as defined in the directive, not just “final” disposal) waste oils; • carrying out publicity campaigns; • monitoring disposal of (according to the wider meaning of “disposal” as defined in the directive, not just “final” disposal) waste oils; • maintaining the reporting system.
1.2	Produce a national plan for the management of waste oils.
1.3	Ensure the timely provision of the necessary collection, reprocessing and disposal facilities identified in the national plan.
2	Regulation, Monitoring and Enforcement
2.1	Provide training and guidance to waste regulators in the environmentally sound management of waste oils in accordance with the technical conditions incorporated into the directive.
2.2	Take measures to ensure that waste oils are collected and disposed of without causing any avoidable damage to human beings and the environment. Measures include: <ul style="list-style-type: none"> • registration system for undertakings collecting waste oils (authorisation of collectors is optional); • prohibition of the discharge of waste oils into surface water, groundwater, territorial sea water and drainage systems; of deposit or discharge of waste oils harmful to soil; and of uncontrolled discharge of residues resulting from the processing of waste oils.
2.3	Put in place measures to give priority to the processing of waste oils by regeneration. This should include a system for assessing the risks associated with the regeneration of waste oils. Consider prohibition of combustion in line with Article 16.
2.4	Establish a permitting system for undertakings disposing of waste oils. Systems should, amongst other things, include provisions ensuring that regeneration installations do not cause avoidable environmental damage; that the combustion of waste oil is carried out under environmentally acceptable conditions; that destruction, storage or tipping of waste oils is carried out safely; that, where public service obligations have been imposed, undertakings in areas designated by the competent authority take waste oil offered to them; and that a system is established for the allocation of waste oil to disposal routes.
2.5	Develop detailed standard conditions for permits based on the technical

	requirements of the directive.
2.6	Ensure that all facilities have valid permits and that those which do not are closed.
2.7	Ensure that collectors of waste oils are registered and supervised by the competent authority established under the Waste Framework Directive.
2.8	Establish a monitoring and control system: <ul style="list-style-type: none"> • for the regeneration of waste oils; • for the use of oil as fuel (this would include monitoring air emissions and the disposal of residues from the combustion of waste); • to ensure that waste oils containing PCBs/PCTs are disposed of according to Directive 96/593/EC.
3	Communications
3.1	Carry out information campaigns to ensure proper storage and as complete as possible collection.
3.2	Design and implement a communications programme according to the needs identified in the national plan.
4	Reporting
4.1	Establish reporting and data recording systems to ensure that the data required (see 4.2 below) are collected. This should include guidance on what information must be reported.
4.2	Report to the Commission on: <ul style="list-style-type: none"> • measures regarding regeneration; • measures regarding combustion; • technical expertise and experience; • implementation; • transposition.

3.2 Phasing Considerations

Experience within Member States suggests that priority should be given to the following tasks.

- Preparation of a plan for the management of waste oils, with timescales and responsibilities clearly allocated.
- Detailed planning, design, permitting, procurement and construction of new or upgraded facilities for the collection, regeneration and disposal of waste oils.
- Establishment of a data collection system, to ensure that the information is readily available for reporting.

4. Implementation Guidance

Drawing upon the experience of selected Member States, a number of general observations and suggestions for implementing this directive are presented below. It should be recognised, however, that this directive was the first in the sector, pre-dating even the first version of the Waste Framework Directive (Council Directive 91/156/EEC of 18 March 1991 amending

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Directive 2006/12/EC on waste), and that some of its provisions, such as those for permitting, are also covered in subsequent legislation.

Candidate countries are advised to consult Directive 2008/98/EC on waste closely while implementing the provisions of the Waste Oils Directive. The new waste directive will integrate and repeal the provisions of the Waste Oils Directive as from December 2010 and one of the provisions, regarding methods to measure the content of PCBs in waste oils, already comes into force in December 2008.

4.1 Planning and Provision of Infrastructure

- The directive imposes a requirement to apply the waste management hierarchy.
- The preparation of a national plan for the management of waste oils will be required in order to achieve the objectives of the directive. This is, of course, required as part of the national strategy that must be prepared under the Waste Framework Directive (Council Directive 91/156/EEC of 18 March 1991 amending Directive 2006/12/EC on waste).
- The plan has to address the issues of collection, regeneration and disposal. It should also have regard for practical and technical requirements, economic costs and the producers' ability to pay.
- Adequate processing facilities must be made available for the anticipated volume of waste oil.
- It will be necessary to decide whether to impose public service obligations on undertakings to offer collection services in particular areas, on what financial basis they should operate, and whether it should be compulsory for producers to make their waste oils available to them.
- In order to ensure that adequate collection services are provided, it may be necessary to designate certain collectors to have exclusive collection rights in certain areas in order that their service may be economic. Some control on prices may therefore be required.
- It should be noted that waste oils produced by motorists undertaking their own vehicle maintenance can be a major problem. In one Member State examined, this represents 10% of all waste oils produced.
- It will be necessary to update the national plan regularly to take account of new technological developments. A programme for the review of the plan should include provisions for assessing new developments and initiatives. This could include a review of waste management practices elsewhere in the world.

4.2 Regulation

- This directive requires that facilities for the management of waste oils operate under permits and that collectors are registered. The permitting and registration of waste oil facilities would fall under the systems set up to implement the requirements of the Waste Framework Directive (Council Directive 91/156/EEC of 18 March 1991 amending Directive 2006/12/EC on waste). Waste oils are classified as hazardous wastes so that the requirements of the Hazardous Waste Directive (91/689/EEC) would also apply.
- The necessary competent authorities should already be in place by virtue of the implementation of the Waste Framework Directive (Directive 91/156/EEC of 18 March 1991 amending Directive 2006/12/EC on waste). The responsibility for this normally lies with an environment agency or ministry, with the regulatory function and day-to-day management being undertaken by, for example, a local or regional body.
- The competent authority should ensure that the appropriate conditions, particularly those relating to potential pollution of the environment, are incorporated into permits. This will

require a technical and environmental assessment of the facility and the consideration of other issues such as water and air quality.

- Facilities unsuitable for accepting waste oils should be expressly prohibited. This should be recorded and regular audits should be undertaken at the facility to ensure compliance with this decision.
- Training may be required for regulators in the environmentally sound management of waste oils. Technical guidance notes may also be needed.

4.3 Communications

- A communications strategy should be designed and implemented according to the needs identified in the plan. Particular attention should be given to involving the public in the disposal of waste oils generated when undertaking their own vehicle maintenance.
- In addition, there is a specific requirement in the directive to carry out information campaigns with regard to proper storage and collection. This can be incorporated into the more general communications strategy mentioned above.

5. Costs

The main types of costs arising during the implementation of this directive are illustrated, as far as possible, in the checklist below.

The additional costs of administering this directive, over and above the introduction of the Waste Framework and Hazardous Waste Directives (Directive 91/156/EEC of 18 March 1991 amending Directive 2006/12/EC on waste and 91/689/EEC), are relatively small. The major cost item may be the provision of facilities for the collection of waste oils, if these are not already available.

Checklist of the Types of Cost Incurred to Implement the Directive

Initial set-up costs:

- preparation of a national waste oils management plan;
- provision of training;
- preparation of technical guidance notes.

Capital expenditure:

- waste oils regeneration and disposal facilities;
- collection system for waste oils.

Ongoing running costs:

- regeneration and disposal of waste oils;
- collecting of waste oils.

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Waste Framework Directive

Official Title: Directive 2006/12/EC of the European Parliament and of the Council of 5 April 2006 on waste (OJ L 114, 27.4.2006)

1. Summary of Main Aims and Provisions

In 2006, Directive 75/442/EEC on waste was codified. Codification is a process by which legal texts that have been revised several times are codified into one new text that replaces all the previous versions. No legal or political changes are made to the text during the codification process. The new codified Waste Framework Directive (Directive 2006/12/EC) is now the only legally valid version of the Waste Framework Directive and will remain so until the substantive proposal for a revision is adopted.

The directive establishes a framework for the management of waste across the Community. The basis for this directive is the Community's waste strategy. The framework directive establishes a waste management hierarchy and requires Member States to adopt this hierarchy by encouraging, in order of priority:

- the prevention or reduction of waste production and its harmfulness;
- the recovery of waste, including recycling, re-use or reclamation, or the use of waste as a source of energy; and
- as a final resort, safe disposal.

As well as regulating the disposal and recovery of waste, the directive requires Member States to establish an integrated and adequate network of disposal installations, and to prepare and implement waste management plans, with the objective of assisting the Community as a whole to become self-sufficient in waste management terms, and also the Member States.

Directive 75/442/EEC has been subject to numerous changes. It was clear that the essential objective of all provisions relating to waste management should be the protection of human health and the environment against harmful effects caused by the collection, transport, treatment, storage and tipping of waste, and also that common terminology and a definition of waste are needed in order to improve the efficiency of waste management in the Community. Also, the need for effective and consistent rules on waste disposal and recovery; for encouraging the recovery of waste and the use of recovered materials as raw materials; for restricting the production of waste, particularly by promoting clean technologies and products which can be recycled and reused; and for the Community as a whole to become self-sufficient in waste disposal required the adoption of measures to help fulfil the above, which was achieved by the adoption of Directive 2006/12/EC. Excluded from these measures are gaseous effluents, radioactive waste, mineral waste, animal carcasses and agricultural waste, wastewater, and decommissioned explosives subject to specific acts. The measures apply to all substances or objects which the holder disposes of or is obliged to dispose of pursuant to the national

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provisions in force in the Member States. Commission guidelines were published to help the competent authorities and the private sector determine whether or not a product is to be considered waste.

The abandonment, dumping or uncontrolled disposal of waste shall be prohibited by the Member States, while waste prevention, recycling and processing for re-use should be promoted. Member States shall inform the Commission of any draft rules on the use of products giving rise to technical difficulties and excessive disposal costs and encouraging a reduction in the quantities of certain wastes; the treatment of wastes for recycling or re-use; the use of energy from certain waste; and the use of natural resources that may be replaced by recovered materials.

Member States must co-operate with a view to establishing an integrated and adequate network of disposal installations (taking account of the best available technologies), enabling the Community and each individual Member State to become self-sufficient in waste disposal. This network should enable waste to be disposed of in one of the nearest appropriate installations, so as to guarantee a high level of environmental protection.

It should be ensured that holders of waste have that waste handled by a private or public waste collector or a disposal undertaking, or that they dispose of the waste themselves in compliance with these measures.

These measures should also ensure that any undertakings or establishments treating, storing or tipping waste on behalf of third parties must obtain a permit from the competent authority relating, in particular, to the types and quantities of waste to be treated, the general technical requirements and the precautions to be taken. The competent authority periodically checks that the conditions of the permit are being complied with and monitors undertakings that transport, collect, store, tip or treat their own waste or third parties' waste. Permits are also required for any recovery centre and undertaking disposing of its own waste.

The leading principle is the polluter pays principle, thus the cost of disposing of waste is to be borne by the holder who has waste handled by a waste collector or an undertaking and/or by previous holders, or the producer of the product giving rise to the waste.

The competent authorities designated by the Member States for the implementation of these measures are required to draw up one or more management plans relating, in particular, to the types, quantities and origins of the wastes to be recovered or disposed of, the general technical requirements, any special arrangements for particular wastes, and suitable disposal sites and installations.

It is important to note that Directive 2006/12/EC will be repealed and replaced by Directive 2008/98/EC, which was adopted on 19 November 2008. Directive 2008/98/EC enters into force on 12 December 2008 and will repeal three main waste directives as from 12 December 2010:

- Directive 2006/12/EC on waste
- Directive 91/689/EEC on hazardous waste
- Directive 74/439/EEC on waste oils

Directive 2008/98/EC will clarify key concepts such as the definitions of "waste", "recovery" and "disposal". The aim is to strengthen the measures that must be taken in regard to waste prevention; to introduce an approach that takes into account the whole life cycle of products and materials and not only the waste phase; and to focus on reducing the environmental impacts of waste generation and waste management, thereby strengthening the economic value of waste. The directive has a reinforced focus on the recycling and recovery of waste. It is also more precise in delimiting the scope of application for specific waste streams such as animal waste, as well as in distinguishing between the preliminary storage of waste pending its collection, the collection of waste and the storage of waste pending treatment. It is also more precise in relation to long-term storage covered by Directive 1999/31/EC on the landfill of waste.

2. Principal Obligations of Member States

2.1 Planning

- Establish, or designate, competent authorities responsible for the implementation of the directive (Art. 6).
- Ensure that competent authorities draw up waste management plans (Art. 7).
- Take exhortation measures to:
 - prevent and reduce the amount of waste produced and its harmfulness; and
 - encourage the recovery of waste, including recycling, re-use or reclamation, and the use of waste as a source of energy (Art. 3).
- Take necessary measures to ensure the waste is passed to a waste collector or undertaking carrying out the required operations, or recovered or disposed of by the holder of the waste (Art. 8)
- Establish an integrated and adequate network of disposal installations, taking account of the best available technology not involving excessive costs, and where applicable BAT, in accordance with specific objectives (such as self-sufficiency in waste disposal) (Art. 5).
- Establish the necessary adequate and appropriate system for the permitting of the establishments or undertakings carrying out operations specified by the annexes (Arts. 9, 10, 11, 12).
- Establish an inspection system, or appropriately adapt the existing inspection system, in order to make it able to carry out the prescribed periodic inspections of the establishments or undertakings by the competent authority.
- Apply the polluter pays principle to the disposal of waste, to ensure that the cost of disposing of waste is borne by the producer of the waste or by the holder who has it handled by a waste collector or undertaking and/or the previous holders or the producers of the product that generated the waste (Art. 15).
- Plan and adopt the necessary guidance for the establishments or undertakings as well as the producers to make clear all details of their obligation to keep specific records and information and to make it available to the competent authority upon request (Art. 14).
- Plan and create a reporting system and a system and procedures to amend the annexes in order to adapt them to scientific and technical progress (Arts. 16 and 17).
- If exemptions from the permit requirements (in Articles 9 and 10) are to be granted, adopt general rules governing those exemptions and provide for the registration of exempt operations (Art. 11).

2.2 Regulation

- Ensure that waste is recovered or disposed of without endangering human health, and without using processes or methods that could harm the environment (Art. 4).
- Prohibit the abandonment, dumping or uncontrolled disposal of waste (Art. 4).
- Prevent movements of waste that are not in accordance with waste management plans (Art. 7).
- Ensure that holders of waste either have the waste handled by a waste collector or an undertaking that carries out disposal or recovery operations listed in Annex II or that they recover or dispose of the waste themselves in accordance with the directive (Art. 8).

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- Require establishments and undertakings that carry out disposal operations (listed in Annex IIA) or recovery operations (listed in Annex IIB) to obtain a permit, in the required form, from the competent authority (Arts. 9 and 10).
- Ensure that exemptions from the permit requirements are only granted in respect of waste recovery or the disposal of waste at the place of production subject to general rules and subject to compliance with the conditions relating to environmental protection set out in Article 4 (Art. 11).
- Ensure that establishments or undertakings are registered with the competent authority if:
 - they are exempt from the permitting requirements (Art. 11); or
 - they collect or transport waste on a professional basis, or they arrange for the disposal or recovery of waste on behalf of others, but are not subject to authorisation (Art. 12).
- Ensure that competent authorities carry out periodic inspections of establishments and undertakings that carry out the disposal, recovery, collection and transportation of waste, or are dealers and brokers in waste (Art.13).
- Require establishments and undertakings that carry out disposal or recovery operations to keep specified information and to make it available to the competent authority (Art.14).

2.3 Reporting

Report to the Commission on:

- general rules relating to exemptions from the permit requirements (Art. 11);
- measures taken to implement the aims and requirements of the directive (Arts. 3 and 16 and Council Directive 91/692/EEC);
- national waste management plans (Art. 7);
- measures taken to prevent movements of waste that are not in accordance with waste management plans (Art. 7);
- measures taken to comply with the directive (Arts. 3, 4, 5, 6, 8, 16); and
- transposition, with texts of the main provisions of national law adopted in the field covered by the directive (Art. 19).

2.4 Additional Legal Instruments

All the legislation in the waste sector should be borne in mind when implementing the Waste Framework Directive. Consideration should also be given to legislation in other sectors (and note that Community decisions have also been adopted further to these legislative acts to supplement their operation), particularly:

- European Waste Catalogue published with Commission Decision 2000/532/EC, as amended by 2001/118/EC, 2001/119/EC and 2001/573/EC)
- Integrated Pollution Prevention and Control (IPPC) Directive (2008/1/EC) (see Section 7 of the Handbook)
- Incineration of Waste Directive (2000/76/EC)
- Asbestos Directive (87/217/EEC) (see Section 8 of the Handbook)
- Dangerous Substances Directive (2006/11/EC) and the daughter directives (but see further the Water Framework Directive 2000/60/EC) (see Section 5 of the Handbook)

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- Urban Waste Water Treatment Directive (91/271/EEC) (but see further the Water Framework Directive 2000/60/EC) (see Section 5 of the Handbook)
- Nitrates Directive (91/676/EEC) (but see further the Water Framework Directive 2000/60/EC) (see Section 5 of the Handbook)
- Directive on Environmental Impact Assessment (85/337/EEC) (and see also the SEA Directive (2001/42/EC) on the assessment of the impact of certain plans and programmes) (see Section 2 of the Handbook)
- Directive on Access to Environmental Information (Directive 2003/4/EC) (see Section 2 of the Handbook)
- Packaging and Packaging Waste Directive (94/62/EC)
- Electronic and Electrical Waste Directives (2002/95/EC and 2002/96/EC)
- End-of-Life Vehicle Directive (2000/53/EC)
- Waste from Extraction Industries (Mining) Directive
- Landfill Directive (99/31/EC)
- Reporting Directive (91/692/EEC)
- Regulation (EC) No. 166/2006 on the European Pollutant Release and Transfer Register
- Directive 2004/35/EC on environmental liability

3. Implementation

3.1 Key Tasks

The key tasks involved in implementing this directive are summarised in the following checklist, organised in chronological order (where possible) within each subheading.

THE FRAMEWORK DIRECTIVE ON WASTE - KEY IMPLEMENTATION TASKS	
1	Institutional Organisation
1.1	<p>Appoint competent authority/authorities. Responsibilities would include:</p> <ul style="list-style-type: none"> • establishing a list of wastes in line with Commission Decision 2000/532/EC; • drawing up a national waste management plan; • issuing permits for disposal and recovery operations; • registering collectors, transporters and dealers of waste; • ensuring compliance and enforcing regulations prohibiting the uncontrolled disposal of waste; and • carrying out inspections of waste management facilities.
2	Planning and Implementation of Plans
2.1	Establish an integrated waste management strategy at central government level, incorporating the principles stated in the directive, with timescales and responsibilities clearly defined.
2.2	Carry out an assessment of existing disposal installations to determine what additional infrastructure is needed to establish an integrated and adequate network of disposal installations in accordance with Article 5 of the directive.

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2.3	Develop a national waste management plan that identifies, <i>inter alia</i> , <ul style="list-style-type: none"> • the type, quantity and origin of waste to be recovered and disposed of; • general technical requirements; • any special arrangements for particular wastes; and • suitable disposal sites and installations.
2.4	Make a decision as to whether to exempt from permit requirements establishments carrying out their own disposal operations at their place of production or carrying out waste recovery operations.
2.5	Identify undertakings that collect or transport waste on a professional basis or that arrange for the disposal or recovery of waste on behalf of others but that will not be subject to authorisation.
2.6	Put in place measures to encourage the prevention or reduction of waste production, the recovery of waste and its use as an energy source. This should include measures to encourage: <ul style="list-style-type: none"> • the development of clean technologies that are sparing in their use of natural resources; • the technical development and marketing of products designed to limit the harmful impacts of waste and pollution hazards; • the development of techniques for the final disposal of dangerous substances contained in waste destined for recovery; • the recovery of waste; and • the use of waste as an energy resource.
2.7	Gather information on waste quantities/types and on existing waste management facilities.
2.8	Make a decision as to whether to exempt from permitting requirements establishments carrying out their own disposal operations at the place of production or carrying out waste recovery operations; and compile a register of exempted establishments.
2.9	Assess the financial implications of implementing the directive, in particular the costs of developing an integrated and adequate network of disposal installations and of other measures included in the waste management plan.
2.10	Identify the roles of the public and private sectors.
2.11	Introduce full cost recovery to ensure the implementation of the polluter pays principle.
2.12	Introduce appropriate economic tools to encourage the implementation of plans.
2.13	Ensure the provision of an adequate network of waste disposal installations.
3	Regulation and Monitoring
3.1	Establish measures to ensure compliance with: <p>requirements to recover or dispose of waste without endangering human health or causing harm to the environment; and</p> <p>the prohibition against the abandoning, dumping and uncontrolled disposal of waste.</p>
3.2	Establish measures to ensure that holders of waste:

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	have waste handled by private or public waste collectors or undertakings that carry out operations listed in Annex II A or B of the directive; and
	recover or dispose of waste themselves in accordance with the requirements of the directive.
3.3	Establish and implement systems and procedures for issuing permits to waste management facilities carrying out disposal and recovery operations listed in Annex II A and B of the directive. Permits for Annex II operations should specify the types and quantities of waste; the technical requirements; the security precautions to be taken; the disposal site; and the treatment method. The permitting system should also cover requirements relating to record keeping and reporting, together with procedures for registrations of exempt facilities.
3.4	Establish and implement systems and procedures to register waste carriers and brokers.
3.5	Have producers of electrical and electronic equipment and passenger vehicles establish one or several collection and recycling schemes for waste electronic and electrical equipment (WEEE) and end-of-life vehicles (ELVs). This is often done through associations of producers, retailers and importers and is often commonly financed. Municipalities normally finance historic waste, e.g. products put on the market prior to the entry into force of WEEE and ELV legislation, and thus have to ensure systems for the collection, receiving, storing, recycling and disposal of this waste.
3.5	Establish and implement a system to inspect waste management facilities.
3.6	Adopt rules for the types and quantities of waste and the conditions under which exempted activities may be carried out, including rules to ensure that requirements relating to the safe recovery and disposal of waste (see Article 4) are complied with.
3.7	Compile a register of undertakings exempted from permitting requirements and of undertakings that, although not subject to authorisation requirements, collect or transport waste on a professional basis or arrange for the disposal or recovery of waste on behalf of others.
3.8	Provide training for waste regulators and inspectors.
4	Reporting
4.1	Establish reporting and data recording systems to ensure that the data required (see below) are collected.
4.2	Notify the Commission of: Rules adopted for the exemption of certain waste management facilities from permitting.
4.3	Report to the Commission on: measures taken to implement the waste hierarchy; national waste management plans; measures taken to prevent movements of waste not in accordance with waste management plans; measures taken to implement the directive; and the name and address of each hazardous waste disposal establishment and the type and quantities of waste handled.
4.4	Make reported information available to the public.
5	Technical Advice and Guidance

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5.1	Provide technical guidance on clean technologies.
5.2	Provide technical guidance on opportunities for waste minimisation, re-use, and recovery and recycling.
5.3	Provide technical guidance on methods of waste recovery, treatment and disposal, based on BATNEEC.
5.4	Provide technical guidance on the procedures to be followed for issuing waste management permits.
5.5	Provide guidance to establishments and undertakings and producers on keeping specific records and information, available to the competent authority upon request and used for reporting purposes.
6	Communications and Consultation
6.1	The lead ministry agency should consult with stakeholders before introducing the new waste regulation procedures.
6.2	Design and implement a communications programme to encourage waste producers to minimise waste and to make use of processes further up the waste management hierarchy.

3.2 Phasing Considerations

Experience within Member States suggests that the most demanding and time-consuming tasks associated with implementing this directive are the following:

- Transposing the requirements of the directive into national legislation and policy.
- Establishing and developing the institutional structure for controlling waste management, in particular the acquisition and training of sufficient personnel, and the development of systems and procedures for permitting, monitoring and enforcement and for the collection/reporting of information.
- Preparation of an integrated waste management strategy, including an implementation plan, with timescales and responsibilities clearly allocated.
- Detailed planning, design, permitting and construction of new or upgraded facilities for waste treatment and disposal.

These tasks should therefore be planned to commence during the initial phase of implementation. Depending on the existing institutional structure, the transposition of legislation may be required before a new structure can be introduced.

A data collection system should be established to ensure that the information is readily available for reporting.

4. Implementation Guidance

Implementation of this directive will be influenced by the present status, needs and conditions concerning waste management in each candidate country. Drawing on the experience of selected Member States, a number of general observations and suggestions for implementing the directive are presented below. Much of the philosophy and methodology for these tasks, however, particularly in relation to institutional organisation, planning and regulation, has been discussed at some length in the sector overview.

The new codified Waste Framework Directive (Directive 2006/12/EC) is the only legally valid version of the Waste Framework Directive. However, the European Commission proposed on 21

December 2005 a new strategy on the prevention and recycling of waste. This strategy is one of the seven thematic strategies programmed by the Sixth Environmental Action Programme.

As a first step in the implementation of the thematic strategy on the prevention and recycling of waste, the Commission proposed revising the 1975 Waste Framework Directive to set recycling standards and to include an obligation for EU Member States to develop national waste prevention programmes. This revision will also merge, streamline and clarify legislation, contributing to better regulation. In November 2008, the Council and Parliament adopted Directive 2008/98/EC on waste. It comes into force on 12 December 2008 but mainly starts to apply on 12 December 2010. The directive introduces a revised framework for waste management in the EU, aimed at encouraging the re-use and recycling of waste. By promoting the use of waste as a secondary resource, the new directive is intended to reduce the landfill of waste and to reduce the quantities of potent greenhouse gases arising from such landfill sites.

The directive introduces a new approach to waste management that encourages the prevention of waste. While Member States must design and implement waste prevention programmes, the Commission will report periodically on progress concerning waste prevention.

In addition, the directive lays down a five-step hierarchy of waste management options that must be applied by Member States when developing their national waste policies:

- waste prevention (preferred option);
- reuse;
- recycling;
- recovery (including energy recovery); and
- safe disposal, as a last resort.

In this respect, the new legislation considers energy-efficient waste incineration to be a recovery operation – a provision that promotes resource efficiency, thus reducing the consumption of fossil fuels. The directive also sets new recycling targets. By 2020, Member States must recycle 50% of their household and similar waste; and 70% of their construction and demolition waste. Moreover, the directive simplifies and modernises current EU waste legislation by:

- introducing an environmental objective;
- clarifying the notions of recovery, disposal, waste status and by-product;
- defining the conditions for mixing hazardous waste;
- specifying a procedure for the establishment of technical minimum standards for certain waste management operations.

The directive will contribute to legal simplification by repealing the current Waste Framework Directive (2006/12/EC), the Hazardous Waste Directive (91/689/EEC) and part of the Waste Oils Directive (75/439/EEC).

For more information on the history of the adoption, on discussions and reactions, on the strategy, on the final texts available, etc., refer to:
<http://ec.europa.eu/environment/waste/strategy.htm>

Guidelines on waste legislation can be obtained at:
<http://ec.europa.eu/environment/waste/legislation/index.htm>

4.1 The Philosophy of Waste Management Policy

Five overarching principles for waste management drive the EC approach to this sector. These are:

- The waste management hierarchy (Art. 3(1)), which defines the waste management strategy to be employed. In descending order of preference, these are to prevent the

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production of waste, to re-use, recover and recycle waste, to use waste as a source of energy, and, as a final resort, to dispose of waste safely by incineration or in landfill.

Example of Recycling Practice

One Member State (ES) has successfully implemented a project to recycle tyres. The two-year project was supported by the government and the European Commission's LIFE programme. The province in which the project was undertaken has a serious problem with dumped tyres, which was exacerbated by a concentration of local transport operators. The project has developed a new mechanical separation and granulation process for the tyres. Previous projects have encountered problems in fully separating the three components –steel, fabric and rubber. However, this was overcome in the current project.

One of the biggest problems with any recycling process is finding markets for the recycled material. In an attempt to overcome this problem, the project has worked with partners to devise new solutions. These partners include the local university and private sector companies that use the recyclate to produce tool handles, street furniture, road surfacing materials and noise barriers. The local development agency is now looking for partners throughout Europe to develop the inventions through technology transfer.

- The principles of self-sufficiency and proximity (Art. 5(1) and (2)), whereby Member States are required to move towards developing their own waste disposal facilities wherever practical, while respecting the objective of allowing the Community as a whole to become self-sufficient from the waste management perspective; and the principle that wastes should be disposed of as close to the source of waste as possible. Materials that can be reclaimed or recycled are not included under this principle.
- The principle of best available techniques not entailing excessive cost (BATNEEC) (Art. 5(1)), and best available techniques (BAT), which relates to integrated pollution prevention and control (IPPC) (but see also BAT requirements in BAT briefing notes – or BREFs – to be established for landfilling) and requires the incorporation of BAT to minimise the environmental impacts associated with any process.
- The polluter pays principle (Art. 15), whereby the polluter should bear the costs of pollution prevention and control.
- Waste management without endangering human health or the environment, and in accordance with the precautionary principle (Art. 4).

In all of the above, it is essential that the definition of waste, as set out in the Waste Framework Directive, is mandatory for all Member States. Any substance or object in the categories set out in Annex I that the holder discards, intends to discard, or is required to discard falls within that definition of waste. Assistance is to be gained from rulings from the European Court of Justice in this area, which has proved at times to be somewhat problematic.

4.2 Institutional Organisation

- A strong and independent specialist competent authority is a prerequisite for the successful control of waste management.
- The directive requires an organisational structure to be developed for three main functions: waste management planning; waste regulation (including enforcement) and permitting; and data collection and reporting.
- A broad waste management strategy needs to be established at the central level. The development of detailed plans may be undertaken at a lower administrative level.
- Where institutional responsibility is decentralised, it will be necessary for a clearly defined co-ordination system to be put in place.

- Competent authorities, whether centralised or decentralised, should have no other responsibilities that may lead to a conflict of interest.

4.3 Planning and Implementation of Plans

- Before detailed plans for implementation can be prepared, it is necessary to establish an integrated waste management strategy. It will need to take account of the principles incorporated in the directive, which have been identified in Section 2.1 above, and in the overview chapter of this section of the Handbook.
- The preparation of plans will require the collection of accurate data on waste quantities and types and on existing waste management facilities. This will require the establishment of effective data gathering systems.
- The strategy will involve the setting of technical standards for those issues that are not prescribed in EC legislation.
- The strategy may be implemented through two routes: through the plans and through the regulatory system.
- A number of technical issues will need to be addressed during the development of the strategy and technical standards, some of which will result from specific directives in the waste sector. Some examples are:
 - the need for long-term leachate management and aftercare at landfills;
 - the consequences of a reduction in organic waste being landfilled as a result of the Landfill Directive;
 - the specific requirements needed for dealing with WEEE and ELVs, including more complex waste streams such as LCD screens and components containing heavy metals, which are to be recycled/processed using more advanced and complex methods;
 - the impact of waste reduction and recycling on future waste quantities; and
 - the impact of recycling on the calorific value of residual waste and its effect on a waste-to-energy strategy.

Examples of Institutional Arrangements

In one Member State (FR), waste management plans have been established at different territorial levels, according to the type of waste:

- departmental level for household waste;
- regional level for industrial waste;
- national level for hazardous waste.

In another Member State (PT), waste management authorisation is granted by the Ministry of Environment, through the Institute of Wastes (INR) or regional directorates of the environment (DRAs), depending on the type of waste and waste management operations. The INR is the competent authority to deal with the management of hazardous waste, the incineration of non-hazardous waste and the management of a network of municipalities, whereas the DRAs are in charge of the municipal management of non-hazardous waste. The management of hospital waste is carried out by the General Directorate of Health (DGS), subject to binding advice from the INR. Co-ordination is arranged through periodic meetings between the DRAs and the INR in which practical procedures for waste management are discussed and assessed.

In one Member State (UK), waste regulation used to be carried out by regional authorities, which also had an executive responsibility for the management of municipal solid waste. This led to a conflict of interest, even though the departments were nominally separate. Following an

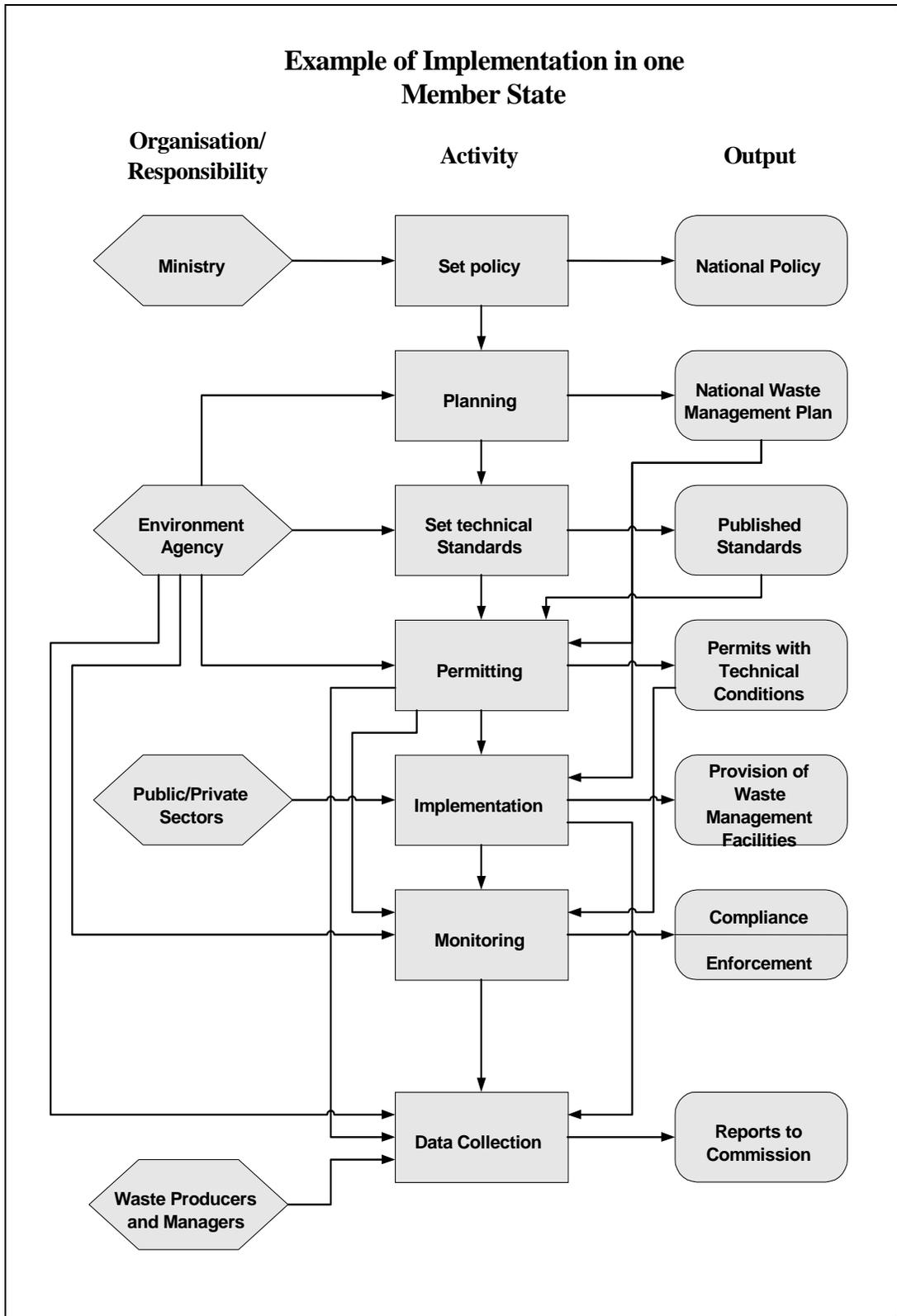
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intermediate period when the functions were separated more clearly within the regional authorities, the regulatory authority was organised on a national basis, reporting to a ministry, but established as a separate accountable body. The regulatory authority has responsibility for ensuring the implementation of strategy, waste management planning, issuing permits, registration, inspection, enforcement and other regulatory functions and also for providing advice to the bodies responsible for delivering waste management services.

The advantage of this new approach is a clear separation of regulation and operation, which allows for easier enforcement action and prevents any conflict of interest between regulators and service providers. From the waste management planning viewpoint, the regulatory authority is the only one in a position to develop such plans, since the service providers are mainly from the private sector. From its centralised standpoint, the regulatory authority has unique access to a national waste management database, derived through its regulatory function, from which to develop such plans. In the past, waste management plans were drawn up on a regional basis at county level. The new system will ensure that a national strategy is applied which can take account of the EU strategy.

In one Member State (PT), the Institute of Wastes (INR) performs an advisory role in the process of providing authorisations for waste treatment facilities. For industrial waste facilities, authorisation is needed from the Ministry of Environment as well as from the Ministry of the Economy. Due to the national importance of commercial issues, other waste treatment facilities are authorised only by the Ministry of Environment. The ministerial procedures are due to be rationalised into a single procedure in the near future, though both the ministries will still be involved. For incineration facilities, the advisory role of the INR includes undertaking environmental impact assessments. Once waste facilities are authorised, they are regulated by their regional directorate of the environment, except for dangerous waste treatment facilities, which are regulated by the INR.

The fundamental feature of the implementation of waste management policy has been the separation of responsibility between public companies for waste collection and the operation of waste management facilities, and government institutions for the regulation of these waste management companies.



Example of Planning and Implementation Tasks

In one Member State (PT), the major planning and implementation tasks undertaken so far comprise:

- Collation and analysis of data on the existing situation and the role of existing structures and organisations.
- Understanding any new technological measures required, where relevant.
- Understanding the implications of the transposed legislation in terms of national, regional and local objectives and quantitative targets.
- Communication of these implications at the national, regional and local levels.
- Development of a strategy for the planning, realisation and regulation of waste management.
- Communication and agreement on the strategy including any restructuring and reorganisation of over 300 separate municipal systems into a more manageable system of 36 municipal associations.
- Definition and agreement on responsibilities between the structures/organisations involved in the planning, realisation and regulation of waste management.

- The roles of the public and private sectors should be clearly defined in the strategy. If the private sector is to be involved in the provision of facilities, consideration must be given to how to ensure that the facilities that are provided are in accordance with the plans developed. This will involve a combination of economic tools, regulatory activities and a communications strategy.

Examples of Private Sector Involvement in Waste Management

In one Member State (UK), virtually all waste management services are provided by the private sector. A national strategy is prepared by the centralised competent authority, while detailed local plans are prepared by the regional land-use planners, who identify the facilities required and locate suitable sites for them. The private sector then complies with the local plans when applying for permits.

In another Member State (FR), municipalities may contract a private company to collect and/or dispose of household waste. The Ministry of the Interior has issued a model contract for this, which can be modified by the municipality to suit local circumstances.

- In most Member States the private sector has a major role in the management of industrial wastes. Municipal wastes are managed by the municipalities or the service may be contracted out to the private sector.
- If privatisation is undertaken, the public service element should still be recognised, especially in the case of municipal waste. Municipalities should not simply abdicate responsibility for the quality of the service in favour of contractors, as they are ultimately accountable to the public for service provision.
- In many Member States, municipalities that have privatised the municipal waste service demonstrate their commitment to the provision of a public service by operating a telephone hotline to handle complaints from the public about the quality of the service. These complaints are then passed on to the contractor, whose contract frequently contains penalty clauses in the event that it fails to provide an adequate service level.
- Some Member States also consider that the provision of a hazardous waste management

service is also a public service, so as to ensure adequate environmental standards and treatment. Plants are operated either by groups of municipalities or by chambers of commerce on a co-operative basis.

- The strategy should address the issue of cost recovery in order to implement the polluter pays principle. Also, private sector companies will not be prepared to invest in facilities unless waste producers bear the full cost of service provision.
- Where services are provided by municipalities, particular attention is required to ensure that the accounting systems used to record costs cover the repayment of capital and also provisions for future liabilities, such as landfill aftercare.

4.4 Regulation

- Effective waste regulation is critical for raising the environmental standard of waste management facilities, especially if the private sector is to be involved in the provision of finance. No private company can operate successfully to high environmental standards if its competitors are able to avoid operating to similar standards due to ineffective waste regulation.
- The permitting process is undertaken in Member States either in a centralised fashion by a national environmental agency or by regional competent authorities, which, in at least one Member State (NL), are audited by a central body.
- National laws in many Member States extend the directive's polluter pays principle, which is fundamental to all projects, by making the producer of the waste liable and responsible for environmentally sound waste management if a subsequent holder of the waste disposes of it improperly. This is sometimes called the "duty of care".
- Consideration should also be given to requiring, as part of the permitting process for waste management facilities, that operators can demonstrate some or all of the following:
 - a specified level of technical competence;
 - sufficient financial resources to comply with long-term obligations; and
 - no previous record of convictions for serious environmental offences.
- Systems and procedures for permitting and inspection should be well designed and carefully documented to ensure a standardised approach and consistency in application. Without consistency, there is a danger that operators will favour areas where procedures are least rigid.
- When setting standards for the technical conditions to be applied to individual permits, there are two possible approaches: the conditions may be standardised regardless of location; or they may be site specific, based on a detailed risk assessment. The former achieves a level playing field so that no facility has any commercial advantage by virtue of its location. The latter achieves the lowest-cost approach but requires a deeper technical knowledge and understanding by regulators.

Examples of Requirements Relating to Technical Qualifications for Permit Holders

One Member State (UK) has specified technical qualifications for permit holders, according to the type of waste management facility. It also requires, for example, landfill operators to provide sufficient financial security (by means of bonds, guarantees, sinking funds or escrow accounts) to cover the costs of restoration and aftercare. Permits may be refused to applicants who have been convicted of environmental offences. Note that such financial security is a requirement under the Landfill Directive (99/31/EC).

In another Member State (PT), the civil servants responsible for waste management in the Institute of Wastes (INR) are required to have a degree in chemical or environmental

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engineering. Also, the INR has a training centre for waste management and recovery and recycling, which, in collaboration with the Institute of Environmental Promotion (IPAMB) and the Institute of Employment and Professional Training, promotes training programmes for people responsible for waste management at different levels. The national waste law also requires the developers and operators of any project in this sector to demonstrate their economic capacity and, particularly for landfill projects, a bank guarantee is required to cover future restoration of the landscape and any aftercare measures.

Examples of regulatory controls and conditions

In one Member State (FR), a financial guarantee must be provided as part of obtaining authorisation for waste disposal or storage at a site. The guarantee is in the form of a written commitment from a credit or insurance company. It must cover the cost of intervention on site in case of pollution, whether before or after cessation of operations, as well as post-operation monitoring and the cost of restoration and aftercare. Negotiations with industry are currently taking place to establish a take-back agreement for waste consisting of electrical and electronic equipment.

The Agency for Environment and Energy (ADEME) produces studies on waste and guides on good management practices. These include:

- “The Guide to Financing the Collection and Treatment of Municipal Waste.” This explains financing mechanisms at the European, national, regional and department levels.
- “Management of Industrial Waste within a Company.” This is designed particularly for small companies. It explains how to organise waste management within a company based on ISO 14001.

Another Member State (UK) takes a site-specific risk analysis approach to the permitting of waste management facilities. Emission limit values may be set, but some may be advisory rather than completely mandatory, and are provided in guidance notes. For instance, the Guidance Note on Waste Incineration contains some recommended emission limit values and others that are mandatory. Mandatory values are introduced to ensure conformity with EC directives, whilst recommended values may include other matters not covered by them. Guidance is also provided on a range of waste management techniques that could not be included in legislation. This guidance is provided in “Waste Management Papers”, which provide a detailed description of the state of the art for various aspects of waste management, including hazardous waste management.

A third Member State (DE) has introduced detailed and comprehensive legally binding technical guidelines that are applied to all permits regardless of location, in order to ensure that no location experiences a competitive disadvantage by being obliged to adopt higher standards.

- In many instances, it will be necessary to provide training for waste regulators and inspectors in the monitoring and enforcement of technical issues. This could be achieved by using consultants from EU Member States.
- Waste management facility operators may be charged for the issuing of permits, to cover the administrative costs of permitting, inspection and enforcement.

4.5 Reporting

- Government will need to decide which agency has responsibility for reporting to the Commission. Most existing EU Member States choose a central government ministry for this function, although some data need to be provided by the competent authorities.
- A system will be required to collect and process data for reporting. The importance of this should not be underestimated.

- Facility operators must be made aware of their reporting obligations at the permitting stage.

4.6 Technical Advice and Guidance

- Technical guidance is an important feature. As technology and procedures are complex and constantly developing, it is not practical to incorporate every requirement into legislation. Waste regulators, waste producers and waste managers therefore need reference documents that explain the procedures they should follow and some of the options with which they are faced. This can best be done by means of official technical guidance documents, which can readily be revised.

Examples of Technical Guidelines

One Member State (UK) produces two sets of technical guidelines. The first set concerns the technical guidance notes for permitting described in one of the case studies above. The second set is a series of "Waste Management Papers", which describe such aspects as:

- recycling options and techniques;
- landfilling techniques;
- the preparation of waste management plans;
- permitting procedures; and
- options for dealing with specific waste streams, such as PCBs, asbestos, cadmium, healthcare wastes, cyanides etc.

In another Member State (PT), the INR is responsible for disseminating technical guidelines through the promotion of training programmes and workshops, and for commissioning technical publications on specific issues that are deemed to require a wider assessment. At present, two studies are being prepared: one by the National Laboratory of Civil Engineering (LNEC) on guidelines for urban waste management; and the other by the Institute of Environmental Technologies (ITA) on a national plan for the prevention of industrial waste production. A further four strategic plans are being prepared on industrial, agricultural, hospital and urban wastes by the INR and the respective ministries.

4.7 Communications and Consultation

- The permitting process requires extensive consultations to be conducted with other regulatory bodies, both those involved in environmental sectors (this will be achieved through the IPPC Directive (2008/1/EC)) and those involved in other sectors such as health and safety, fire prevention, road traffic etc.
- Public consultation is also an important feature. This is often undertaken through the land-use permitting system, which is a required precursor to application for a permit and where public consultation is mandatory. An environmental impact assessment, if required, is applied at this stage. Through this procedure, the public has an opportunity to express its opinion on the siting of facilities.
- The entire consultation process can also lead to extensive delays in granting permits unless specific legislation is introduced to impose time limitations.

Examples of Consultation Processes

A typical approach to communications has been adopted in one Member State (UK), where all waste management legislation is subject to extensive consultation with all the parties identified. This is achieved through consultation papers issued by central government, which are widely

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circulated and which are now also made available on the Internet. Change in environmental attitudes, for example to waste minimisation, is also encouraged at both central and local government levels. In addition to the consultation exercises, central and local government bodies advertise through most media, including stands at exhibitions, to encourage best practice by industry and the general public. Furthermore, to encourage new and innovative approaches to waste management, the government funds demonstration projects and organises conferences. In another Member State (PT), various organisations participate in the preparation and discussion of waste legislation, namely the different institutes of the Ministry of Environment, other relevant ministries, industrial associations and municipalities.

5. Costs

The main types of costs arising during the implementation of the Waste Framework Directive are illustrated in the checklist below. The directive does not itself introduce a requirement for significant capital costs. These are incurred as a result of the daughter directives.

The most significant cost element associated with the directive itself is the provision of an adequate institutional structure and the preparation of waste management plans. The subsidiary directives impose the technical standards relating to facilities. There is, however, a requirement to provide an adequate network of disposal installations. The costs for these are addressed in the subsidiary directives.

Checklist of the Types of Cost Incurred to Implement the Directive

Initial set-up costs:

- establishing the competent authority(ies);
- devising systems and procedures;
- providing training;
- preparing technical guidance notes;
- preparing a waste management strategy and detailed plans.

Ongoing running costs:

- issuing of permits and registrations;
- inspections of waste management facilities, and taking requisite enforcement action;
- collecting data for reporting to the Commission;
- consultation procedures;
- implementation of a communications programme;
- reporting to the Commission.

The Directive on the Disposal of PCBs and PCTs

Official Title: Council Directive 96/59/EC on the disposal of polychlorinated biphenyls and polychlorinated terphenyls (PCB/PCT) (OJ L 243, 24.9.96)

1. Summary of Main Aims and Provisions

The purpose of the directive is to harmonise laws on the controlled disposal of PCBs and on the decontamination or disposal of equipment containing PCBs, with a view to eliminating them completely. Equipment containing PCBs must be inventoried, labelled and reported to the Commission, and the disposal of PCBs must be licensed and carried out in accordance with conditions and plans. "PCBs" means PCBs, PCTs and similar substances as defined in Article 2 of the directive.

2. Principal Obligations of Member States

2.1 Planning

- Compile and regularly update inventories of equipment containing PCBs (Arts. 3 and 4).
- Draw up plans for the decontamination and/or disposal of PCBs and of equipment containing PCBs which is notified and inventoried in accordance with Article 4 ("inventoried equipment") (Art. 11).
- Draw up plans for the collection and disposal of non-inventoried equipment (Art. 11).
- Develop installations for the disposal, decontamination and safe storage of PCBs (Art. 8).
- Ensure that PCBs and equipment containing PCBs are decontaminated or disposed of within specified deadlines (Art. 3).

2.2 Regulation

- Require holders of equipment containing PCBs to notify the competent authorities (Art. 4).
- Ensure that inventoried equipment is labelled (Art. 4).
- Ensure that operators who dispose of PCBs comply with certain procedural requirements, including keeping registers of information and making information available to competent

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authorities and the public (Art. 4).

- Prohibit:
 - the separation of PCBs from other substances for the purpose of the re-use of PCBs (Art. 5);
 - the filling of transformers with PCBs;
 - the maintenance of transformers containing PCBs except subject to specified conditions (Art. 5); and
 - the incineration of PCBs on ships (Art. 7).
- Where PCBs are incinerated, ensure compliance with the requirements of Council Directive 2000/76/EC on waste incineration; and where other disposal methods are used, ensure that equivalent environmental safety standards and best available techniques are applied (Art. 8).
- Ensure that decontamination and disposal of PCBs, or equipment containing PCBs, is carried out subject to a permit in accordance with Council Directive 2006/12/EC (Waste Framework Directive) and subject to specified conditions (Arts. 8 and 9).
- Ensure that used PCBs and equipment containing PCBs are transferred, removed or collected in accordance with specified requirements (Art. 6).

2.3 Communication and Reporting

- Report to the Commission on:
 - inventories of equipment containing PCBs (Art. 4);
 - plans for the decontamination and/or disposal of equipment containing PCBs (Art. 11);
 - the implementation of the directive (Art. 10 and Council Directive 91/692/EEC);
 - measures taken to comply with the directive (Art. 12); and
 - transposition, with texts of the main provisions of national law adopted in the field covered by the directive (Art. 12).

2.4 Additional Legal Instruments

A number of other legislative instruments have relevance to the management of PCBs and PCTS and must also be borne in mind during the implementation of this directive. These include:

- Waste Framework Directive (2006/12/EC).
- Hazardous Waste Directive (91/689/EEC).
- Directive on the classification, packaging and labelling of dangerous substances (67/548/EEC) (see Section 8 of the Handbook)
- Regulation (EC) No. 1907/2006 on the registration, evaluation and assessment of chemicals (REACH)
- Regulation on supervision and control of shipments of waste (EC) No. 1013/2006
- Commission Decision 96/302/EC establishing a format in which information is to be provided pursuant to Article 8(3) of Council Directive 91/689/EEC
- Integrated Pollution Prevention and Control (IPPC) Directive (2008/1/EC) (see Section 7 of the Handbook)

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- Environmental Impact Assessment Directive (85/337/EEC, as amended) (see Section 2 of the Handbook)
- Waste Incineration Directive (2000/76/EC)
- Commission Decision 2001/68/EC on reference methods for the measurement of PCBs

3. Implementation

3.1 Key Tasks

The key tasks involved in implementing this directive are summarised in the following checklist, organised in chronological order (where possible) within each subheading.

DIRECTIVE ON THE DISPOSAL OF PCBs AND PCTS KEY IMPLEMENTATION TASKS	
1	Planning and Provision of Infrastructure
1.1	Designate a competent authority responsible for performing duties arising from the directive. The authority's responsibilities would include: <ul style="list-style-type: none"> • compiling an inventory of equipment containing PCBs; • developing a programme for the disposal and decontamination of all equipment containing PCBs; • ensuring that equipment containing PCBs is properly labelled; • providing guidance to PCB disposal undertakings; and • assessing PCB disposal, contamination and storage facilities.
1.2	Produce a national plan to eliminate PCBs in accordance with the requirements of the directive.
1.3	Carry out an assessment of the number and capacity of PCB disposal, decontamination and safe storage facilities.
1.4	Put in place a programme for the disposal and decontamination of all equipment containing PCBs.
1.5	Set up a system for compiling and updating the inventory of equipment containing PCBs. The procedure for compiling the inventory should include details of information that should be gathered from PCB disposal undertakings.
1.6	Establish a labelling system for PCBs.
1.7	Ensure the timely provision of the necessary facilities identified in the national plan.
2	Regulation:
2.1	Determine conditions under which stocks of PCBs are to be maintained before disposal in accordance with the directive.
2.2	Make mandatory the notification of PCB stocks and the conditions under which they are maintained.
2.3	Provide guidance for holders of PCBs on their identification and procedures to be followed.
2.4	Establish an inspection system to cover inspections of holders of PCB equipment and PCB disposal undertakings and undertakings that carry out maintenance of transformers. Inspect equipment containing PCBs and ensure it complies with the conditions.

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2.5	Ensure that the decontamination of equipment containing PCBs is a process that has to be permitted under waste management legislation in accordance with the Waste Framework Directive (2006/12/EC) and issue permits for decontamination that comply with the conditions in the directive.
2.6	Issue permits for disposal facilities that need to comply with the Hazardous Waste Incineration Directive (94/67/EEC, but note that this is repealed with effect from 28 December 2005 by Directive 2000/76/EC) and otherwise comply with BAT, and ensure continuing effective enforcement.
3	Reporting
3.1	Establish reporting systems to ensure that the data required (see below) are collected.
3.2	Report to the Commission on: <ul style="list-style-type: none">• inventories;• plans for the decontamination and/or disposal of inventoried equipment; and• transposition and implementation.

3.2 Phasing Considerations

Experience within Member States suggests that priority should be given to the following tasks:

- Inventory (necessary for establishing planning on the basis of an idea of the magnitude of the problem).
- Preparation of a plan for the elimination of PCBs, with timescales and responsibilities clearly allocated.
- Transposing the requirements of the directive into national legislation and policy.
- Establishing and developing the institutional structure for controlling PCBs and the training of sufficient personnel.
- The detailed planning, design, permitting, procurement and construction of new or upgraded facilities for treating and disposing of PCBs.

These tasks should therefore be planned to commence during the initial phase of implementation.

The reporting requirements will necessitate the establishment of a data collection system, to ensure that the information is readily available for reporting.

4. Implementation Guidance

Drawing upon the experience of selected Member States, a number of general observations and suggestions for implementing this directive are presented below.

4.1 Planning and Provision of Infrastructure

- Deadlines for the elimination of PCBs will need to be established in accordance with the requirements of the directive. The latest deadline in the directive is the end of 2010.
- Plans setting out the procedures and facilities necessary to eliminate PCBs will be required, with timescales and responsibilities clearly identified.
- When planning for the elimination of PCBs, account must be taken of the availability of

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environmentally appropriate disposal routes. It may be that principles of self-sufficiency and proximity need to be set aside for economic reasons. Planning should also take into account how long it will take to provide viable alternatives to PCB-filled equipment when setting the deadlines for elimination.

- Ensure that disposal facilities complying with the requirements of the directive are available or are constructed, as identified in the elimination plan.
- High temperature incineration is the only practical solution at the present time for the disposal of PCBs, and this is very costly. In the short term, it may be possible for some Member States who do not yet have suitable incineration capability to make use of the facilities available in existing Member States, some of which have excess capacity. This is contrary to the proximity principle but in certain circumstances may be acceptable on economic grounds. (Article 6 (3) recognises this problem and provides for co-operation between Member States.)

Examples of regulatory controls

In one Member State (PT), no plan has been developed for the elimination of PCBs, therefore every year PCBs and PCTs are exported to the UK and France.

In another Member State (SE), national legislation concerning PCBs was introduced in 1972, requiring permits to be obtained for the new use of PCBs. Permits were subsequently issued only for certain types of heavy electrical equipment. No permits for the new use of PCBs have been issued since 1978. This Member State has a ban on the ongoing use of transformers and power capacitors (> 2kVAr) containing PCBs and these were due to be phased out by 1995.

Attention then focused on buildings, small capacitors and the “open” uses of PCB in sealants, glazing units and flooring. Leakage from flooring is known to occur and there is a voluntary agreement in the building trade (consultants, owners, builders and material suppliers) to maintain an inventory of material containing PCBs.

4.2 Regulation

- A competent authority to control PCBs and their elimination will need to be appointed. It is most likely that this will be the authority appointed to issue permits for waste management facilities under the Waste Framework Directive, as is the case in most, if not all, Member States. Specialised training is likely to be required.
- In order to prepare inventories, it will be necessary to require holders of PCBs to report the quantities held.
- It will be necessary to ensure that unsuitable facilities are expressly prohibited from accepting PCBs. Such controls can be implemented through permitting procedures. The competent authorities would then only authorise facilities that they were convinced were suitable.
- The conditions for the maintenance of PCBs are at the discretion of Member States. These should be established with due regard for health, safety and the environment. There is no specific legislation controlling the way in which PCBs are marked or stored in some Member States, although others have introduced strict regulations. In these cases, they are often classified as dangerous substances and therefore subject to the extensive legislation on this subject and on health and safety.
- Technical guidance notes for industry and regulators will be required to explain how to identify whether PCBs are being held, and the procedures necessary for their safe storage and elimination.

5. Costs

The main types of costs arising during the implementation of this directive are illustrated, as far as possible, in the checklist below.

The additional costs of administering this directive, over and above the introduction of the Waste Framework and Hazardous Waste Directives, are relatively small. The major cost item may be the provision of suitable facilities for the destruction of PCBs if these are not already available. A modern incinerator capable of incinerating PCBs may cost as much as EUR 60 million or more. This figure is for a 50,000 tonne p.a. plant with capacity to incinerate other materials as well.

Checklist of the Types of Cost Incurred to Implement the Directive

Initial set-up costs:

- preparing a plan for elimination of PCBs;
- preparing an inventory of PCBs;
- devising systems and procedures;
- provision of training;
- preparing technical guidance notes.

Capital expenditure:

- hazardous waste incinerators;
- storage facilities at waste producers' premises.

Ongoing costs:

- costs of disposal of PCBs;
- costs of storage of PCBs;
- periodic inspections of stocks of PCBs;
- continuing regulatory and requisite enforcement action;
- collecting data for reporting to the Commission.

The Hazardous Waste Directive

Official Title: Council Directive 91/689/EEC on hazardous waste (OJ L 377, 31.12.91), as amended by Council Directive 94/31/EC (OJ L 168, 2.7.94) and Regulation (EC) No. 166/2006 of the European Parliament and of the Council of 18 January 2006 concerning the establishment of a European Pollutant Release and Transfer Register and amending Council Directives 91/689/EEC and 2008/1/EC

Commission Decision 2007/151/EC amending Decisions 94/741/EC and 97/622/EC as regards the questionnaires for the report on the implementation of Directive 2006/12/EC of the European Parliament and of the Council on waste and on the implementation of Council Directive 91/689/EEC on hazardous waste (OJ L 67, 7.3.2007)

1. Summary of Main Aims and Provisions

The main aims of this directive, which replaced Directive 78/319/EEC on toxic and dangerous waste, are to introduce a precise and uniform definition of hazardous waste, and to promote the environmentally sound management of hazardous waste, taking into account the special nature of such waste. A number of controls, additional to those laid down in the Waste Framework Directive (2006/12/EC), are imposed in respect of the handling and disposal of hazardous waste. A list of hazardous waste has been laid down by Commission Decision 2000/532/EC. This list is based on Annexes I, II and III of the Hazardous Waste Directive, which list categories of hazardous waste according to the nature of the waste or the activity which generated it, and which also list the constituents and properties which render the waste hazardous.

Directive 91/689/EEC has been amended by Regulation (EC) No. 166/2006. This regulation establishes a European Pollutant Release and Transfer Register (PRTR), which aims, among other things, to inform the public about important pollutant emissions due, in particular, to activities covered by the IPPC Directive. Consequently, information should be provided to the public on emissions from installations covered by Annex I of the IPPC Directive, also including certain waste management operations.

Regulation No. 166/2006 simplifies and harmonises the rules on the regular reporting of information on pollutants, including waste, by Member States to the Commission pursuant to Directive 91/689/EC and Directive 2008/1/EC (IPPC).

It repeals and replaces Article 8(3) of Directive 91/689/EEC regarding annual reporting to the Commission, including the name and address of waste management undertakings, methods of treating waste and the types and quantities of waste that can be treated. These new reporting requirements apply to:

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- 1) waste management operators carrying out activities listed in Annex I:
 - installations for the recovery and disposal of hazardous waste receiving at least 10 tonnes per day;
 - installations for the incineration of non-hazardous waste with a capacity of three tonnes per hour;
 - installations for the disposal of non-hazardous waste with a capacity of 50 tonnes per day;
 - landfills (still operating and for waste other than inert waste) receiving 10 tonnes per day or with a total capacity of 25,000 tonnes;
 - installations for the disposal or recycling of animal carcasses and animal waste with a treatment capacity of 10 tonnes per day; urban wastewater treatment plants with a capacity of 100,000 population equivalents; independently operated industrial wastewater treatment plants which serve one or more activities of this annex with a capacity of 10,000 m³ per day.
- 2) off-site transfers of waste.

Regulation No. 166/2006 came into force on 24 February 2006 (for more information see information on PRTR in Section 1).

It is important to note that on 19 November 2008 the Council and Parliament adopted Directive 2008/98/EC on waste, which will replace and repeal the Hazardous Waste Directive as from December 2010. The new waste directive mainly aims at simplifying the main directives in the waste area by bringing them under one single legal framework. It will, thus, integrate the provisions of Directive 2006/12/EC on waste, Directive 75/439/EEC on waste oils and Directive 91/689/EC on hazardous waste. Certain provisions on the handling of waste laid down in Council Directive 91/689/EEC will be amended in order to remove obsolete provisions and to improve the clarity of the text. In order to clarify the operation of the mixing ban laid down in Directive 91/689/EEC, and to protect the environment and human health, the exemptions to the mixing ban should additionally comply with BAT as defined in Directive 2008/1/EC on IPPC. The main provisions of the Hazardous Waste Directive that will be affected by the new waste directive are Articles 1(4) and 9. Whereas Article 9 mainly introduces a faster procedure to amend the lists of hazardous wastes set out in the annexes to the directive, Article 1(4) relates to the definition of hazardous waste, which will be defined on the basis of the list established by Commission Decision 2000/532/EC on the basis of Annexes I and II to this directive. This waste must have one or more of the properties listed in Annex III. The list shall take into account the origin and composition of the waste and, where necessary, concentration limit values.

It should further be noted that the IPPC Directive is subject to a revision and that the draft directive on industrial emissions will similarly simplify legislation by integrating and fully or partially repealing seven directives related to industrial pollution.

Commission Decision 2007/151/EC as regards the questionnaires for reporting on the implementation of Directive 2006/12/EC on waste and on the implementation of Council Directive 91/689/EEC on hazardous waste sets out the questionnaire to be used in the reporting of the implementation of Directive 91/689/EC. The decision is a revised version of the earlier Decisions 94/741/EC and 97/622/EC and is designed to clarify the scope of the decision and to avoid overlapping with the reporting obligations under other specific waste legislation, such as legislation on shipments of waste.

2. Principal Obligations of Member States

2.1 Planning

- Ensure that the competent authorities draw up plans for the management of hazardous waste and make these plans public (Art. 6).
- Member States must establish a date by which hazardous waste operators and other facilities generating qualifying quantities of hazardous waste must report on the quantities, pollutants, monitoring data, emission factors and other methods etc. For the first reporting year (2007), the Member States should have the information in sufficient time to be able to submit a full report to the Commission by 31 June 2009 (Art. 7(1), Regulation 166/2006 on the European Pollutant Release and Transfer Register).

2.2 Regulation

- Ensure that establishments or undertakings that carry out the recovery or disposal of hazardous waste are also required to obtain a permit from the competent authority, as required by Articles 9 and 10 of the Waste Framework Directive (Art. 3).
- If it is decided to exempt certain establishments or undertakings that recover waste from the requirement to obtain a permit under Article 10 of the Waste Framework Directive, adopt general rules (with the agreement of the Commission) for such establishments and undertakings and ensure that the recovery complies with Article 4 of that directive (Art. 3).
- Require exempt establishments and undertakings to register with the competent authorities (Art. 3).
- Require producers of hazardous waste, and establishments and undertakings transporting hazardous waste, to keep certain information and to make it available to the competent authorities (Art. 4).
- Where hazardous waste is transferred, ensure that it is accompanied by an identification form containing the details specified in the relevant sections of the standard consignment note annexed to Commission Decision 94/774/EC concerning the standard consignment note referred to in Council Regulation (EC) No. 1013/2006 on the supervision and control of shipments of waste (Art. 5).
- Require that, at every site where the tipping of hazardous waste takes place, the waste is recorded and identified (Art. 2).
- Require that establishments and undertakings which dispose of, recover, collect or transport hazardous waste do not mix different categories of hazardous waste or mix hazardous waste with non-hazardous waste, unless the conditions in Article 4 of the Waste Framework Directive are complied with and a permit is obtained (Art. 2).
- Where hazardous waste is already mixed with other waste, substances or materials, ensure that the waste is separated, where this is technically and economically feasible and necessary to comply with Article 4 of the Waste Framework Directive (Art. 2).
- Ensure that, in the course of collection, transportation and temporary storage, waste is properly packaged and labelled in accordance with international and EC standards (Art. 5).
- In cases of emergency or grave danger, ensure that hazardous waste is dealt with so that it does not constitute a threat to the population or the environment (Art. 7).
- Ensure that operators of activities listed in Annex I, and meeting the threshold values in Annex II, keep a record of reported data for at least five years, including data on chosen methodology for data gathering (Art. 5(5), Regulation 166/2006).

2.3 Monitoring and Enforcement

- Ensure that producers of hazardous waste are subject to appropriate periodic inspections

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by the competent authorities (Art. 4).

- Ensure that, for hazardous waste, inspections concerning waste collection and transport operations, made according to Article 13 of the Waste Framework Directive, also cover the origin and destination of the waste (Art. 5).

2.4 Reporting

- Report to the Commission on:
 - temporary derogations in cases of emergency or grave danger (Art. 7);
 - proposals to adopt rules on the exemption of recovery facilities from the requirement to obtain a permit (Art 3);
 - implementation of the directive, based on the Commission’s questionnaire set out in Decision 2007/151/EC (Art. 8);
 - measures necessary to comply with the directive (Art. 10); and
 - transposition, with texts of the main provisions of national law adopted in the field covered by the directive (Art. 10).
- Ensure that waste management operators as well as other industrial facilities carrying out activities listed in Annex I to Regulation No. 166/2006 on the European Pollution Release and Transfer Register, including public or private establishments and undertakings, comply with the reporting and information requirements set out in the regulation. For instance, such enterprises include those involved in the transportation, disposal and/or recovery or processing of hazardous waste, as well as activities that produce hazardous waste streams such as the mineral industry, chemical industry, and paper and wood production/processing. These undertakings must comply with their reporting obligations under Regulation No. 166/2006. These operators must annually inform the competent authority about the amounts of releases to air, water and land of Annex II pollutants exceeding applicable threshold values, off-site transfers (e.g. shipments) of hazardous waste exceeding two tonnes a year, and off-site transfers of Annex II pollutants in wastewater discharged for wastewater treatment where Annex II threshold values are exceeded. The facility must submit information according to the format referred to in Annex III, e.g.:
 - information on all deliberate, accidental, routine and non-routine activities;
 - reference year;
 - identification of the facility (ID number, address, operating hours a year, number of employees);
 - list of all Annex I activities of the facility;
 - data on releases to air, water or land (naming the pollutants, quantities, and methods used for assessment);
 - off-site transfers of pollutants destined for wastewater treatment where quantities exceed values laid down in Annex II;
 - off-site transfers of hazardous waste exceeding threshold values set out in Annex II – within the country for recovery or disposal (measured in tonnes/year, referring to analytical and calculation methods used); or exported to other countries for recovery or disposal (measured in tonnes/year, referring to analytical and calculation methods used) (Art. 5, Regulation No. 166/2006);
 - for off-site transfers, the name and contact details of the competent authority in case of requests from the public;

- Member States must submit a report to the Commission containing the data requested in Article 5(1-5) (i.e. the data that need to be submitted by the operators) in the format set out in Annex III. For the first reporting year (2007) the reports must be sent by 30 June 2009 and thereafter within 15 months of the end of the reporting year, i.e. 30 March 2010 for the year 2008 (Art. 7(2)).

2.5 Additional Legal Instruments

A number of other legislative instruments have relevance to the management of hazardous wastes and must also be borne in mind during the implementation of this directive. Note that some of these acts have been further supplemented by Commission decisions. These main legislative acts include:

- Commission Decision 2000/532/EC (as amended by 2001/118/EC, 2001/119/EC and 2001/573/EC) establishing a list of wastes
- Waste Framework Directive (2006/12/EC)
- Directive on the classification, packaging and labelling of dangerous substances (67/548/EEC, as last amended by Directive 2006/121/EC) (see Section 8 of the Handbook)
- Regulation (EC) No. 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the registration, evaluation, authorisation and restriction of chemicals (REACH)
- Regulation on Shipments of Waste (EEC) No. 1013/2006
- Commission Decision 96/302/EC establishing a format in which information is to be provided pursuant to Article 8(3) of Council Directive 91/689/EEC
- Integrated Pollution Prevention and Control (IPPC) Directive (2008/1/EC) (see Section 7 of the Handbook)
- Directive on Environmental Impact Assessment (85/337/EEC, as last amended by Directive 2003/35/EC) (and see also the SEA Directive on the assessment of certain plans and programmes (201/42/EC)) (see Section 2 of the Handbook)
- Landfill Directive 99/31/EC
- Directive 2000/76/EC on the incineration of waste
- Directive 2000/59/EC of the European Parliament and of the Council of 27 November 2000 on port reception facilities for ship-generated waste
- Sewage Sludge in Agriculture Directive (Directive 86/278/EEC)
- Regulation No. 166/2006 on the European Pollutant Release and Transfer Register
- Mining Directive (2004/35/EC)
- Waste Electronic and Electrical Equipment and Restriction of Dangerous Substances (Directives 2002/96/EC and 2002/95/EC)
- Packaging Waste Directive (94/62/EC)
- Batteries Directive (2006/66/EC)

The particularly relevant provisions of the Waste Framework Directive (2006/12/EC) (but see the significant changes to the landfilling of hazardous waste brought about by the Landfill Directive (99/31/EC)) are the requirements to:

- establish policy and technical standards;

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- prepare waste management plans;
- introduce a system of permitting, inspection and enforcement;
- establish an integrated and adequate network of waste disposal installations;
- give practical effect to the polluter pays principle.

3. Implementation

3.1 Key Tasks

The key tasks involved in implementing this directive are summarised in the checklist below. The key tasks are arranged under subheadings and organised in chronological order of implementation (where possible).

3.2 Phasing Considerations

Experience within Member States suggests that the most demanding and time-consuming tasks associated with implementing this directive and the related provisions of the Waste Framework Directive (2006/12/EC) are the following (but see, further, specifically under the fiche for Directive 2006/12/EC, and note the major alteration to the disposal of hazardous waste [in short, the end of co-disposal] under the Landfill Directive (99/31/EC)):

- Preparation of an integrated waste management strategy, including an implementation plan, with timescales and responsibilities clearly allocated.
- Establishing and developing the institutional structure for controlling hazardous wastes, in particular the acquisition and training of sufficient personnel, and the development of systems and procedures for permitting, monitoring and enforcement, and for the collection/reporting of information.
- The detailed planning, design, permitting and construction of new or upgraded facilities for treating and disposing of hazardous wastes.

These tasks should therefore be planned to commence during the initial phase of implementation. Depending on the existing institutional structure, the transposition of legislation may be required before a new structure can be introduced, since it may be necessary to establish the new institutions through legislation.

THE HAZARDOUS WASTE DIRECTIVE KEY IMPLEMENTATION TASKS	
1	Administration and Planning
1.1	Designate competent authority(ies) for the implementation of the directive. This would include allocating responsibilities for drawing up the hazardous waste chapter of the national waste management plan; registering collectors, transporters and dealers of hazardous waste; permitting and monitoring; and inspections.
1.2	Incorporate into national law a full list of hazardous wastes as laid down in Commission Decision 2000/532/EC.
1.3	Produce and publish plans for managing hazardous wastes, taking account of the principles and requirements set out in the Waste Framework Directive (2006/12/EC) and the Landfill Directive (99/31/EC).
2	Regulation

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2.1	Establish systems and procedures for identifying and inspecting producers of hazardous waste. Require these producers to keep records of the quantity, nature, and origins of hazardous wastes and make these available to the competent authority.
2.2	Establish a system for issuing permits for: <ul style="list-style-type: none"> • allowing hazardous waste to be mixed with other wastes; • if required, the recovery of hazardous wastes; and • operations of hazardous waste management facilities according to the Waste Framework Directive (2006/12/EC).
2.3	Ensure that unsuitable facilities are in any event prevented from accepting hazardous waste.
2.4	Identify establishments that carry out their own disposal of hazardous waste and require them to obtain permits in accordance with the directive.
2.5	Decide whether facilities that recover hazardous wastes should be exempted from permitting and, if so, establish criteria for exemption and a system for registration, monitoring and review. (Optional)
2.6	Establish a system for inspecting undertakings that carry out hazardous waste management activities.
2.7	Design and enforce a consignment note system in accordance with Regulation (EC) 1013/2006 on shipments of waste for recording the collection, transportation and delivery of hazardous wastes.
2.8	Carry out inspections of hazardous waste producers, transporters and waste management facilities to ensure compliance with permits and with requirements for keeping records.
3	Hazardous Waste Handling (but see also the Landfill Directive (99/31/EC))
3.1	Establish criteria for the circumstances under which the mixing of wastes will be allowed if it does not harm human health and/or the environment. (Optional)
3.2	Establish a procedure to ensure that wastes are not mixed where this is not allowed. The procedure needs to ensure that the permitting systems for transport and treatment or disposal explicitly prevent mixing where necessary.
3.3	Establish a system for keeping records in accordance with the Waste Framework Directive (2006/12/EC).
3.4	Establish rules for packaging and labelling hazardous wastes, in accordance with international and EC standards.
4	Reporting
4.1	Establish reporting and data recording systems to ensure that the data required (see below) are collected.
4.2	Notify the Commission of: <p>temporary derogations taken in cases of emergency under Article 7;</p> <p>waivers and general rules on recovery operations under Article 3.2 at least three months before the rules come into force;</p> <p>identification of wastes other than those on the list of hazardous wastes.</p>

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4.3	Report to the Commission on: <ul style="list-style-type: none">• transposition measures and the implementation of the directive;• the name and address of each hazardous waste disposal establishment, and the type and quantities of waste handled.
4.4	Update information on hazardous waste establishments annually.
4.5	Ensure that hazardous waste operators, including facilities producing larger quantities of hazardous waste (e.g. the mining and paper/pulp industries), submit all requested information to the competent authorities annually, pursuant to Regulation 166/2006 on the European Pollutant Release and Transfer Register, and that this information is compiled in a report for the year 2007 and sent to the Commission by 31 June 2009 at the latest. The next report, for the year 2008, must be sent by 30 March 2008.
5	Technical Advice and Guidance
5.1	Prepare and issue detailed guidance to ensure a full understanding of the list of hazardous wastes given in the Wastes List Decision (2000/532/EC).
5.2	Prepare and issue guidance on the identification of wastes other than those on the list of hazardous wastes that display hazardous properties. Test methods should also be specified.
5.3	Prepare and issue technical guidance on the segregation and separation of wastes.
5.4	Prepare and issue guidance on packaging and labelling, which should take into consideration Council Directive 94/55/EEC, as amended, and the UN publication on recommendations for the transport of dangerous goods.

There are also certain tasks which need to be performed before the transposition of legislation is completed, in particular the definition of criteria for mixing hazardous wastes and the introduction of general rules for recovery facilities, should it be decided to exempt them from the permitting process.

The reporting requirements will necessitate the establishment of a data collection system, to ensure that the information is readily available for reporting.

4. Implementation Guidance

Implementation of the specific requirements of this directive, and the related provisions of the Waste Framework Directive (2006/12/EC), will be influenced by the present status, needs and conditions concerning hazardous wastes management in each candidate country. However, drawing upon the experience of selected Member States, a number of general observations and suggestions for implementing this directive are presented below.

4.1 Planning and Provision of Infrastructure

- An integrated national strategy and plan for managing hazardous wastes is essential, forming part of an overall strategy and implementation plan for wastes management. This is all the more important in the light of the prohibition on the co-disposal of hazardous waste. It is necessary to start planning for solely hazardous waste sites, where required, as soon as possible. In at least one Member State (UK), the risk of a shortage of viable hazardous waste disposal capacity has already been highlighted.
- Hazardous waste management cannot be tackled cost-effectively at a local level. It

should be approached at a regional or national level. In all Member States, facilities are provided on a regional or national basis. Indeed, some of the smaller states rely on neighbouring states for the more capital intensive facilities, such as incineration.

- There are two basic options for the provision of facilities: by the private sector (individually or in co-operatives) or by the public sector (sometimes in partnership with the private sector). The former requires substantially more control over the activities of waste producers to ensure that market conditions are such that the initiative is taken to provide the necessary facilities. The latter will ensure that adequate facilities are provided in a timely manner, but may involve government financing.

Examples of Planning and Provision of Facilities

In one Member State (UK), the private sector invested in hazardous waste incinerators some years ago on the basis of a market survey that identified significant volumes of wastes suitable for incineration. Unfortunately, the permitting system continued to allow combustible wastes to be landfilled and the incinerator companies operated at a loss for several years until landfills were no longer permitted to accept these wastes.

In another Member State (DK), an association of municipalities, providing an incineration, treatment and landfill service to nationwide industry, owns the hazardous waste management facilities.

In a third Member State (DE), regional chambers of commerce own some facilities, while regional state government owns others. In two smaller Member States (IE, PT) there are no hazardous waste incineration facilities because the small volumes of waste would render them uneconomic. These states make use of facilities in other Member States and export their wastes using the procedures contained in Regulation (EC) No. 1013/2006 on shipments of waste.

- In order to minimise the costs and risks of transporting relatively small quantities of hazardous wastes over long distances, consideration should be given to the development and operation of suitably located reception centres for the secure interim storage of wastes prior to their final treatment/disposal at a centralised facility. Such reception centres should also incorporate pre-treatment processes in order to reduce the volume and/or hazard potential of the wastes prior to onward shipment. Most Member States have such facilities.

4.2 Regulation

- Waste producers and others in the waste handling chain should be made legally liable for any environmental or health damage caused by the handling, treatment and disposal of hazardous wastes. This means, inter alia, that producers should not be able to discharge their liability merely by transferring the waste to another party. In such circumstances they must also show that they have carried out their duty of care by ensuring that the third parties are able to, and will handle the waste in a safe manner and in accordance with the relevant legal requirements.

Example of Regulatory Controls

Producers of hazardous waste in one Member State (UK) are placed by law under a mandatory duty of care to ensure that all wastes, including hazardous wastes, are handled without harm to the environment. This requires waste to be transferred to a licensed person. The discharge of the duty of care is governed by a code of practice, which requires producers of hazardous wastes to take reasonable care that systems are in place to ensure that the wastes are not subsequently transferred to an unlicensed operator. This requires a careful audit trail by means of consignment notes. There is no system of registration for waste producers.

This same Member State requires all hazardous waste management facilities, including those

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performing recovery operations, to be permitted in the same manner as provided for under the Waste Framework Directive (2006/12/EC). Facility operators are subject to the duty of care, and failure to comply is a criminal offence. The competent authority undertakes enforcement.

- Consideration should be given to requiring that establishments or undertakings that produce significant quantities of hazardous waste nominate (to the regulatory agency) a person who has the legal responsibility for waste management within the concern. This person should not have any other responsibilities that may conflict with his/her duties and responsibilities relating to the management of wastes. This ensures that responsibility is allocated to a natural as well as a legal person (which might be a company with limited liability).

Example of Requirements Relating to the Technical Qualification of Permit Holders

One Member State (UK) has specified technical qualifications for permit holders, according to the type of waste management facility. It also requires, for example, landfill operators to provide sufficient financial security (by means of bonds, guarantees, sinking funds or escrow accounts) to cover the costs of restoration and aftercare. Permits may be refused to applicants who have been convicted of environmental offences. Note that this requirement is obligatory under the Landfill Directive (99/31/EC).

- Other EC legislation has an impact on the permitting process for waste management facilities. For example, an environmental impact assessment (EIA) is normally required and most processes are controlled under the IPPC Directive (2008/1/EC).

Examples of Aspects of the Permitting Process

One Member State (UK) takes a site-specific risk analysis approach to the permitting of waste management facilities. Emission limit values may be set, but some may be advisory rather than mandatory and are set out in guidance notes. For instance, the Guidance Note on Waste Incineration contains both recommended and mandatory emission limit values. The latter are introduced to ensure conformity with EC directives, but the former may include other matters not covered by the directive. Guidance is also provided on a range of waste management techniques that would not be possible to include in legislation. These are provided in “waste management papers”, which give a detailed description of the state of the art for various aspects of waste management, including hazardous waste management.

Another Member State (DE) has introduced detailed and comprehensive legally binding technical guidelines that are applied to all permits for waste management facilities regardless of location, in order to ensure that no location experiences a competitive disadvantage by being obliged to adopt higher standards.

- Consignment notes vary in complexity among Member States – from a simple one-page form (UK) to some 15 pages (DE), requiring detailed explanations of the steps taken to reuse or recycle the wastes. The more complex the consignment note procedure, the more substantial the resources that would be required to administer it.
- The costs of managing hazardous wastes in an environmentally sound manner are high, which may tempt waste producers to make use of questionable practices. Strict regulatory controls are therefore required, which might include:
 - evaluation of consignment notes before waste movements take place;
 - waste producer registration – identifying waste types, quantities and the disposal methods to be used; and
 - availability of sufficient trained human resources to investigate every reported incident of suspected illegal practices.

- Developments in technology and knowledge of the health risks and environmental impacts associated with hazardous wastes mean that standards are continually evolving. Permits should therefore be subject to regular review and revision in the light of current knowledge.

4.3 Consultations with Stakeholders

- The draft hazardous waste management strategy, when developed, should be made public and the views of stakeholders, such as waste producers, waste managers and environmental NGOs, should be sought.

4.4 Reporting

- A data recording and processing system will be required to gather the necessary data to fulfil the reporting requirements set out in the directive.

5. Costs

The main types of costs arising during the implementation of the Hazardous Waste Directive are illustrated, as far as possible, in the checklist below. The relative size of the costs of the individual items will vary from country to country. Furthermore, depending on the waste management strategy adopted, the candidate countries may seek to finance only a selection of the capital expenditure items listed.

Checklist of the Types of Cost Incurred to Implement the Directive

Initial set-up costs:

- establishment of competent authority(ies);
- devising systems and procedures;
- provision of training;
- preparing technical guidance notes.

Capital expenditure:

- hazardous waste incinerators;
- adaptation of co-incineration plants, such as cement kilns, to accept certain hazardous wastes for incineration;
- physico-chemical treatment plants;
- solidification plants for certain wastes before landfilling, to ensure acceptable leaching and other applicable criteria (see further under the Landfill Directive (99/31/EC));
- secure landfills solely for hazardous wastes;
- transfer stations for the sorting and accumulation of small quantities of hazardous wastes for further treatment;
- collection and transport systems for both liquid and solid hazardous wastes;
- storage facilities at waste producers premises – especially tanks for liquid wastes.

Ongoing running costs:

- annual operating costs of hazardous waste management facilities;

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- periodic inspections of waste producers and carriers, and taking enforcement action;
- processing of consignment notes;
- collecting data for reporting to the Commission;
- reporting requirements pursuant to the EPRTR Regulation (No. 166/2006).

Meeting the requirements laid down in both the Waste Framework Directive (2006/12/EC) and Hazardous Waste Directive (91/689/EEC), as well as the Landfill Directive (99/31/EC), is likely to be very costly. The provision of higher-standard facilities together with the creation of an adequate institutional structure will constitute the largest elements of the overall costs of achieving compliance.

It should be appreciated that the provision of facilities will incur not only initial capital costs but also significant recurring annual costs for operation and maintenance, together, in the case of landfill, with long-term costs for restoration and aftercare. Most facilities are also subject to very substantial economies of scale, with the unit costs of larger plants being much lower than those of smaller ones. Another factor that has an impact on costs is land. In most Member States the cost of land for hazardous waste treatment processes is very high, because of the scarcity of suitable sites that are acceptable in land-use planning terms.

Further costs will be incurred in providing the additional human resources required within the competent authority(ies).

The Sewage Sludge Directive

Official Title: Council Directive 86/278/EEC on the protection of the environment, and in particular of the soil, when sewage sludge is used in agriculture, as amended by Directive 91/692/EEC (OJ L 181, 04.07.86) and Regulation (EC) No. 807/2003 (OJ L 122, 16.5.2003)¹⁰⁵

1. Summary of Main Aims and Provisions

The main aims of the directive are to regulate the use of sewage sludge in agriculture in order to prevent harmful effects on soil, vegetation, animals and humans, and to encourage the correct use of sewage sludge. To achieve this aim, the directive requires Member States to apply maximum limit values for certain heavy metals, both in the sewage sludge and in the soil to which it is applied, to pre-treat sludge, and to restrict its use on certain soils.

Regulation No. 807/2003 modifies the directive only in terms of the procedure for updating the annexes. The main aim of the regulation is to ensure a faster procedure for amending annexes to reflect scientific and technical progress. A substantial improvement has been achieved by the introduction of a committee procedure.

2. Principal Obligations of Member States

2.1 Regulation

- Ensure that the use of sewage sludge in agriculture is regulated and complies with the conditions laid down in the directive relating to:
 - pre-treatment (Arts. 3 and 6);
 - the nutrient needs of plants (Art. 8);
 - the quality of soil (Art. 8);
 - the protection of surface waters and groundwaters (Art. 8); and
 - complying with limit values for the concentration of heavy metals in soil (Art.5).
- Prohibit the use of sewage sludge:

¹⁰⁵ Council Regulation (EC) No 807/2003 of 14 April 2003 adapting to Decision 1999/468/EC the provisions relating to committees which assist the Commission in the exercise of its implementing powers laid down in Council instruments adopted in accordance with the consultation procedure (unanimity).

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- on specified categories of land within defined periods prior to harvesting (Art. 7); and
- where the concentration of heavy metals in the soil exceeds specified limit values (Art. 5 and Annex IA).
- Ensure that records containing the following information are kept and made available to the competent authorities:
 - the quantities, composition, use, treatment, and results of analysis of sewage sludge;
 - the names and addresses of recipients of sewage sludge; and
 - places where sewage sludge is to be used (Art. 10).
- Require producers of sewage sludge to provide users with specified information relating to the composition of the sludge (Arts. 6 and 11 and Annex IIA).

2.2 Monitoring

- Analyse sewage sludge, and the soil on which it is used, to ensure that concentrations of heavy metals in the sludge and soil do not exceed specified limit values (Art. 9 and Annexes IIA, B and C).

2.3 Reporting

- Report to the Commission on:
 - the use of sewage sludge in agriculture (Art. 17 and Council Directive 91/692/EEC);
 - measures taken to comply with the directive, including circumstances where more stringent measures than required under the directive are adopted (Art. 16); and
 - transposition, with texts of the main provisions of national law adopted in the field covered by the directive (Art. 16).

2.4 Additional Legal Instruments

A number of other legislative instruments have relevance to the incineration of sewage sludge and must also be borne in mind during the implementation of this directive. These include:

- Waste Framework Directive (91/156/EEC of 18 March 1991 amending Directive 2006/12/EC on waste).
- Hazardous Waste Directive (91/689/EEC, as amended).
- Environmental Impact Assessment Directive (85/337/EEC, as amended) (and see the SEA Directive 2001/42/EC) (see Section 2 of the Handbook).
- Urban Waste Water Treatment Directive (91/271/EEC, as amended) (see Section 5 of the Handbook).
- Groundwater Directive (80/68/EEC, which will be repealed by Directive 2000/60/EC from 2013) (but see also the Water Framework Directive 2000/60/EC) (see Section 5 of the Handbook).
- Water Framework Directive (2000/60/EC) also covering surface water protection (see Section 5 of the Handbook).
- Directive on Access to Environmental Information (2003/4/EC) (see Section 2 of the

Handbook).

- Incineration of Waste Directive (2000/76/EC)
- The European Pollutant Release and Transfer Register (PRTR) (Regulation ((EC) No. 166/2006) in case of large applications (10 tonnes per day)

3. Implementation

3.1 Key Tasks

The key tasks involved in implementing this directive are summarised in the following checklist, organised in chronological order (where possible) within each sub-heading.

THE SEWAGE SLUDGE DIRECTIVE KEY IMPLEMENTATION TASKS	
1	Regulation
1.1	Designate a competent authority to regulate the spreading of sludge on agricultural land.
1.2	Establish a prior authorisation procedure requiring a permit to spread sludge on farmland.
1.3	Produce guidance on acceptable methods of sewage sludge treatment and spreading on farmland.
1.4	Specify limits for heavy metals in soil.
1.5	Select method of applying heavy metal limits (according to Art 5.2)
1.6	Ensure that sludge producers are required to make the required information available to the competent authority.
1.7	Establish a soil sampling programme.
1.8	Ensure restrictions on cropping and sludge use in accordance with the directive.
1.9	Monitor to ensure that restrictions on cropping are complied with.
2	Reporting
2.1	Establish reporting and data recording systems to ensure that data are collected on transposition and implementation and reported to the Commission.

3.2 Phasing Considerations

Experience within Member States suggests that priority should be given to establishing and developing the institutional structure for controlling the spreading of sludge on farmland and the training of sufficient personnel.

4. Implementation Guidance

Sewage sludge from domestic sewage treatment works is a useful source of nitrogen, phosphorus and organic matter and is therefore generally beneficial if applied to agricultural land. Spreading on land is often the most economical way of disposing of sludge and provides a source of cheap nutrients. Sludge may, however, contain significant levels of heavy metals due

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to industrial discharges to sewer, surface water run-off into combined sewer networks, and from domestic sources.

Drawing upon the experience of selected Member States, a number of general observations and suggestions for implementing this directive are presented below.

4.1 Planning

- It will be necessary to designate a competent authority to regulate the spreading of sludge on agricultural land. The same competent authority as that created for the Waste Framework Directive (Council Directive 91/156/EEC amending 2006/12/EC) would be the most likely choice.
- The areas where sewage sludge is spread or could be spread should be identified and soil content analysed for pH and metals. Limits for heavy metals in soil can be established using these results. These must at least comply with the limits set out in the directive.
- The directive provides for two alternative methods of specifying limits for the application of sludge in Article 5.2 in order to ensure that heavy metal concentrations do not exceed the limits set out in Annex 1A. It may be done either by means of specifying the maximum quantities of sludge which may be applied to soil over a unit area annually while observing the limits on maximum concentrations as set out in Annex 1B (Art 5.2a); or require compliance with limit values for the quantities of metals introduced into a unit of soil over a particular time period (Art. 5.2b and Annex 1C). The second method provides greater flexibility, especially if heavy metal concentrations are typically lower than the maximum shown in Annex 1B.
- In certain EU Member States, provisions are more stringent than those set out in the directive. This may mean that these states allow lower concentrations of particular parameters specified, or that they include a wider range of parameters such as pathogens, nitrates, phosphates or organic contaminants.

4.2 Regulation

- Producers of sludge should be obliged to identify themselves to the competent authority and apply for authorisation to spread sludge. This should be through a system of permitting, in which application should be made in advance of the operation and conditions applied to the methods and types of sludge spreading.

Examples of Regulatory Controls

One EU Member State (UK) operates a pre-notification system through its competent authority. This is designed to ensure that sewage sludge is given suitable treatment before spreading on agricultural land, and has led to the setting of legal limits for metals in soil according to the requirements of the directive. In addition, this Member State has set limits for 10-year average rates of application for metals in sludge and requires that producers must identify suitable sites. A code of practice for the agricultural use of sewage sludge in agriculture has been issued, and there is a separate code dealing with the agricultural use of sludge in forests. The responsibility for undertaking sampling and analysis lies with the sludge producers, who must support their activities by maintaining records and supplying data to the Environment Ministry. Sampling and analytical procedures are in accordance with the code of practice, which incorporates the directive's requirements, and specifies restrictions to minimise risks to health.

- In issuing permits, consideration should be given to the linkages between sludge disposal and the potential for transmission of pathogens to the human food chain, and into

watercourses or supplies through nutrient leaching.

- Sludge producers must be obliged to provide the owners of land where sludge will be applied with details of sludge composition.

4.3 Monitoring and Reporting

- A sampling and analysis laboratory should be appointed. Analytical methods used by the laboratory for heavy metals must conform to those in Annex II C.
- Soil in each proposed spreading area should be sampled at a frequency determined by the competent authority. Sludge from small plants that are exempted from treatment requirements, and from keeping records of composition or spreading location, should be tested according to Annex IIA.
- Monitoring should also be undertaken by the competent authority to ensure that restrictions on cropping are complied with.
- Information should be recorded on amounts and types of sludge used in agriculture and its sources and destinations. Records in some Member States indicate the quantities of sludge produced and supplied for use in agriculture, sludge analyses, types of sludge treatment, soil analyses, and estimates of soil metal concentrations where samples have not yet been taken. They also state the names and addresses of recipients of sludge, locations of application sites, quantities and quality of sludge applied (and details of any other sludge applied), and details of any written advice issued by the national authorities in respect of the sludge or site. In some cases, the producers must give farmers sludge analyses of nutrient content, so they can use the sludge properly. In certain Member States these records must be kept for at least 10 years, and the operator of a sewage plant must submit annual environmental reports to the permitting authority.

Examples of Monitoring Procedures

In one Member State (UK), monitoring is undertaken in accordance with the directive, whereby soil is analysed on first application and at least every twentieth year during which sludge is spread to determine its pH and metals levels. Sludge is analysed at least every six months and every time significant changes occur in the quality of the sewage treated at the works. Analysis is the responsibility of the sludge producer but records must be kept and made available to the Environment Ministry. The analytical methods used are in accordance with the directive. The parameters analysed conform to the directive and there are a number of additional ones.

In another Member State (PT), the national law requires sampling of both the sludge and the soil. The sludge is analysed by the user, who has the burden of proof that it complies with the legally established limits. The results are then made available to the Institute of Wastes (INR), regional directorates of the environment (DRAs) or General Inspectorate of Environment (IGA), who give the final approval. The analyses of the soil are to be undertaken before sludge is applied, although there is no specification of sampling frequency after the sludge is spread. The results must be kept for five years.

In another Member State (SE), the producer of sludge is responsible for carrying out sampling and analysis of sludge in respect of dry matter and loss on ignition; pH; total phosphorus; total nitrogen; ammonium nitrogen; lead, cadmium, copper, chromium, mercury, nickel and zinc. The order that requires this also lays down detailed rules on sampling and analysis methods. The frequency of sampling and analysis is determined according to the treatment capacity of the plant. As a minimum, the sampling and analysis must be done on an annual basis. Permitting authorities are responsible for supervision and inspection.

4.4 Technical Standards and Guidance

- Guidance notes or a code of practice should be provided on acceptable methods of

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sewage sludge treatment and on use of land, grazing or cropping and spreading of sludge and the types of sludge permitted on certain crops.

5. Costs

The main types of costs arising during the implementation of the Sewage Sludge Directive are illustrated, as far as possible, in the checklist below.

A major cost item will be establishing the pre-notification and permitting system. This will require additional resources at the competent authority established under the Waste Framework Directive. Costs will also include sampling and analysis of soil and sludge. It may be necessary to change methods of analysis if sewage laboratories are used for this purpose, and this could involve costs for additional equipment and training. Where no treatment is currently given to raw sludge it will be necessary to construct suitable treatment plants, if it is intended to apply the sludge to farmland. Additional costs of sludge treatment are high.

In some cases, existing spreading arrangements may be too intensive to comply with the directive. In this case, additional transport costs may be incurred to ensure less intensive spreading.

Where metal levels in sludge are found to be very high, or where the soil is very acidic or high in metal content, it may not be possible to use the spreading route for disposal of sludge. In these cases, alternative ways of dealing with sludge will have to be found, including landfill or incineration. This may lead to further high additional costs. Metal levels may be reduced by better control of industrial effluents discharged to sewer, but additional costs will be incurred in the increased requirements for treatment by industry and by the inspection and enforcement regime controlling these effluents.

Checklist of the Types of Cost Incurred to Implement the Directive

Initial set-up costs:

- initial soil sampling programme;
- establishing testing laboratories and procedures;
- establishment of permitting systems and procedures;
- provision of training;
- preparing technical guidance notes.

Capital expenditure:

- sewage treatment plants where raw sludge is currently disposed of to land;
- alternative disposal facilities for contaminated sludge.

Ongoing running costs:

- operation of acceptable spreading techniques;
- additional transport costs;
- inspections of spreading operations, and any requisite enforcement action.

The Batteries Directive

Official Title: Directive 2006/66/EC of the European Parliament and of the Council of 6 September 2006 on batteries and accumulators and waste batteries and accumulators and repealing Directive 91/157/EEC

1. Summary of Main Aims and Provisions

The Batteries Directive seeks to improve the environmental performance of batteries and accumulators as well as the environmental performance of the activities of economic operators involved in the life cycle of batteries and accumulators, e.g. producers, distributors and end users and, in particular, those operators directly involved in the treatment and recycling of waste batteries.

This directive prohibits the placing on the market of certain batteries and accumulators containing hazardous substances and aims to approximate laws on the collection, treatment, recycling and disposal of waste batteries and accumulators. The directive applies to a wide range of products and, apart from those used in equipment to protect the security of Member States or for military purposes, or in equipment designed to be sent into space, it covers all types of batteries and accumulators irrespective of their shape, weight, composition or use. It is therefore far more comprehensive than Directive 91/157/EEC, which applied only to an estimated 7% of consumer batteries and accumulators and excluded button cells.

In addition, consumers must be informed about the dangers of uncontrolled disposal, the marking system and how to remove batteries from appliances. Detailed requirements for marking batteries and accumulators are laid down in Commission Directive 93/86/EEC.

This directive repeals and replaces Directive 91/157/EEC as from 26 September 2008.

2. Principal Obligations of Member States

2.1 Planning

- Ensure efficient organisation of separate collection systems; and, where appropriate, consider the use economic instruments to encourage recycling (Art. 7). This system should ensure the maximisation of separate waste collection and the minimisation of disposal (Art. 7).
- Promote research and encourage the increased environmental performance of batteries and accumulators throughout their life cycle (Art. 5), and encourage the development of new recycling and treatment technologies and the introduction of EMAS (Art. 13).

2.2 Regulation

- Prohibit the marketing of all batteries and accumulators containing more than 0.0005% by weight of mercury, subject to an exemption for button cells which must have a mercury content of less than 2% by weight, and the marketing of portable batteries and accumulators with a cadmium content by weight of more than 0.002%, except for portable batteries and accumulators for use in emergency and alarm systems, medical equipment or cordless power tools (Art. 4).
- Ensure that batteries and accumulators that do not meet the requirements of the directive are not placed on the market, and that those in compliance can be marketed on the territory of the Member States (Art. 6).
- Establish a system of separate collection of batteries and accumulators, with a view to their recovery or disposal (Art. 8).
- Ensure that, with specified exceptions, spent batteries and accumulators can be readily removed from appliances (Art. 11).
- Ensure that, from 26 September 2009 at the latest, batteries and accumulators that have been collected are treated and recycled using BAT.
- Prohibit the disposal in landfills or by incineration of waste industrial and automotive batteries and accumulators, except for residues from treating and recycling them (Art. 14).
- Ensure that spent batteries and accumulators are taken back free of charge by the producers, and that the costs arising from waste collection, recycling and treatment do not result in double charging (Arts. 8 and 16).
- Ensure that batteries and accumulators are marked in accordance with Decision 1999/468/EC (Art. 21, Annex II and Arts. 5 and 7 of Decision 1999/468/EC).
- Establish penalties for non-compliance with the national provisions adopted pursuant to the directive.

2.3 Communication and Reporting

- Ensure that consumers are provided with specified information about batteries and accumulators, including information about potential effects on the environment and on human health of substances contained in such products, and the collection and recycling arrangements when discarded (Art. 20).
- Require that users of appliances in which batteries and accumulators are incorporated are provided with instructions on their type and on how the batteries and accumulators can safely be removed.
- Report to the Commission on:
 - collection rates, including information on how the information for calculating the rates was obtained (Art. 10);
 - levels of recycling achieved and compliance with minimum recycling efficiency rates set out in Annex III, Part B (Art. 12);
 - the implementation of the directive and measures taken to encourage developments affecting the impact of batteries and accumulators on the environment (including new recycling and treatment techniques).

2.4 Additional Legal Instruments

A number of other legislative instruments have relevance to the management of batteries and battery wastes and must also be borne in mind during the implementation of this directive. These include:

- Directive adapting to technical progress Directive 91/157/EEC on batteries and accumulators containing certain dangerous substances (93/86/EEC)
- Directive adapting to technical progress Directive 91/157/EEC on batteries and accumulators containing certain dangerous substances (98/101/EC)
- Waste Framework Directive (2006/12/EC)
- Hazardous Waste Directive (91/689/EEC as amended)
- Directive on the classification, packaging and labelling of dangerous substances (67/548/EEC as amended) (see Section 8 of the Handbook)
- Waste Electrical and Electronic Equipment Directive (2002/96/EC)
- Regulation on shipments of waste (EC) No. 1013/2006
- End-of-Life Vehicles Directive (2000/53/EC as amended)
- Regulation concerning the registration, evaluation, authorisation and restriction of chemicals (REACH) (EC) No. 1907/2006

3. Implementation

3.1 Key Tasks

The key tasks involved in implementing this directive are summarised in the following checklist, organised in chronological order (where appropriate) within each subheading.

THE BATTERIES DIRECTIVE - KEY IMPLEMENTATION TASKS	
1	General Administrative Arrangements
1.1	Designate a competent authority to perform duties arising under this Directive. Responsibilities will include: <ul style="list-style-type: none"> • checking that those batteries prohibited by the Directive are not placed on the market; • establishing and operating a scheme for the collection of spent batteries and accumulators; • ensuring the recycling and treatment of collected batteries and accumulators; • ensuring that batteries are properly labelled; and • developing campaigns to provide the general public with information.
2	Collection, Disposal and Recycling
2.1	Establish a system for the collection of spent batteries and accumulators
2.2	Identify institutions to be responsible for the provision of separate collection services.
2.3	Prepare guidance notes for the efficient provision of collection services.
3	Monitoring

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3.1	Establish a system to ensure that batteries are not placed on the market unless they comply with the requirements of the directive. The system should specify at which point batteries will be checked (manufacture, point of import, point of sale). It must ensure that specified types of batteries are not placed on the market; that batteries and accumulators cannot be used in specified appliances unless they can easily be removed by the consumer; and that batteries are labelled as required under the directive. Monitor collection rates on a yearly basis.
4	Economic Instruments
4.1	Decide what economic instruments are appropriate to encourage recycling.
4.2	Introduce legislation to impose economic instruments, if appropriate.
5	Communications
5.1	Design and implement a communications strategy providing information on safe methods for the disposal of spent batteries for manufacturers, importers, distributors and consumers.
6	Reporting
6.1	Establish reporting and data recording systems to ensure that the data required (see below) are collected.
6.2	Report to the Commission as required on: <ul style="list-style-type: none">• measures employed to ensure efficient collection and to encourage recycling; and• progress in transposition and implementation.

3.2 Phasing Considerations

Experience within Member States suggests that the most demanding and time-consuming tasks associated with implementing this directive are the following:

- Establishing and developing the institutional structure to achieve the various objectives of the directive, some of which do not relate to waste management.
- Identify how the various requirements of the directive are to be met, including timescales and clearly allocated responsibilities.

These tasks should therefore be planned to commence during the initial phase of implementation.

4. Implementation Guidance

Drawing upon the experience of selected Member States, a number of general observations and suggestions for implementing this directive are presented below.

4.1 General Administrative Arrangements

- This directive involves not only aspects of waste management but also controls over techniques of manufacture. Implementation of the directive could, therefore, involve more than one competent authority. If this is the case, a single authority should be given the role of co-ordinating the implementation of the directive and clear channels of communication between the competent authorities should be established.

Example of Institutional Arrangements

In one Member State (UK), responsibility for the implementation of the directive is shared

between Defra and the Department for Business, Enterprise and Regulatory Reform (BERR, formerly DTI). Defra is responsible for provisions on portable/household batteries (including portable batteries used in business and industry) and on treatment provisions for all batteries, while BERR is responsible for automotive/industrial batteries and single-market provisions.

As part of the BREW (Business Resource Efficiency and Waste) programme being run by Defra, the Waste and Resources Action Programme (WRAP) is to develop options for a cost-effective UK battery collection infrastructure. In terms of household batteries, Defra has also requested WRAP to pilot collection schemes by working in partnership with a range of local authorities and not-for-profit organisations that already run recycling collection services.

- As a minimum 25% collection rate for waste portable batteries is to be achieved by 2012, rising to 45% by 2016, and as a 100% collection and recycling target is in effect set for waste industrial and automotive batteries and accumulators, Member States should consider the institutional structure and facilities necessary to achieve these objectives as well as national targets voluntarily defined for recovery and recycling.

4.2 Standards of Manufacture

- The imposition of standards of manufacture – involving mercury content and also labelling – will need to be imposed by means of legislation controlling both indigenous manufacture and imports. This can best be done by controlling the sale and distribution of batteries and accumulators.
- The need for inspection will depend on the degree to which the battery industry can be relied upon for self-regulation..

4.3 Collection, Disposal and Recycling

- Some Member States have introduced voluntary or mandatory producer responsibility schemes to ensure the recovery and recycling of batteries. These schemes also range from single national schemes to a network of multiple schemes.

Examples of Regulatory Controls

In one Member State (DE), a voluntary scheme for accepting returned batteries has now been replaced with a mandatory scheme as a result of new legislation. Distributors are obliged to accept the return of all batteries free of charge and consumers are no longer permitted to dispose of batteries with household waste. The battery industry has grouped together to establish an organisation to undertake the collection and recycling of used batteries.

In the case of another Member State (PT), the management of waste batteries is undertaken through a mandatory scheme for both retailers/distributors and importers of batteries. They are obliged to keep a record of all the transactions (number of batteries sold, distributed and returned). These records are to be made available to the Institute of Waste (INR). A protocol on the selective collection and recycling of used car batteries has been adopted between the Car Industry Association (ACAP) and Sonalur, a national company in charge of collecting and recycling the used lead batteries from ACAP associates. A national NGO (Quercus) and the INR undertook a campaign for the collection of used batteries. The 11 tonnes of batteries collected were sent to France for reprocessing due to the fact that there are no plants for reprocessing these batteries in this country.

In another Member State (AT), collections of batteries were started at national level in 1992 and led to a recycling rate across the country of 40%. Battery recycling operations are overseen by the independent organisation "Umweltforum Batterien", founded in 2001, which comprises all Austrian importers and producers. Members are charged a fee dependent on battery type and weight, which is used to fund the collection and recycling system within the country. A comprehensive collection network has been developed and the system is well known and well

supported.

- Care should be taken that outlets for recycling are assured for the separate collected batteries. Storage of batteries awaiting an outlet could exacerbate environmental problems.

4.4 Economic Instruments

- Member States are encouraged to use economic instruments to achieve high separate collection and recycling rates and to promote the use of batteries and accumulators containing fewer polluting substances. Differential tax rates, mandatory or voluntary product charges, refundable deposits (see the case study) and eco-taxes could be appropriate to encourage the recycling of batteries. The Commission should be informed accordingly.

4.5 Communications

- A communications strategy should be designed and implemented for manufacturers, importers, distributors and consumers of batteries and accumulators. Such information should be tailored as required to the recipient group, and should inform them of the dangers, responsibilities and options for purchase and disposal.

Examples of Practice in Member States

A tax on batteries was agreed by the Belgian Government in 1993 as part of the eco-tax legislation. However, a voluntary agreement was signed with industry in 1997, which provided for the exemption of batteries from the eco-tax in the event that a voluntary collection and recycling scheme for used batteries is set up. Today, the Bebat Association, a non-profit organisation founded by the battery industry, collects used batteries and accumulators.

Denmark applies eco-taxes on nickel-cadmium batteries and uses the proceeds to pay collectors who deliver these batteries for recycling. A recovery rate of more than 50% has been achieved.

In Sweden, anyone commercially manufacturing or importing hazardous batteries is required to supply the Environmental Protection Agency (EPA) with information on the quantity of batteries transferred or imported for use in the importer's own commercial operations. The EPA may issue detailed regulations governing the duty to supply information (Section 14). Anyone under a duty to supply information pursuant to Section 14 shall pay a charge to cover the cost of:

- disposal or recovery of hazardous batteries;
- information which must be distributed to achieve the purposes specified in the ordinance;
- municipal sorting of hazardous batteries;
- collection of lead batteries weighing over three kilograms; and
- the EPA's administration of the information to be supplied concerning hazardous batteries.

The collection of lead-acid batteries is very successful, with a collection rate of nearly 100%, whilst progress is being made on other types of batteries.

5. Costs

Apart from establishing the policies and procedures, the principal costs are related to the separate collection, sorting and recycling of batteries. When recycling rates are high, it is unlikely

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that the costs associated with the collection and recycling of batteries and accumulators will be significant. In most cases, collection and transportation costs make up the majority of the costs of recycling.

Currently these costs are added to the sales price or covered by eco-taxes.

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The Packaging and Packaging Waste Directive

Official Title: European Parliament and Council Directive 94/62/EC on packaging and packaging waste (OJ L 365 31.12.94), Directive 2004/12/EC of the European Parliament and of the Council of 11 February 2004 amending Directive 94/62/EC on packaging and packaging waste; Statement by the Council, the Commission and the European Parliament (OJ L 47, 18.2.2004) and Directive 2005/20/EC of the European Parliament and of the Council of 9 March 2005 amending Directive 94/62/EC on packaging and packaging waste (OJ L 70, 16.3.2005)

1. Summary of Main Aims and Provisions

The aim of this directive is to harmonise national measures on the management of packaging and packaging waste, in order to prevent or minimise any environmental impacts of packaging and packaging waste and to avoid distortions of competition within the internal market. The directive lays down measures aimed, firstly, at preventing the production of packaging waste and, additionally, at increasing the reuse, recovery and recycling of such waste. These measures include minimum standards and criteria for packaging materials as well as minimum and maximum targets for the recovery and recycling of packaging waste. The rationale behind having maximum targets is to avoid the distortion of the internal market and to allow less-advanced countries to catch up with Member States that have a greater capacity for recycling and recovery. The directive also includes provisions encouraging the prevention of packaging waste and awareness campaigns to increase recovery and recycling rates.

Directive 94/62/EC has been amended twice, first by Directive 2004/12/EC and later by Directive 2005/20/EC. Directive 2004/12/EC introduces substantial amendments to Directive 94/62. The main elements of this directive, with which Member States had to comply by 18 August 2005, include:

- the introduction of more specific criteria for defining packaging, including illustrative examples of such items in Annex I. This definition is wide and includes packaging components and ancillary elements unless they are an integral part of the product and/or intended to be consumed;
- the introduction of additional measures to prevent the production of packaging waste, including national programmes and producer responsibility schemes;
- a call for the Commission to develop appropriate European standards aiming at minimising the environmental impact of packaging (similar to eco-label standards) and to adopt proposals for complementary measures aimed at ensuring that the environmental impact of packaging is minimised (e.g. life-cycle assessments);

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- revised recovery and recycling targets to be attained by 30 June and 31 December 2008;
- conditions for allowing exported packaging waste to be counted against targets;
- an obligation on the Member States to publish the implementing measures and targets and to carry out information campaigns for the general public and economic operators (e.g. participatory approach);
- a provision obliging the Commission, by 30 June 2005 at the latest, to present a report on the progress of the implementation along with proposals for further amendments;
- explicit permission for Member States with greater capacities for recycling and recovery to set national programmes that go beyond the minimum targets, as long as these measures do not distort the internal market and hinder compliance by other Member States (e.g. importing large amounts of packaging waste from other Member States). Such measures must be notified and approved by the Commission prior to introduction;
- further provision calling for the promotion of consumer information dissemination and awareness campaigns;
- procedures for adapting the identification system (Art.8) and the illustrative examples of packaging to technical progress as well as a committee procedure;
- specific requirements applying to agreements between the competent authorities and the relevant economic sectors for attaining the recycling and recovery rates to ensure their enforceability and results;
- a call on the Council and the European Parliament to fix targets for the period 2009 to 2014 based on an analysis of practical experience gained in the Member States and on the findings of scientific research and evaluation techniques.

Directive 2005/20/EC amends Article 6 of Directive 94/62/EC by adding a paragraph allowing the new Member States transitional periods for attaining the energy recovery and recycling targets for 31 December 2008. The transitional periods range from 31 December 2012 to 2015.

2. Principal Obligations of Member States

2.1 Planning

- Include a chapter on the management of packaging and packaging waste in the waste management plans required by the Waste Framework Directive (Art. 14).
- Set up systems for the return and collection of used packaging and packaging waste and their reuse or recovery; and ensure that systems are open to economic operators of all relevant sectors and competent public authorities, and apply to imported products (Art. 7).
- Adopt a national programme for the recovery and recycling of packaging waste. It should be decided to what extent to encourage recovery or recycling or whether there are environmental and cost-related reasons for preferring incineration with energy recovery to material recycling (Arts. 4 and 6(3), Directive 94/62/EC as amended by Directive 2004/12/EC).
- Encourage the use of materials obtained from recycled packaging waste for the manufacturing of packaging and other products, especially by improving the market conditions for such materials (e.g. creating economic stimulants for recycled materials) and by reviewing national rules preventing the use of recycled materials (Art. 6, Directive 94/62/EC as amended by Directive 2004/12/EC).
- Consider how economic instruments could be used to implement the objectives of the directive (Art. 15).

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- Establish databases on packaging and packaging waste (Art. 12) (to include information on the volume and characteristics of packaging and packaging waste) in accordance with the formats laid down in Commission Decision 97/138/EC.
- Organise an information campaign for the general public and economic operators regarding the recycling and recovery targets and the national measures adopted. Member States shall, in general, promote enhanced consumer information and awareness campaigns with a view to attaining high recovery and recycling rates (Arts. 6(6) 13, Directive 94/62/EC as amended by Directive 2004/12/EC).
- Decide on the extent to which regulatory measures (laws and administrative provisions) and producer responsibility schemes should be introduced, and on the extent of agreements between the competent authorities and the economic sectors concerned.
- Decide on waste prevention measures, ensuring that all possible steps are taken to reduce the environmental impact of packaging. The most important component of this strategy will be the national programme as well as other administrative and financial measures shifting the main burden of costs for recycling, recovery and disposal to producers instead of local authorities. The national programme should make it clear whether the aim is to attain the mandatory targets in Article 6 or whether it goes beyond these targets. If the aim is to go beyond them, it must be ensured that these more stringent requirements do not lead to the distortion of the internal market. Preventive instruments should include studies and pilot projects, especially concerning packaging waste prevention plans, cost-benefit studies of reuse versus recycling, life-cycle assessments, and producer responsibility schemes (Arts. 4(1) and 6(9) Directive 94/62/EC as amended by Directive 2004/12/EC).
- Address to the Commission requests for transitional periods, granting temporary derogations from attaining the recovery and recycling targets set for 31 December 2008. For instance, the new Member States (Czech Republic, Estonia, Cyprus, Lithuania, Hungary, Slovenia and Slovakia) have until 31 December 2012 to comply with the energy recovery targets and recycling targets that have to be met by 31 December 2008. Malta, Poland and Latvia have negotiated even longer transitional periods (2013, 2014 and 2015).
- Aim at attaining the recycling and recovery targets mainly by dealing with the packaging waste produced within the territory of a given Member State, and avoid relying either on exports or imports of packaging waste. Ensure that, for the export of packaging material, the receiving recycler or waste processor provides sound documentation that the recovery or recycling has taken place in line with the requirements prescribed by EC legislation.

2.2 Regulation

- Ensure that the recovery and recycling targets cover all possible packaging, packaging components and ancillary items in line with the criteria set out in Article 3, taking into consideration the illustrative examples set out in Annex I to amending Directive 2004/12/EC. This wide definition includes packaging that also has other functions, items designed to be filled at the point of sale, packaging components and ancillary elements integrated into packaging such as sweet boxes, film overwrap around a CD case, paper and plastic carrier bags, disposable plates and cups, cling film, sandwich bags, aluminium foil, labelling hung directly on or attached to a product that forms part of the packaging, sticky labels attached to a packaging item, staples, and devices for measuring dosages.
- Take appropriate measures to prevent the production of packaging waste, including the measures set out in Article 9, including national programmes and producer responsibility schemes on a larger or more restricted scale. Such measures should preferably be

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developed in co-operation and consultation with economic operators and draw on the experience of other Member States (Art. 4 of Directive 94/62, as amended by Directive 2004/12).

- Ensure that the following minimum targets for recovering and recycling packaging waste are being met covering the whole territory of the Member State :
 - 50% to 65% of packaging waste is recovered or incinerated with energy recovery by 30 June 2001;
 - 25% to 45% of packaging material contained in packaging waste is recycled, including at least 15% of each packaging material ;
 - a minimum of 60% by weight of packaging waste is recovered or incinerated with energy recovery by 31 December 2008 (Art. 6);
 - 55% to 80% by weight of packaging is recycled by 31 December 2008.

The following are the minimum recycling targets for materials contained in packaging waste:

- 60% by weight for glass;
 - 60% by weight for paper and board;
 - 50% by weight for metals;
 - 22.5% by weight for plastics;
 - 15% by weight for wood .
- Ensure that no packaging is marketed unless it complies with certain compulsory requirements relating to safety, consumer acceptance and other specified requirements (Art. 9 and Annex II).
 - Ensure that packaging may only be identified in accordance with the identification system provided for in Commission Decision 97/129/EC. However, note that that system is voluntary and applies to the plastic materials mentioned in Annex I, the paper and fibreboard materials mentioned in Annex II, the metals mentioned in Annex III, the wood materials mentioned in Annex IV, the textile materials mentioned in Annex V, the glass materials mentioned in Annex VI, and the composites mentioned in Annex VII.N. There is no marking system, however, pursuant to Article 8.
 - Ensure that the concentration of heavy metals in packaging does not exceed specified limits (Art. 11). Derogations concerning glass packaging and plastic crates/pallets are laid down in Commission Decisions 2001/171/EC and 1999/177/EC respectively.
 - Ensure that there are no obstacles that impede the placing on the market of packaging that complies with the directive (Art. 18).
 - Ensure that packaging is labelled indicating the nature of the packaging materials used on the basis of Commission Decision 97/129/EC to facilitate its identification and classification and its subsequent collection, reuse and recovery (Art. 8(2), Directive 94/62/EC as amended by Directive 2004/12/EC).
 - Take the necessary measures to ensure that, where agreements are entered into between the competent authorities and the economic sectors concerned (e.g. the packaging industry) with a view to transposing Article 7, these agreements comply with the requirements in Article 22, ensuring that they are enforceable, have specific objectives and time-frames, that they are made available to the public (by publication in official journals), that the results are monitored regularly by the economic sectors and reported to the competent authorities and the Commission, that the competent authorities examine the progress achieved and, where an agreement is not abided by, other

implementing measures are introduced (Art. 22, Directive 94/62/EC as amended by Directive 2004/12/EC).

2.3 Communication and Reporting

- Require all economic operators involved in the packaging sector to provide the competent authority with data on their relevant sector (Art. 12).
- Organise an information campaign for the general public and economic operators, including the publication of measures and targets for recovery and recycling (Art. 6).
- Take measures to ensure that users of packaging, particularly consumers, obtain information about packaging and packaging waste, including information about how they can contribute to its re-use, recovery and recycling (Art. 13).
- Report to the Commission on:
 - data on packaging and packaging waste, in the formats laid down in Commission Decision 97/138/EC (Art. 12);
 - proposed measures to implement the requirements of the directive according to the procedure of Directive 98/34/EC (replacing Directive 83/189/EC) (Art. 16);
 - texts of national standards complying with the directive's essential requirements (Art. 9);
 - programmes going beyond the targets laid down in the directive (Art. 6);
 - implementation of the directive (Art. 17, Directive 91/692/EEC and Commission Decision 97/622/EC);
 - measures taken to comply with the directive (Art. 22); and
 - transposition, with texts of the main provisions of national law adopted in the field covered by the directive (Art. 22).
- Inform the Commission of the laws, administrative provisions and other measures adopted to comply with Directive 2004/12/EC amending Directive 94/62/EC by 18 August 2005 (Art. 2, Directive 2004/12/EC).
- Inform the Commission of national measures that aim at going beyond the highest recycling and recovery targets for 31 December 2008 (Art. 6(10), Directive 2004/12/EC).
- Where a Member State chooses to transpose Article 7 by entering into agreements between national authorities and economic operators, the Commission must be informed of such agreements and the results achieved (Art. 22 (3a), Directive 94/62/EC as amended by Directive 2004/12/EC.)

2.4 Additional Legal Instruments

A number of other legislative instruments have relevance to packaging waste and must also be borne in mind during the implementation of this directive. These include:

- Waste Framework Directive (2006/12/EC)
- Commission Decision 97/138/EC establishing the formats relating to the database system pursuant to European Parliament and Council Directive 94/62/EC on packaging and packaging waste
- Commission Decision 97/129/EC establishing the identification system for packaging materials pursuant to European Parliament and Council Directive 94/62/EC on packaging and packaging waste

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- Commission Decision 97/622/EC concerning questionnaires for Member States' reports on the implementation of certain directives in the waste sector
- Commission Decision 1999/177/EC on derogations for plastic crates and pallets
- Commission Decision 2001/171/EC on derogations for glass packaging
- Commission Decision 2001/524/EC on references for standards regarding packaging
- Hazardous Waste Directive (91/689/EEC)
- Regulation on the European Pollutant Release and Transfer Register

3. Implementation

3.1 Key Tasks

The key tasks involved in implementing this directive are summarised in the following checklist, organised in chronological order (where possible) within each subheading.

THE PACKAGING WASTE DIRECTIVE - KEY IMPLEMENTATION TASKS	
1	Administration, Planning and Provision of Infrastructure
1.1	Appoint a competent authority with powers to oversee the implementation of this directive.
1.2	Set practically achievable targets for the recovery and recycling of packaging wastes that at least meet the requirements of the directive.
1.3	Produce a national strategy for the management of packaging and packaging wastes in accordance with the directive and incorporate into the national waste management plan. The strategy should include measures to attain the national recovery and recycling targets.
1.4	Identify the industries on which the obligation to recovery and recycle will fall.
1.5	Organise an information campaign for the public and for economic operators concerning national measures and targets.
1.6	Make a decision on whether to use economic instruments to promote the objectives set out in the Waste Framework Directive (2006/12/EC) with regard to packaging waste.
1.7	Develop a mechanism for ensuring the co-operation of relevant sectors in achieving recovery and recycling targets.
1.8	Organise an information campaign for the general public and economic operators regarding the recycling and recovery targets and the national measures adopted.
1.9	Decide on waste prevention measures, including a national programme and producer responsibility schemes to ensure that all possible steps are taken to reduce the environmental impact of packaging.
1.10	Negotiate potential temporary transitional periods with the Commission to attain the recycling and recovery targets.
2	Regulation
2.1	Set up systems for the necessary return/collection and recycling/recovery of used packaging and packaging waste as identified in the national strategy.

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2.2	Adopt appropriate measures to prevent the production of packaging waste and for encouraging packaging reuse systems and the use of recycled packaging materials (attention should be given to the obligation to respect internal market rules).
2.3	Transpose and implement the voluntary system for identifying packaging to indicate the nature of packaging material.
2.4	Develop and implement a system for measuring and reporting the amount of packaging waste produced and the proportion that is recovered and recycled.
2.5	Establish the mechanisms for ensuring that packaging waste is recovered and recycled.
2.6	Develop and implement rules and a system to ensure that only packaging that complies with all essential requirements of the directive is placed on the market.
2.7	Set/transpose standards for the content of certain heavy metals in packaging materials and for the requirements of Annex II relating to the design and characteristics of packaging.
2.8	Develop and implement an inspection and testing regime to ensure that packaging standards are met.
2.9	Ensure that the minimum targets for the recovery and recycling of packaging waste by 31 December 2008 are being met, covering the whole territory of the Member State.
2.10	Ensure that the recovery and recycling targets cover all possible packaging, packaging components and ancillary items in line with the criteria set out in Article 3, taking into consideration the illustrative examples set out in Annex I to amending Directive 2004/12/EC.
2.11	Ensure that packaging is labelled, indicating the nature of the packaging materials used on the basis of Commission Decision 97/129/EC, in order to facilitate its identification and classification and its subsequent collection, reuse and recovery.
2.12	Ensure that, where agreements are entered into between the competent authorities and the economic sectors concerned (e.g. the packaging industry) with a view to transposing Article 7, these agreements comply with the requirements in Article 22 of Directive 2004/12/EC.
3	Communication and Reporting
3.1	Ensure that obligated enterprises are informed of their obligations.
3.2	Implement a communications programme to make information available to consumers and other packaging waste producers about their role in the implementation of the directive, including the schemes and facilities available to them.
3.3	Establish databases in accordance with the directive to enable reports to be made to the Commission in the format identified in Commission Decision 97/138/EC.
3.4	Establish reporting and data recording systems to ensure that the data required (see below) are collected.

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3.5	Inform the Commission of: <ul style="list-style-type: none">• texts of national standards which comply with the directive;• transposition and implementation of the directive;• data in the form of databases;• formats and information;• drafts of economic measures; and• programmes going beyond targets.
3.6	Inform the Commission of the laws, administrative provisions and other measures adopted to comply with Directive 2004/12/EC amending Directive 94/62/EC by 18 August 2005.
3.7	Inform the Commission of national measures that aim to go beyond the highest recycling and recovery targets for 31 December 2008 (Art. 6(10), Directive 2004/12/EC).
3.8	Inform the Commission of agreements between national authorities and economic operators.

3.2 Phasing Considerations

The most demanding and time-consuming tasks associated with implementing this directive are likely to be the following:

- Preparing the strategy for meeting the recovery and recycling targets, including an implementation plan, with timescales and responsibilities clearly allocated.
- Developing a mechanism to ensure that packaging waste is recovered or recycled.
- Ensuring the provision of the necessary collection systems and recycling and recovery facilities.
- Establishing the necessary data recording and processing systems to ensure that the required information can be provided to the Commission.
- Developing the various measures for the prevention of the production of packaging waste, including a national programme and measures such as producer responsibility schemes and life-cycle assessment requirements.
- Ensure that the minimum recycling and recovery targets for 31 December 2008 are attained.
- These tasks should therefore be planned to commence during the initial phase of implementation.

4. Implementation Guidance

In implementing this directive, candidate countries must take into account requirements relating to product quality, the protection of health, transportation and the regulation of hazardous waste. They should also consider the financial implications and the possibilities of introducing nationwide producer responsibility schemes covering all or most types of packaging. For certain waste categories, producers have greater incentives to take over and control the costs of collection, recycling, recovery, transportation and disposal than for others. In general, for instance, producers of paper and cardboard, packaging made of aluminium or other metals and glass containers are more ready actively to participate in producer responsibility schemes than

producers of PET bottles or other plastic packaging. The systems and measures opted for should preferably be in line with the general waste management plans and strategies, priorities and problem areas.

Drawing upon the experience of selected Member States, a number of general observations and 'suggestions for implementing this directive are presented below.

4.1 Planning and Provision of Infrastructure

- The implementation of this directive requires the development of a strategy that covers, on the one hand, the management of packaging wastes and, on the other, the design, manufacture and marketing of packaging itself. For instance, improving the environmental performance and composition of the material at the design and use phase can have positive implications for its handling at the end-of-life stage. It might be far cheaper and easier to recycle and recover packaging composed of fewer composite materials and with fewer components (e.g. labels, ancillary components).
- It is likely that more than one institution will be involved in implementing the requirements of the directive, since the responsibilities for environmental protection and for standards of manufacture usually lie in different ministries. A national standards institution may also be involved in providing advice on manufacturing standards. It is important to ensure good communication and co-operation between all the relevant parties.

Examples of Arrangements for Developing and Implementing Waste Strategy

In one Member State (UK), the strategy was developed jointly between the Department of Environment and the Department of Trade and Industry.

In another Member State (FR), four ministries were involved in implementing the directive – the Ministries of Environment, Finance, Industry and the Economy.

In another Member State (PT), an integrated waste management system was implemented, based on the principle of the common responsibility of all the economic operators (manufacturers, packers and importers, households and municipalities) involved in the management of packaging waste and of packaging itself. Ponto Verde, a public company that undertakes the recycling of waste, is in charge of adopting measures to prevent the production of packaging waste through education and raising awareness, targeting the public and industry. Through the accreditation of packaging manufacturers, Ponto Verde acquires the financial resources required to grant economic incentives to urban waste treatment facilities, thus ensuring that a selective collection of packaging waste is undertaken.

- The national targets for recovery and recycling must be at least in accordance with those in the directive, but may be higher. Targets should, however, be practically achievable and must be designed to avoid distortions of competition and barriers in trade, or discrimination against products. There are some practical issues associated with imposing the targets – in particular, on whom and how to place statutory obligations. This topic is addressed under "Regulation and Implementation" below.
- In setting targets, it is important to recognise that the collection of recyclable material alone is insufficient. Facilities must be provided to reprocess the recovered materials, which, in turn, requires that markets exist for the products of these processes. Although the directive allows the use of recycling facilities abroad to fulfil targets (but not the use of imported material to count towards Member States' targets), it may be necessary to take measures to develop markets for recycled materials. The following actions may assist in this development (it should be ensured that these actions are in line with Community state aid and public procurement legislation).
 - Ensuring that government departments use recycled materials (e.g. through integrating environmental requirements into public procurement notices).

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- Establishing communications programmes, including public awareness campaigns and consultations with the packaging sectors to generate interest in recycling, developing new markets for recycled materials etc.
- Encouraging manufacturers to adapt their processes to make use of recycled feedstock.
- Ensuring that national standards and norms do not unnecessarily preclude the use of recycled materials.
- Developing new uses for recycled materials.
- Government action to ensure price stability, such as price guarantees.
- The practicalities of undertaking separation at the point of use, at the collection point or the delivery point for collected wastes should be considered.
- The directive requires that the waste management hierarchy is applied in respect of packaging waste, but it is recognised that life-cycle analysis may alter the hierarchy in individual cases. In particular, the environmental cost of collection, transport and processing should be taken into account when developing the strategy for packaging waste.
- It is also necessary to adopt measures to prevent the production of packaging waste, which should be addressed in the waste management strategy and the national programme, required under Directive 2004/12/EC. This could involve specific measures aimed at particular industries, such as the imposition of charges or taxes on particular types of packaging that lead to the production of wastes that are difficult to recycle. An example is a tax on plastic bags, such as is imposed in one Member State (IT). Another is the use of mandatory deposits for beverage containers, as required in another Member State (DK). Other examples are refundable deposit systems for glass containers.
- Facilities will need to be provided for the collection, recovery and recycling of packaging wastes. These may include:
 - separate collection schemes for household wastes;
 - separate collection of schemes for wastes from industry and distributors (e.g. retailers);
 - energy recovery plants (note that incineration of packaging in mixed municipal waste in waste incinerators cannot be counted for the recovery targets of the directive);
 - composting plants;
 - materials recovery facilities; and
 - processing facilities at manufacturers (e.g. of glass, paper and plastics) which are adapted to accept recycled wastes.
- The strategy must address not only the need for particular facilities and systems, but also systems and mechanisms to ensure that these wastes are actually collected, recovered and recycled. Since the private sector is the main producer and distributor of packaging and is also heavily involved in recovery and recycling, it will be necessary to establish systems and mechanisms that ensure the participation and co-operation of private sector companies. This may be achieved by means of a communications programme, or by the provision of financial incentives, such as favourable tax rates or loans for the construction of facilities.

4.2 Regulation

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- Although not explicitly stated in the directive, it will be necessary to designate competent authorities, with powers of enforcement, to ensure that recovery and recycling targets are met. The authority responsible for waste regulation under the Waste Framework Directive (1996/12/EC) is likely to be the best choice to undertake this task, although the ministry responsible for industry will also play an important role.

Examples of Institutional Arrangements

In one Member State (UK), the competent authority for waste management has the practical responsibility of ensuring that recovery and recycling targets are met. The competent authority consults closely with the Department of Trade and Industry (DTI), which is involved in evaluating and allocating the cost burden on industry.

In another Member State (PT), the Institute of Wastes (INR) is responsible for the regulation and enforcement of waste legislation through the co-ordination, control and inspection of all the different operators involved in the management of packaging waste, and the packaging itself. The Regulating Commission for Packaging and Packaging Waste Management (CAGERE), the technical body responsible for advising government members in charge of granting licences to packaging manufacturers, was established through an INR regulation. Ponto Verde must present an annual report to the INR.

In a third Member State (FR), responsibility for packaging waste falls on the consumer. A company has a choice either to deal with the waste itself or to contract one of three authorised agencies to deal with it. The consumer is responsible for segregating the waste at the point of production, to facilitate recovery. The recycling process itself is monitored by DRIRE.

In Sweden, the EPA, together with local supervisory authorities, is mainly responsible for supervising and monitoring the Swedish producer responsibility system for packaging materials. It has issued a handbook providing guidance for local authorities as well as the packaging sectors.

- Measures must be adopted to minimise the production of packaging waste. This may partly be achieved through the measures set out in Annex II. In addition, however, guidance should be prepared on possible approaches to the minimisation of packaging.
- It will be necessary to identify the amounts of packaging materials used in order to calculate the national targets to meet the directive's requirements. This will require an obligation on industry to report to the competent authority on the amounts of material produced.
- The systems introduced in most Member States have resulted in the development of specialist organisations to ensure that packaging wastes are recovered and recycled.
- The obligations to achieve recovery and recycling targets could be placed on the packaging industry rather than the waste producer itself, who has little control over the nature of the packaging to be discarded. This is known as producer responsibility. The mechanisms may involve economic tools such as voluntary or compulsory product charges, product taxes or tradeable permits.
- In addition, there are other methods to encourage the recovery and recycling of packaging wastes. One Member State (NL) has banned the disposal of packaging wastes to landfill altogether from 1999. Another (IT) will impose fines on those not achieving recycling and recovery targets and will use the funds received to finance recycling infrastructure. A third (DK) imposes a mandatory refundable deposit system for beverage containers.
- The mechanism may be mandatory or voluntary. In a mandatory scheme, specific obligations are placed on the packaging industry, whereas a voluntary scheme allows the industry to devise its own methods of compliance.

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- In a mandatory scheme, targets are usually set on individual enterprises, by the competent authority. In one Member State (UK), individual targets are set according to annual financial turnover and the quantity of packaging handled per year.
- Return, collection and recovery systems must take into account requirements relating to environmental and consumer health protection; the quality, authenticity and technical characteristics of packaged goods and packaging material; and the protection of industrial and commercial property rights.
- Essential requirements for packaging are set out in Annex II of the directive. These will need to be transposed into legislation. A choice exists as to whether to place the obligation to conform to these requirements on the packaging manufacturers/importers or on the packer/fillers. The latter option may be more practical, because of the number of potential stages in the manufacturing process and the problem of determining which party has responsibility for the packaging.
- A competent authority is also required to enforce these essential requirements, and the competent authority responsible for trading standards may be the most appropriate body to fulfil this task.
- A national standards institution could have a part to play in providing a standard that conforms to the requirements of the directive.
- Effective enforcement of standards for the manufacture of packaging will involve auditing and sampling by the selected competent authority, which may require training.
- Research into materials used in the packaging industry will need to be carried out by an appropriate research institution to ensure that health and safety issues raised by the use of materials containing, for instance, heavy metals, are reduced to a minimum over time. The main aim of reducing concentrations of harmful materials will be to minimise emissions from energy recovery processes. Mandatory standards of packaging manufacture can then be introduced.

4.3 Communication and Reporting

- This directive places strong emphasis on the role of communications. Clearly, it is necessary to inform consumers and the packaging industry about their role in the national packaging obligations and the schemes and facilities available to them. This may be achieved by means of national and local advertising, leaflets and education programmes in schools.
- To achieve the objectives, it is also important to produce and disseminate information for industry about the minimisation of packaging and packaging waste.
- Obligated industries will need to be informed of their specific responsibilities and the targets set for recycling and recovery.
- It will be necessary to establish databases in accordance with the directive to enable reports to be made to the Commission in the format identified in Decision 97/138. This may be the duty of the competent authority. It should be noted that the reporting requirements of this directive are extensive and will require significant resources to ensure that they can be complied with.

4.4 Further information and studies

More information and studies on packaging and packaging waste can be found on the following web pages:

http://europa.eu.int/comm/environment/waste/packaging_index.htm

<http://europa.eu.int/comm/environment/waste/studies/packaging/epwms.htm>

http://europa.eu.int/comm/enterprise/environment/reports_studies/studies/study00cost-eff_sofres_502038.pdf

5. Costs

The main types of costs arising during the implementation of the packaging directive are illustrated, as far as possible, in the checklist below. Naturally, the relative size of the costs of the individual items will vary from country to country, especially where countries decide to introduce financial instruments (e.g. taxes, refundable deposit systems), which reduce the costs of collection and recycling for the concerned categories of waste borne by the competent authorities and municipal waste operators.

Meeting the requirements of the directive is likely to be relatively costly. The provision of systems and facilities for the collection and recovery/recycling of packaging wastes, together with the creation of an adequate implementation mechanism and regulatory structure will constitute the largest elements of the overall costs of achieving compliance.

Charges for registration and certification may be made to cover the cost of the regulatory system, thus ensuring the implementation of the polluter pays principle.

Checklist of the Types of Cost Incurred to Implement the Directive

Initial set-up costs:

- preparation of a strategy to achieve the objectives of the directive;
- developing and introducing a mechanism to achieve compliance;
- preparing procedures for registration and verification;
- preparing technical guidance notes.

Capital expenditure:

- provision of systems for the collection of packaging waste;
- provision of facilities for recovering and recycling packaging waste.

Ongoing costs:

- annual operating costs of collection, recovery and recycling systems/facilities;
- registration and verification, and enforcement;
- collecting data for reporting to the Commission.

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The Regulations on Shipments of Waste

Official Titles:

Regulation (EC) No. 1013/2006 of the European Parliament and of the Council of 14 June 2006 on shipments of waste, as amended by Commission Regulation (EC) No 1379/2007

Commission Regulation (EC) No. 2557/2001 of 28 December 2001 amending Annex V of Council Regulation (EEC) No. 259/93 on the supervision and control of shipments of waste within, into and out of the European Community (OJ L 349, 31.12.2001)

Commission Regulation (EC) No. 801/2007 of 6 July 2007 concerning the export for recovery of certain waste listed in Annex III or IIIA to Regulation (EC) No. 1013/2006 to certain countries to which the OECD decision on the control of transboundary movements of wastes does not apply

Commission Regulation (EC) No. 1379/2007 of 26 November 2007 amending Annexes IA, IB, VII and VIII of Regulation (EC) No. 1013/2006 of the European Parliament and of the Council on shipments of waste, for the purposes of taking account of technical progress and changes agreed under the Basel Convention (OJ L 309, 27.11.2007)

Commission Regulation (EC) No. 1418/2007 of 29 November 2007 concerning the export for recovery of certain waste listed in Annex III or IIIA to Regulation (EC) No. 1013/2006 of the European Parliament and of the Council to certain countries to which the OECD decision on the control of transboundary movements of wastes does not apply (OJ L 316, 4.12.2007)

Commission Regulation (EC) No. 740/2008 of 29 July 2008 amending Regulation (EC) No. 1418/2007 as regards the procedures to be followed for export of waste to certain countries (OJ L 201, 30.7.2008)

Commission Regulation (EC) No. 669/2008 of 15 July 2008 on completing Annex IC of Regulation (EC) No. 1013/2006 of the European Parliament and of the Council on shipments of waste (OJ L 188, 16.7.2008)

1. Summary of Main Aims and Provisions

Council Regulation 1013/2006/EC establishes a system for controlling the movement of waste, to implement the Basel Convention, the OECD Council decisions on trans-frontier movements of waste, and the fourth ACP-EEC convention (Lomé IV). It sets up separate regimes governing shipments within the EU, imports to and exports from the EU, and transit shipments through the EU. Different requirements are laid down depending on the destination of the waste shipment, on whether the waste is destined for recovery or disposal, and, in the case of shipments for recovery, whether it is listed in Annexes II, III or IV.

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Regulation (EC) No. 1013/2006 replaced Regulation (EEC) No. 259/93 with effect from 12 July 2007.

The aim of the new piece of legislation is to reinforce, simplify and make specific the existing procedures for controlling waste shipments. It thus reduces the risk of waste shipments not being controlled and seeks to incorporate into Community legislation the amendments to the lists of waste annexed to the Basel Convention as well as the revision adopted by the OECD in 2001. Regulation 1013/2006 also reduces the existing waste shipment control procedures from three to two:

- the procedure for prior written notification and consent – the procedure applicable to all shipments of waste intended for disposal, and hazardous and semi-hazardous waste intended for recovery;
- the procedure in which shipments are accompanied by certain information, applicable to non-hazardous waste intended for recovery.

Another change is made in the number of lists of waste authorised for shipment – these are reduced from three to two, corresponding to the two control procedures described above: waste subject to notification and consent features in the "orange list" (Annex IV), while waste referred to for information purposes only features in the "green list" (Annex III). On the other hand, waste that is prohibited for shipment features in separate lists (Annex V).

The regulation states that waste shipments must be subject to a contract between the person responsible for shipping the waste, or having it shipped, and the consignee of such waste. In cases of a notification requirement applicable to the waste in question, the contract must include financial guarantees.

It is envisaged in the notification procedure that the notification shall be submitted by the notifier only to the competent authority of dispatch, which, in turn, is responsible for passing it on to the competent authority of destination and transit. The consent of the competent authority is to be given (with or without conditions) or objections expressed within 30 days. Any changes involving the main aspects of the shipment (quantity, itinerary, etc.) must be the subject of a new notification, with the exception of cases where all the competent authorities grant the notifier an exemption from this obligation.

The new act stipulates that interim recovery and disposal facilities are bound by the same obligations as final recovery and disposal facilities. Thus, the authorisation of a shipment involving interim operations can only be sanctioned if the shipment of the waste in question has also been authorised.

In the event that a shipment cannot be completed (including recovery or disposal), the notifier must take the waste back, normally at their own expense. This shall apply to all types of waste, subject to certain exceptions: if there is another way of recovering or disposing of this waste or if the waste has been irretrievably mixed with other types of waste. In the case of an illicit shipment, the notifier or the consignee must, to the extent that responsibility for the illegal shipment is attributable to one or other of them, take back, recover or dispose of the waste.

The regulation includes other general provisions, such as a ban on the mixing of waste during shipment, the making available to the general public of appropriate information, and the obligation on the part of the notifier, the competent authority, the consignee and the facilities concerned to keep documents and information.

The regulation prohibits exports to third countries of waste intended for disposal, except to EFTA (European Free Trade Association) countries that are party to the Basel Convention. Also prohibited are exports of hazardous waste intended for recovery, except those directed to countries to which the OECD decision applies, and to third countries that are party to the Basel Convention or countries that have concluded a bilateral agreement with the Community.

The rules for exports also apply to imports from third countries of waste intended for disposal or recovery.

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Regular checks must be organised according to the necessary provisions made by the Member States. Checks should take place throughout the entire waste shipment and waste recovery/waste disposal process.

Article 63 of the regulation provides possibility for transitional arrangements for new Member States. Temporary derogations were granted to:

- Latvia: Annex VIII to the Act of Accession of 2003, chapter 10(B)
- Hungary: Annex X to the Act of Accession of 2003, chapter 8(A) - obsolete since 2005
- Malta: Annex XI to the Act of Accession of 2003, chapter 10(B) - obsolete since 2006
- Poland: Annex XII to the Act of Accession of 2003, chapter 13(B)
- Slovakia: Annex XIV to the Act of Accession of 2003, chapter 9(B)
- Bulgaria: Annex VI to the Act of Accession of 2005, chapter 9(B) (at p. 16)
- Romania: Annex VII to the Act of Accession of 2005, chapter 9(B) (at p. 21)

Regulation No. 1013/2006 was amended by Regulation No. 1379/2007. It amends Annexes IA, IB, VII and VIII of Regulation (EC) No. 1013/2006 of the European Parliament and of the Council of 14 June 2006 on shipments of waste, for the purposes of taking account of technical progress and changes agreed under the Basel Convention. It is applicable from 11 July 2007. This regulation revises the forms for notification and movement documents and for the information to accompany shipments of green-listed waste. The regulation has been supplemented with a corrigendum applying as from 8 November 2008.

In addition, Commission Regulation (EC) No. 669/2008 of 15 July 2008 on completing Annex IC of Regulation (EC) No. 1013/2006 of the European Parliament and of the Council of 14 June 2006 on shipments of waste was adopted. This regulation includes specific instructions for completing the notification and movement documents (Annex IA and Annex IB of Regulation (EC) No. 1013/2006).

Regulation No. 1013/2006 and its amending regulations repealed and replaced a number of pieces of old legislation:

- Council Regulation (EEC) No. 259/93 of 1 February 1993 on the supervision and control of shipments of waste within, into and out of the European Community, which was repealed from 12 July 2007
- Commission Regulation (EC) No. 801/2007 of 6 July 2007 concerning the export for recovery of certain wastes listed in Annex III or IIIA to Regulation (EC) No. 1013/2006 to certain countries to which the OECD decision on the control of transboundary movements of wastes does not apply, fully repealed as from 16 February 2008)
- Council Regulation (EC) No. 1420/1999 of 29 April 1999 establishing common rules and procedures to apply to shipments to certain non-OECD countries of certain types of waste, repealed as from 12 July 2007
- Commission Regulation (EC) No. 1547/1999 of 12 July 1999 determining the control procedures to apply to shipments of certain types of waste to certain countries to which OECD Decision C(92)39/Final does not apply, not applicable as from 12 July 2007
- Commission Decision 94/774/EC of 24 November 1994 concerning the standard consignment note referred to in Council Regulation (EEC) No. 259/93 on the supervision and control of shipments of waste within, into and out of the European Community, which was repealed on 12 July 2007
- Commission Decision 1999/412/EC concerning a questionnaire for the reporting obligation of Member States pursuant to Article 41(2) of Council Regulation (EEC) No. 259/93, not applicable as from 31 December 2007

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In addition, the regulatory framework on waste shipments is further extended by Commission Regulation (EC) No. 801/2007 of 6 July 2007 concerning the export for recovery of certain waste listed in Annex III or IIIA to Regulation (EC) No. 1013/2006 to certain countries to which the OECD decision on the control of transboundary movements of wastes does not apply. This regulation repeals and replaces Regulation No. 1547/1999. It concerns Article 37(1) of Regulation (EC) No. 1013/2006, whereby the Commission sent a written request to each country to which Decision C(2001)107/Final of the OECD Council concerning the revision of Decision C(92)39/Final on the control of transboundary movements of wastes destined for recovery operations does not apply, seeking confirmation in writing that waste which is listed in Annex III or IIIA to that regulation and the export of which is not prohibited under its Article 36 may be exported from the Community for recovery in that country and requesting an indication as to which control procedure, if any, would be followed in the country of destination. Its annex sets out the preferred options of control of the various countries in regard to trade in wastes listed in Annex III and Annex IIIA for recovery and trade of wastes that is not prohibited under Article 36 of Regulation 1013/2006 to countries to which the OECD decision does not apply.

Finally, it is important to note that there are a few types of wastes or situations that are governed by specific legislation. These include:

- Directive 2000/59/EC of the European Parliament and of the Council of 27 November 2000 on port reception facilities for ship-generated waste and cargo residues
- Council Directive 2006/117/EURATOM of 20 November 2006 on the supervision and control of shipments of radioactive waste and spent fuel
- Regulation (EC) No. 1774/2002 of the European Parliament and of the Council of 3 October 2002 laying down health rules concerning animal by-products not intended for human consumption

2. Principal Obligations of Member States

2.1 Planning

- Designate competent authorities responsible for the implementation of the regulation, correspondents responsible for informing or advising or making enquiries, and specific customs offices of entry into and exit from the Community (Arts. 53, 54 and 55, Regulation 1013/2006).
- Establish the overall procedural framework as regarding the shipments and covering the requirements for written notification and consent, contracts between the notifier and the consignee, information to the public, competent authorities, parties involved and needed for procedural reasons, as well as the financial guarantees or equivalent insurance covering the costs of transport, costs of recovery or disposal and any necessary interim operation and the costs of storage for 90 days (Arts. 4, 5, 6, Regulation 1013/2006).
- Ensure there are the necessary facilities and appropriate means, such as Internet, making the information on notifications publicly available (Art. 21, Regulation 1013/2006).
- Establish a system for the supervision and control, inspections and spot checks of shipments of waste within the national jurisdiction, coherent with the system established under the regulation and establish rules on penalties, applicable for infringements of the provisions of the regulation (Art. 50, Regulation 1013/2006).
- Ensure that any bilateral agreements and arrangements for the import of waste for recovery are concluded in accordance with specified conditions.
- Ensure the appropriate additional measure related to the implementation of the regulation and adopted by the Commission (such as the calculating method for the financial

guarantee, guidelines for application and co-operation, technical and organisational requirements as well as any further guidance and clarifications) are followed, implemented and passed to the interested parties.

2.2 Regulation

- Enforce directly applicable provisions of the regulation such as the prohibition of the export and import of waste (Art. 50, Regulation 1013/2006).
- Prohibit and punish illegal traffic in waste (Art. 50, Regulation 1013/2006).
- Provide that shipments of waste are subject to the provision of a financial guarantee or equivalent insurance (Art. 6, Regulation 1013/2006).
- Ensure that waste is shipped in accordance with specified requirements, which may include inspections and spot checks (Art. 50, Regulation 1013/2006).
- Ensure that producers of waste take responsibility for its safe disposal or recovery.
- Possibly designate customs offices of entry into, and departure from, the Community (Art. 50(6), Regulation 1013/2006).
- Ensure that the competent authorities, the notifier and the consignee keep documents sent to or by the competent authorities for at least three years (Art. 20, Regulation 1013/2006).
- Ensure that waste is taken back by the notifier or by the competent authority itself (Arts. 22 and 23, 24, 25, Regulation 1013/2006).
- Further to 2.2.1, this regulation establishes control procedures for the export of certain types of waste to certain countries listed in Annex B of this regulation. Furthermore, it provides the Commission with a number of assignments in respect of determining, reviewing and amending control procedures to be applied to the export of different types of waste to different countries; informing the Member States, etc.

2.2.1 Shipment procedures

- Ensure that authorities, notifiers and producers of waste understand and comply with their obligations in respect of shipments of waste. For ease of reference, the principal obligations of the key parties are set out below.
- Notifiers must:
 - send notification of the shipment to the competent authorities (Arts. 3, 4, 7, Regulation No. 1313/2006);
 - Have a contract with the consignee of the waste for its disposal (Art. 5, Regulation No. 1313/2006);
 - establish a financial guarantee or equivalent insurance (Art. 6, Regulation No. 1313/2006);
 - complete and distribute copies of consignment notes (Art. 7);
 - in respect of the obligations outlined above, provide information to the competent authorities, as required (articles listed in brackets above);
 - inform relevant competent authorities if the usual route of shipment is modified in the case of a general notification (Art. 22, Regulation No. 1313/2006).
- Competent authorities of dispatch must:
 - issue consignment notes;

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- inform the notifier and the other competent authorities of any objections, and of any conditions attached, to the shipment and refuse to allow a shipment if a conflict arises (Arts. 10, 11, and 12, Regulation No. 1313/2006).;
 - where a shipment cannot be completed in accordance with the terms of a consignment note or contract, ensure that the notifier returns the waste (Art. 22);
 - where illegal traffic in waste is the responsibility of the notifier, ensure that the waste is taken back or suitably disposed of or recovered (Art. 24, Regulation No. 1313/2006).
- Competent authorities of destination must:
 - acknowledge receipt of notification of the shipment, authorise or object to the shipment, and notify the notifier, the competent authorities and the consignee of their decisions (Arts. 8, 9, 10, 11, Regulation No. 1313/2006);
 - follow up on the receipt/disposal/recovery of the waste in the country of destination (illegal traffic). Where illegal traffic in waste is the responsibility of the consignee, ensure that the waste is suitably disposed of (Art. 24, Regulation No. 1313/2006).
 - Competent authorities of transit must:
 - consent or object to the shipment and inform the notifier and the other competent authorities of their decisions (Art. 31, Regulation No. 1313/2006);
 - if they are the last competent authority of transit within the Community, inform the notifier of receipt of notification, authorise or refuse the shipment, notify competent authorities of their decision, and issue a consignment note (Art. 31, Regulation No. 1313/2006).
 - Consignees must, on receipt of the waste, send copies of completed consignment notes and certify disposal or recovery to the notifier and the competent authorities (Art. 5, Regulation No. 1313/2006).
 - Undertakings involved in shipment operations must complete consignment notes, and sign and retain copies of the notes (Art. 5).
 - The first and last competent authority of transit in the Community shall, where appropriate, send a stamped copy of the decisions to consent to the shipment or, if they have provided tacit consent, a copy of the acknowledgement in accordance with Article 42(3)(a) to the customs offices of entry into and exit from the Community respectively (Art. 47, Regulation No. 1313/2006)

2.2.2 Co-operation and Reporting

- Member States of dispatch and Member States of destination must co-operate to resolve capacity problems relating to the shipment of small quantities of hazardous waste (Art. 4, Regulation No. 1313/2006).
- Co-operate, as appropriate and necessary, with other parties to the Basel Convention and inter-state organisations on the exchange of information, the promotion of environmentally sound technologies and the development of codes of practice (Art. 40, Regulation No. 1313/2006).
- In cases of illegal traffic in waste where neither the notifier nor the consignee can be held responsible, co-operate with other Member States to ensure that the waste is suitably disposed of or recovered (Art. 26, Regulation No. 1313/2006).
- Report to the Commission on:

- controls over green-listed waste shipments for recovery in exceptional cases (Art. 37, Annex III);
- measures to prohibit or object to shipments (Arts. 11, 12, Regulation No. 1313/2006);
- refer matters under Article 4 (3) (a) (ii and iii) to the Commission;
- pre-authorized facilities – the recovery facility's name, address, technologies employed, waste types to which the decision applies and the period covered (Art. 14, Regulation No. 1313/2006);
- systems for the supervision and control of shipments of waste within a Member State (Art. 50, Regulation No. 1313/2006);
- bilateral agreements and arrangements (Art. 41, Regulation No. 1313/2006);
- provisions on financial guarantees (Art. 6, Regulation No. 1313/2006);
- designation and details of competent authorities and correspondents (Art. 55, Regulation No. 1313/2006);
- the customs office, if it is decided to designate a customs office of entry into and departure from the Community for shipments of waste entering and leaving the Community (Art. 55, Regulation No. 1313/2006); and
- reporting according to Article 41 – i.e. sending a copy of the yearly report to the Basel Convention, and from the reporting period 2000 onwards, by complying with an additional questionnaire according to Commission Decision 412/1999.

2.3 Commission Regulation (EC) No. 801/2007

Candidate countries should also consult Commission Regulation (EC) No. 801/2007 of 6 July 2007 concerning the export for recovery of certain waste listed in Annex III or IIIA to Regulation (EC) No. 1013/2006 to certain countries to which the OECD decision on the control of transboundary movements of wastes does not apply. This is especially the case in regard to Article 37(1) of Regulation (EC) No 1013/2006, which gave countries a choice to decide on the level of control (i.e. ban, informed consent procedure or no restriction) regarding waste destined for recovery listed in Annex III or IIIA to that regulation and the export of which is not prohibited under its Article 36, which may be exported from the Community for recovery in that country. Its annex sets out the preferred options of control of the various countries in regard to trade in waste listed in Annex III and Annex IIIA for recovery and trade of waste that is not prohibited under Article 36 of Regulation 1013/2006 to countries to which the OECD decision does not apply.

2.4 Additional Legal Instruments

The most relevant legislation that directly concerns waste:

- Directive 2006/12/EC of the European Parliament and of the Council of 5 April 2006 on waste (Waste Framework Directive)
- Council Directive 91/689/EEC of 12 December 1991 on hazardous waste

3. Implementation

3.1 Key Tasks

The regulations implement the Basel Convention. However, in addition to the provisions of the Basel Convention, these:

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- implement the OECD Council Decision (92)/39/Final concerning the control of trans-frontier movements of wastes destined for recovery;
- implement the Lomé IV Convention prohibiting exports of hazardous wastes to African, Caribbean and Pacific states;
- prohibit exports of waste for disposal except to other Member States or EFTA states that are parties to the Basel Convention;
- implement Decision III/1 of the Basel Convention Conference of the Parties, by prohibiting the export of Annex V wastes for recovery to countries to which OECD Council Decision C (92)39 does not apply;
- cover all wastes, not simply hazardous wastes;
- cover shipments between Member States, imports into and exports out of the Community from and to third states;
- require a system for the supervision and control of waste shipments within each Member State.

The key implementation issues are:

- to extend and adapt the Basel Convention procedures to cover all wastes and to prohibit various types of export; and
- to introduce a system for the supervision and control of all waste shipments, whether for export or not.

The key tasks involved in implementing these regulations are summarised in the following checklist, organised in chronological order (where possible) within each subheading.

THE REGULATIONS ON SHIPMENTS OF WASTE KEY IMPLEMENTATION TASKS	
1	Planning
1.1	Designate a competent authority(ies) responsible for performing duties arising under the Basel Convention and these regulations.
2	Regulation and monitoring of transboundary shipment and shipment within the Member State
2.1	Identify the differences between the detailed procedures in the regulations and those of the Basel Convention, and revise existing procedures accordingly.
2.2	Put in place procedures, as specified in the regulations, to be used for the supervision and control of waste.
2.3	Provide guidance and training to implementing officers, including customs officers.
2.4	Ensure that all actors understand their duties, for example by disseminating information on the effects of the regulations.
2.5	Establish a system for handling cases of illegal traffic of waste and for taking action when a shipment cannot be completed in accordance with terms of the consignment note or the contract between the notifier and the consignee.
2.6	Establish a monitoring system to ensure that the provisions of the regulations are complied with. The system would include inspections of establishments and undertaking spot checks of shipments, measures to ensure that documents relating to the shipment are kept for three years and measures to ensure fulfilment of reporting obligations.
3	Reporting

3.1	Establish reporting and data recording and processing systems to ensure that the required data are collected.
3.2	Notify the Commission as per requirements in the regulations (see under 2.1.4 above).

3.2 Phasing Considerations

Experience within Member States suggests that priority should be given to the following tasks:

- preparation of a strategy for imports and exports of waste; and
- revision of Basel Convention procedures to reflect the binding nature of the regulations.

These tasks should therefore be planned to commence during the initial phase of implementation.

The reporting requirements will require the establishment of a data collection system, to ensure that the information is readily available for reporting.

4. Implementation Guidance

The candidate countries might want to explore the possibility for certain time-limited derogations, as granted to the new Member States according to Article 63 of Regulation 1013/2006/106.

Drawing upon the experience of selected Member States, a number of general observations and suggestions for implementing these regulations are presented below.

4.1 Planning

- The regulations refer to the principles of proximity and self-sufficiency and provide powers for Member States to take measures to prohibit or object to shipments of waste for disposal. The policy will need to take this into account. Member States can establish measures to object to shipments of wastes for disposal. However, with regard to shipments of waste for recovery, they are confined to the limited reasons for objection under Regulation 1013/2006 (see Arts. 12 and 43). Furthermore, the export prohibitions apply directly and leave no margin of discretion to Member States. These provisions shall be read in conjunction with Regulation No. 801/2007 in which the annex lists countries and the control in place.
- The policy will also need to take into account cases where quantities of hazardous waste are small and render specialised treatment plants uneconomic. Some of the smaller Member States do not produce sufficient quantities of hazardous waste to make certain disposal processes, notably high-temperature incineration, economic and therefore rely on the facilities in larger Member States.
- Designate competent authorities responsible for the implementation of the regulations, correspondents responsible for informing or advising or making enquiries, and specific customs offices at points of entry into and exit from the Community (Arts. 53, 54 and 55, Regulation 1013/2006).
- Establish the overall procedural framework regarding shipments and covering the requirements for written notification and consent; contracts between the notifier and the consignee; information to the public, competent authorities, parties involved and information necessary for procedural reasons; as well as financial guarantees or

¹⁰⁶ For more information regarding the transitional arrangements for the new Member States, consult Europa site: <http://ec.europa.eu/environment/waste/shipments/legis.htm>.

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equivalent insurance, covering the costs of transport, costs of recovery or disposal and any necessary interim operations and the costs of storage for 90 days (Arts. 4, 5 and 6, Regulation 1013/2006).

- Ensure there are the necessary facilities and appropriate means, such as Internet, to make the information on notifications publicly available (Art. 21, Regulation 1013/2006).
- Establish a system for the supervision and control, inspections and spot checks of shipments of waste within the national jurisdiction, consistent with the system established under the regulation and establish rules on penalties applicable for infringements of the provisions of the regulation (Art. 50, Regulation 1013/2006).
- Ensure that any bilateral agreements and arrangements for the import of waste for recovery are concluded in accordance with specified conditions.
- Ensure the appropriate additional measures related to the implementation of the regulation and adopted by the Commission (such as the calculating method for the financial guarantee; guidelines for application and co-operation; technical and organisational requirements; as well as any further guidance and clarifications) are followed, implemented and passed to the interested parties.

Examples of Practice in Member States

In one Member State (UK), the Environment Ministry prepared a comprehensive strategy for exports and imports in 1996. Exports for recovery are permitted to OECD countries only and all exports for disposal are banned, since these are binding requirements of Regulation 259/93 (the regulation only bans exports for disposal to countries outside the EU -- self-sufficiency at Community level – (with the exception of EFTA countries that are also Basel parties), but Member States may, according to Article 4 (3) (a) (i), also prohibit exports of wastes for disposal to other EU Member States). Imports for genuine recovery are allowed. Imports for disposal are banned except in the following exceptional circumstances:

- Where the wastes cannot reasonably be dealt with in an environmentally acceptable manner in the country of origin.
- From certain EC Member States for high-temperature incineration where quantities are small and it would be uneconomic for those states to provide their own facilities.
- For high-temperature incineration from any country in cases of emergency.

In one Member State (PT), the Institute of Wastes (INR) is the national competent authority for the control and inspection of the transboundary movement of waste. This country exports waste because it does not have the facilities to ensure its adequate disposal or reprocessing (mainly waste from the iron and steel industries, industrial sludge, and from the paint and varnish industries). The exported waste is zinc oxide derivatives, which are imported for reprocessing. In 1998, 45,000 tonnes were exported to Germany, Belgium, Spain, France and the United Kingdom, of which 36,000 tonnes were for reprocessing and the rest for disposal.

4.2 Regulation

- It should not be necessary to change the existing organisation for the supervision of waste imports and exports as required by the Basel Convention. The need is to adapt the procedures to cover an additional range of shipments. Also, for shipments for recovery between Member States, the principle of free circulation prevails, so there are limited possibilities to object to such shipments.
- The essence of the regulations is to develop a supervision and control system for shipments of waste, normally by means of a notification and consignment note system. This system must record, supervise and control all waste shipments, whether for export or not, and also whether hazardous or non-hazardous.

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- Additional requirements are imposed for transboundary shipments in order to give effect to the Basel Convention, which, as with Regulation 1013/2006, includes such matters as the provision of financial guarantees.
- Consignment notes should be printed in such a way as to prevent their being forged in cases of fraud.
- A procedure will need to be developed for the supervision and control of waste shipments within the candidate country. Whilst the procedures may be somewhat simpler, especially regarding notification, some form of consignment note system may be advisable.
- In practical terms, the shipment of waste involves five separate possible scenarios. First, waste may be moved between EU Member States; secondly, it may be exported from the EU; thirdly, it may be imported into the EU; fourthly, it may also pass through the EU from countries outside the EU for disposal or recovery also outside the EU; fifthly, waste may also be moved within individual Member States. Also, an important distinction is made between countries applying OECD Council Decision (92)39 and those not applying it. The competent authorities must set up a system that is capable of identifying which of these cases applies to a particular consignment of waste, and must follow the relevant requirements of the relevant regulation (namely, 1013/2006, 1418/2007 and 1279/2007).
- The competent authorities and correspondents should be responsible for informing and guiding persons (including other Member States' correspondents) making inquiries; training implementing officers, including customs officers; and disseminating information to ensure that all actors understand their responsibilities. It may also be responsible for reporting. The focal point should ensure that all actors understand their obligations as detailed in the regulation. This can be achieved through training programmes, through seminars and through inspections of records, premises and shipments.

4.3 Reporting

- A system will be required to collect and process data for reporting. The importance of this should not be underestimated. Refer to reporting under the Basel Convention to which Regulation 1013/2006 refers and (future) additional reporting requirements relating to Commission Decision 412/99.

5. Costs

The implementation costs of administering these regulations should not be significantly greater than those for implementing the Basel Convention. The main area of cost lies in implementing a consignment note system for all wastes. This will be borne as an administrative cost mainly by the waste management industry. The industry will probably pass the costs on to waste producers.

On the one hand, the cost of implementation is lowered by simplifying and reducing the number of procedures. On the other hand, the procedures have become more specific, leading to an increase in the administrative implementation costs. The concise system of permitting/licensing, with all its attributes, probably requires the biggest input. As Member States are obliged to introduce a system for regular checks throughout the whole shipment and waste recovery/waste disposal process, this will also require some input in terms of administrative costs, as well as the cost of training inspectors. The requirement to make available to the public the appropriate information will also raise implementation costs, as will the obligation on the notifier, the consignee, the facilities and the competent authority to keep documents and information.

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Directive on the Landfill of Waste

Official Title: Council Directive on the landfill of waste (99/31/EC) (OJ 182, 16.7.99), as amended by Regulation (EC) No. 1882/2003

1. Summary of Main Aims and Provisions

The main substantive aim of this directive is to provide for measures, procedures and guidance to prevent or reduce the negative effects on the environment, and the risks to human health, from the landfilling of waste. It requires Member States to take a number of measures to achieve this aim, including treating waste before landfilling it, phasing out co-disposal (the mixing of hazardous waste with non-hazardous waste) and exercising controls over site closure and aftercare. Importantly, the polluter pays principle is given effect in two significant ways: (i) by requiring the operator of the landfill to provide financial security for the lifetime of operations at and in relation to the landfill; and (ii) by ensuring that the operator's charges cover full costs in relation to the setting up, running, closure and aftercare of the landfill site.

The main policy aims of this directive are to seek to encourage Member States and operators (including the public) to push waste management higher up the waste hierarchy, so reducing the desire or need for final disposal, especially by landfill; and to have greater "true" costs applied in relation to the landfilling of waste, and with greater transparency (so perhaps aiding the achievement of the first policy aim mentioned).

Regulation (EC) No. 1882/2003 only concerns the internal procedures of the Commission, in which it is assisted by certain committees.

2. Principal Obligations of Member States

2.1 Planning

- Prepare and implement a national strategy for reducing the amount of biodegradable municipal waste going to landfill to meet specified targets (Art. 5).
- Classify landfill sites according to the type of waste to be disposed of at the site (Art. 4).
- Review existing landfill sites and consider new landfill sites anticipated to be required in relation to hazardous and non-hazardous waste disposal by landfill, and plan for anticipated increased need for specific hazardous waste disposal capacity (Arts. 4, 5 and 6).

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- Identify landfill sites on islands and in isolated settlements that qualify for exemption from certain provisions of the directive (Art. 3).
- Provide for the preparation of conditioning plans for existing landfill sites (Art. 8 and 14), their review and the application of new regulatory controls.

2.2 Regulation

- Ensure that landfill sites are located, constructed and operated in accordance with specified standards (Arts. 8, 14 and Annex I).
- Ensure that certain types of waste are not accepted at landfill sites, and that waste is accepted only in accordance with specified criteria and procedures, which include inspection and documentation procedures (Arts. 5, 6, 11 and Annex II). For this purpose Commission Decision 2003/33/EC lays down the procedures for accepting waste at landfills, the acceptance criteria for different types of landfills and the sampling/testing methods to be used.
- Prohibit the dilution of waste simply to satisfy waste acceptance criteria (Art 5).
- Ensure that applications for landfill permits contain specified minimum information (Art. 7).
- Ensure that landfill permits are not issued unless specified conditions are met. Conditions should include requirements that:
 - landfills are managed by technically competent persons;
 - adequate financial security is provided for the management and aftercare of the site; and
 - the landfill project is compatible with relevant national waste management plans developed to implement the requirements of the Waste Framework Directive (2006/12/EC) (Arts. 8 and 9).
- Require operators of existing landfill sites to prepare conditional plans for the sites.
- On the basis of the conditioning plans submitted, decide whether existing landfill sites may continue to operate, and close down sites that have not been granted a permit to continue to operate (Art. 14).
- In the case of sites permitted to remain open, provide for them to meet the requirements of the directive as soon as possible but not later than the stipulated deadline (Art. 14).
- Ensure that permits contain at least the information specified in the directive.
- Ensure that the minimum price charged by landfill operators for the disposal of waste in landfills covers all the costs involved in setting up and operating the site, including, as far as possible, the costs of providing financial security, and the estimated costs of closure and aftercare (Art. 10).
- Require operators of landfill sites to notify the competent authority of any waste that was not accepted for disposal at the site (Art. 11).
- Ensure that landfill sites are only closed in accordance with the specified closure procedure, which includes inspection and control by the competent authority (Art. 13).

2.3 Monitoring and Enforcement

- Establish systems for monitoring the amount of municipal waste going to landfill sites and the proportion of that waste which is biodegradable (Art. 5).
- Carry out inspections of:

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- new landfill sites prior to the commencement of disposal operations to ensure compliance with permit conditions (Art. 8);
 - exempted landfill sites on islands and in isolated settlements to ensure acceptance of only local non-hazardous waste (Art. 11); and
 - existing landfill sites to ensure compliance with relevant provisions of the directive, and thereafter compliance with conditions for ongoing operations in accordance with the landfill permit.
- Require holders of landfill permits to report at least annually on the types and quantities of waste disposed of and the results of monitoring programmes (Art. 9).
 - Require a register to be kept on the quantities and characteristics of waste deposited at landfill sites including exempted sites (Art. 11).
 - Ensure that minimum control and monitoring procedures are followed during the operational phase of landfill sites, that the results of monitoring are reported to the competent authority, and that corrective measures are taken if required by the competent authority (Art. 12 and Annex III).
 - Ensure that after closure of a landfill site (in accordance with the specified procedures) the operator remains responsible for the maintenance, monitoring and control of the site for as long as is required by the competent authority (Art. 13 and Annex III).
 - Ensure that the analysis of the results of control and monitoring procedures is subject to quality control by competent laboratories (Art. 12).

2.4 Communication and Reporting

- Make information available to national and Community statistical authorities, when requested, including data on amounts and types of waste going to landfill sites, and details of information provided in permit applications (Arts. 5, 7, 11).
- Report to the Commission on:
 - the list of exempted islands and isolated settlements (Art. 3);
 - the national strategy to implement the reduction of biodegradable waste going to landfill (Art. 5);
 - the implementation of the directive, every three years (Art. 15) following the format laid down in Commission Decision 2000/738/EC concerning a questionnaire for reporting on implementation;
 - measures taken to comply with the directive (Art. 18); and
 - transposition, with texts of the main provisions of national law adopted in the field covered by the directive (Art. 18).

2.5 Additional Legislative Instruments

A number of other legislative instruments are relevant to the Waste Landfill Directive and must also be borne in mind during the implementation of this directive. These include:

- Waste Framework Directive (2006/12/EC, as amended by Council Directive 91/156/EEC)
- Hazardous Waste Directive (91/689/EEC, as amended by 91/689/EEC)
- Packaging Waste Directive (94/62/EC)
- End-of-Life Vehicles Directive (Directive 2000/53/EC, as amended by Decision 2002/525/EC, 2005/437/EC and 2005/438/EC)

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- Waste Electronic and Electrical Equipment Directive (Directive 2002/96/EC)
- Integrated Pollution Prevention and Control (IPPC) Directive (2008/1/EC) (see Section 7 of the Handbook)
- Environmental Impact Assessment Directive (85/337/EEC, as amended by 97/11/EC and 2003/35/EC) (and see the SEA Directive 2001/42/EC on the assessment of certain plans and programmes) (see Section 2 of the Handbook)
- Environmental Liability Directive (2004/35/EC) (see Section 2 of the Handbook)
- Water Framework Directive (2000/60/EC) (see Section 5 of the Handbook)
- Regulation on the Shipment of Waste (EC No. 1013/2006)
- Regulation on the Shipment of Waste (EC No 1013/2006, as amended by Regulation 1379/2007)
- Access to Environmental Information Directive (2003/4/EC) (see Section 2 of the Handbook)
- Commission Decision 2003/33/EC establishing criteria and methods for accepting waste at landfills
- Directive on the discharge of certain dangerous substances into the aquatic environment (2006/11/EC) (see Section 5 of the Handbook)
- Regulation establishing a European Pollutant Release and Transfer Register (No. 166/2006)

3. Implementation

3.1 Key Tasks

This directive places substantial restrictions on the way in which landfills may be used for the disposal of waste, including technical conditions for their design and operation as well as monitoring and closure, and restrictions on the types of wastes that may be landfilled. The administrative systems for achieving this will be established through the institutions that are required to be set up under the Waste Framework Directive (2006/12/EC).

The key tasks involved in implementing this directive are summarised in the following checklist, organised in chronological order (where possible) within each subheading.

THE LANDFILL DIRECTIVE - KEY IMPLEMENTATION TASKS	
1	Administration, Planning and Provision of Infrastructure
1.1	Designate a competent authority responsible for control of the disposal of waste to landfill sites. The authority should have responsibility for authorising landfills, implementing control and monitoring procedures, deciding when landfills should be closed, and overseeing the monitoring and aftercare of closed landfills.
1.2	Produce a national strategy for the reduction of biodegradable waste going to landfill, to take into account the end of co-disposal and the possible early closure of existing landfill sites, and incorporate the requisite strategies into the national waste management plan.
1.3	Update the national waste management plan to incorporate the requirements of the directive and to provide for its consequences.
1.4	Establish procedures to identify and classify landfills to which the directive would apply. As a result of this procedure, determine which landfill sites are to be

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	exempted from permitting requirements and which are to be classified as sites for hazardous waste, for non-hazardous waste, and for inert waste.
1.5	Ensure the timely provision of the necessary facilities identified in the national strategy.
2	Regulation
2.1	Ensure that the competent authorities with responsibility for permitting waste management facilities under the Waste Framework Directive (2006/12/EC) have the necessary technical expertise to implement the technical requirements of this directive, and therefore ensure that permits are granted only to those sites and to those operators demonstrably able to comply with the requirements of the directive.
2.2	Establish a permitting system that sets out conditions of permits and the content of permits for landfill sites. Applicants should be required to provide adequate information for setting permit conditions.
2.3	Establish a monitoring, inspection and enforcement system to ensure that: <ul style="list-style-type: none"> • all landfills that cannot comply with permitting requirements are closed; • appropriate procedures for the acceptance of waste are applied.
2.4	Establish closure and aftercare rules and procedures which should cover, <i>inter alia</i> , conditions under which a landfill operator may start closure operations, setting out who is responsible for the maintenance, monitoring and control of the landfill after closure, and the period of time for which the operator is responsible for monitoring the landfill site after closure.
2.5	Ensure that inspectors are adequately trained in the technical aspects of landfill design and management.
3	Technical Competence
3.1	Establish a system of formal qualifications to demonstrate the technical competence of landfill operators.
3.2	Ensure the provision of the necessary training courses for landfill operators.
3.3	Develop a system of examination and certification of landfill operators.
4	Financial Aspects
4.1	Determine the method by which financial security can be demonstrated, having regard to the financial instruments that are available.
4.2	Issue guidance to waste regulators on how to interpret the financial requirements of landfill permit applications.
4.3	Develop and implement a system to ensure that landfill prices reflect at least the full costs involved in establishing and operating landfill sites.
5	Reporting
5.1	Establish reporting and data recording systems to ensure that the required data (see below) are collected.
5.2	Make information available to national and Community statistical authorities: <ul style="list-style-type: none"> • data on amounts and types of wastes in landfills; • the proportion that is biodegradable; and • particulars of permits.

5.3 Inform the Commission of:

- the list of exempted islands and isolated settlements;
- the reduction strategy to minimise the amount of biodegradable waste in landfills; and
- transposition and implementation of the directive.

3.2 Phasing Considerations

The most demanding and time-consuming tasks associated with implementing this directive are likely to be the following:

- Preparation of the strategy for reducing the amount of biodegradable waste landfilled, including an implementation plan, with timescales and responsibilities clearly allocated.
- The detailed planning, design, permitting, and construction (i) of new or existing landfills, taking into account the prospects that some existing sites may need to be closed early, and new facilities may be required as a result of the end of co-disposal; and (ii) of other facilities to accept wastes no longer permitted to be landfilled.
- The introduction of systems to ensure the technical competence and financial security of landfill operators, and for the charging of at least the full costs of and associated with landfill site operations.

These tasks should therefore be planned to commence during the initial phase of implementation.

4. Implementation Guidance

Although the deadline for implementation has passed, practical implementation is slow. There is therefore less practical experience in transposition and compliance to draw upon. However, much preparatory work has been done, and a number of general observations and suggestions for implementing this directive are presented below.

4.1 Planning and Provision of Infrastructure

- An institution must be appointed to prepare the national strategy for the reduction of biodegradable waste going to landfill. This is likely to be the institution charged with preparing the national waste management plan. However, the plan would require inputs from municipal authorities with responsibility for providing services for and/or regulating the disposal of biodegradable municipal waste.
- The national strategy for reducing the amount of biodegradable municipal waste going to landfill is fundamental, and its preparation requires an assessment of the costs and practicality of providing the necessary alternative facilities, which may be recycling, incineration or composting plants. Separate collection of municipal waste may also be required, to make recycling or composting practical and economically viable.
- As part of the strategy and plan, candidate countries must decide whether to exempt landfill sites situated on islands or isolated settlements from certain requirements of the directive. The strategy should contain criteria on which such decisions would be based; and the plan could contain the details of exactly which sites would be exempted. Since these sites would not be controlled through the permitting system, specific rules would need to be put in place for regulating and monitoring these sites.

Example of Regulatory Control

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In one Member State (UK), landfill has been the major disposal method for most non-hazardous and some hazardous wastes. Achieving a reduction in the amount of biodegradable municipal waste landfilled will require a substantial programme for the construction of alternative facilities. A system of landfill permitting with comprehensive technical conditions has been in place for more than 20 years. Since landfill has been the major disposal method, the UK has built up a strong technical base in landfill design and operation. The UK has also relied on the co-disposal of hazardous and non-hazardous wastes and the prohibition of this will also require changes to current procedures.

A second Member State (FR) has already introduced legislation to require that only treated wastes are landfilled, although progress towards achieving this objective is not yet complete. France currently relies extensively on the incineration of municipal waste, so that the existing proportion of biodegradable municipal waste landfilled is correspondingly lower.

A third Member State (DE), which also relies strongly on incineration, has introduced legislation to prevent the landfill of biodegradable waste by imposing a limit on total organic carbon (TOC) for three classes of landfill. This stipulation exceeds the requirements of the directive

- Whilst the directive will lead to a reduction in the amount of waste going to landfill, landfills will continue to be an important part of the waste management infrastructure. Existing landfills may need to be upgraded or closed and replaced with new ones. The latter may be necessary by virtue of the quality of construction and/or of the location of the landfill. Requirements include the following:
 - In addition to a geological barrier, provision, where appropriate, must be made for a leachate sealing and collection system in accordance with Annex I of the directive. Requirements will vary depending on the risk posed by leachate to the environment and groundwater resources.
 - Landfill gas must be collected from all sites receiving biodegradable waste. Gas must be flared if it cannot produce energy.
 - Measures must be taken to minimise impacts from odour and dust, noise and traffic, birds, vermin and insects, and the formation of fires.
 - Measures must be taken to ensure the stability of the mass of waste and associated structures, and to secure the site with fencing.
- Facilities will be required for wastes that may no longer be accepted in landfills, e.g. tyres and healthcare, flammable and liquid wastes.
- Co-disposal will no longer be permitted and special landfills will be required for hazardous wastes.
- The strategy should set out how waste will be treated before landfilling and provide for the necessary facilities. Indications are that simple compaction may be considered as “treatment”.
- The national waste management strategy should be revised to take account of the new installations required as a result of the directive. These would include both landfills and other facilities needed to accept wastes that may no longer be landfilled, such as recycling and composting facilities.
- In order to meet the target for reduction in biodegradable municipal waste on a national basis, there are two options. The first is to require the target reduction figure to be achieved equally by all municipalities. The second is to allocate quotas to each municipality so that the national target is reached. The latter approach is likely to be the least-cost solution, since some municipalities will have greater potential for the provision of alternative facilities than others.
- If a quota system is used, the way in which quotas are allocated will require careful

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consideration. One approach is to seek proposals from each municipality on their plans to reduce biodegradable municipal waste landfilled and to calculate whether these plans will achieve the targets. If there is a shortfall, a practical approach will be necessary to identify the necessary additional facilities needed and to impose quotas on the municipalities falling short of the national target by taking a least-cost approach.

4.2 Regulation

- Permitting and inspection of landfills is likely to be carried out by the competent authorities appointed under the Waste Framework Directive (2006/12/EC).
- Other EC legislation has an impact on the permitting process for waste management facilities. For example, an environmental impact assessment (EIA) is normally required and most landfills will also be regulated under the IPPC Directive (2008/1/EC). See, too, the SEA Directive 2001/42/EC on the assessment of certain plans and programmes.
- Locations where landfills may be allowed to be developed must take into account a number of factors, including the distance from residential and recreational areas, the existence of groundwater, coastal water and nature protection zones, geological and hydrogeological conditions, risk of flooding, subsidence, landslides or avalanches and the protection of heritage sites. Member States will need to set their own standards for these factors, in order to determine whether permits should be granted.
- It is important to ensure that the competent authority has the necessary technical expertise to implement the technical conditions of this directive. This may require additional training.
- For existing landfills, operators must provide a plan for the long-term care of the site (the conditioning plan) that specifies any corrective measures required to conform with the technical standards of the directive and that will also require a new permit. The competent authority, in issuing the new permit, should make an evaluation of the effects of the landfill on the environment, as well as taking account of the other factors listed in the directive.
- A permitting procedure will need to be developed incorporating the requirements of the directive in relation to:
 - classification of landfills;
 - wastes not acceptable in landfills;
 - information contained in applications;
 - permit conditions;
 - content of the permit;
 - waste acceptance procedures;
 - location;
 - design and construction;
 - operating procedures;
 - control and monitoring procedures;
 - closure and aftercare procedures; and
 - condition procedures for existing landfills.
- The competent authority should develop detailed standard conditions for new landfill permits based on the technical requirements of the directive and should ensure that

inspectors are adequately trained in the technical aspects of landfill design and management.

4.3 Monitoring

- For each landfill, the monitoring of a range of parameters is required, to ensure that processes within the landfill proceed as desired, that environmental protection systems are functioning as intended, and that permit conditions are fulfilled. The competent authority should ensure that the operator implements an appropriate programme of monitoring, using a competent laboratory for analysis.
- Post-closure (aftercare) monitoring forms an integral part of these requirements.
- The competent authority must inspect the site prior to the commencement of operations to ensure compliance with the conditions of the permit.
- For as long as the competent authority considers that a landfill is likely to cause environmental hazards, the operator will be responsible for monitoring gas emissions, leachate generation and the groundwater regime in the vicinity of the site.

4.4 Technical Competence

- A system of formal qualifications to demonstrate the technical competence of landfill operators must be established and will need to be incorporated into legislation. It would be advisable to extend such a system to cover other aspects of waste management (see the Waste Framework Directive fiche), such as the operation of treatment plants and other waste management facilities.
- It will be necessary to ensure the provision of training courses and mechanisms for the dissemination of information.
- A system of examination and certification for landfill managers and technicians will need to be established.

Examples of Requirements relating to Technical Competence

A requirement to ensure technical competence for landfill (and other waste management facility) operators was introduced into the legislation in one Member State (UK). It is administered by a Waste Management Industry Training and Advisory Board, which issues certificates of technical competence according to a clearly specified curriculum. Legislation has been introduced stipulating the minimum qualifications to be held by operators of various types of waste management facility. Universities and professional bodies, such as an institute of waste management, provide many training courses in the country.

In another Member State (PT), workshops and training programmes are administered by the Training Centre for Waste Management and Recovery and Recycling for people responsible for waste management operations.

4.5 Financial Aspects

- The method by which financial security can be demonstrated should be determined, having regard to the financial instruments that are available within the country.
- The competent authority should issue guidance to waste regulators on how to interpret the financial requirements, bearing in mind that they will typically have little financial training.

Example of Requirements relating to the Provision of Financial Security

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A requirement for the provision of financial security to ensure adherence to all waste management permit conditions was introduced into legislation in one Member State (UK) in 1990. Guidance notes have been provided for waste regulators and facility operators on how to interpret the provisions and select the most appropriate security according to the nature of the permit. The security is designed to suit each particular situation and risk, i.e. the possible need for corrective action, the need for restoration and aftercare etc. A combination of insurance, bankers' bonds, financial provisions where funds are placed in accounts reserved for the purpose and other instruments may be used.

- A requirement exists to ensure that prices for landfilling reflect the full costs, including establishing, constructing and operating the site, together with monitoring, closure and aftercare measures for up to 30 years. This will require a system of accrual accounting. The private sector can be expected to use such a costing approach in order to ensure its financial viability. A problem may exist, however, with the public sector, notably municipalities, many of which use cash accounting techniques that provide neither the amortisation of capital costs nor accruals for future liabilities, such as restoration and aftercare. It will be necessary to ensure that municipalities use such systems for measuring the cost of landfilling.

4.6 Reporting

- The reporting requirements of this directive are relatively complex, involving, *inter alia*, the gathering of data on:
 - the proportion of biodegradable municipal waste going to landfill;
 - the origins and producers of waste going to landfill;
 - the location of hazardous waste in landfills;
 - data collected where an environmental impact assessment has been conducted; and
 - environmental monitoring data.
- This will require the establishment of systems and databases for recording the data and systems to ensure that landfill operators report it.
- Also, Regulation No. 166/2006 on the establishment of a European Pollutant Release and Transfer Register imposes certain reporting obligations on operators of landfills (excluding landfills of inert waste or those that were definitely closed by 16 July 2001) receiving at least 10 tonnes per day or having a total capacity of 25,000 tonnes. The reporting requirements concern both the operators and the Member States. Article 5 of the regulation sets out all the information and the method for measurements that need to be submitted by the operators, including site-related operational, accidental, routine and non-routine activities and off-site transfers of pollutants set out in Annex III. Operators must collect and report information and need to keep available for the competent authorities records of the data for a period of five years. The frequency of reporting is to be determined by the Member State. The Member State, in turn, must submit a report to the European Commission containing all this data 18 months after the end of the first reporting year (2007) and thereafter within 15 months of the end of the reporting year.

5. Costs

The main types of costs arising during the implementation of this directive are illustrated, as far as possible, in the checklist below. Naturally, the relative size of the costs of the individual items will vary from country to country.

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The provision of alternative facilities to enable the reduction of the quantities of biodegradable municipal waste being landfilled, together with facilities for wastes that are no longer allowed to be landfilled and the replacement of non-conforming landfills, will constitute the largest elements of the overall costs of achieving compliance.

It should be appreciated that the provision of facilities will incur not only initial capital costs but also recurring annual costs for operation and maintenance together with long-term costs for restoration and aftercare. Another factor that has an impact on costs is that of land. In most Member States, the cost of land for landfills is very high, because of the scarcity of suitable sites that are acceptable in land-use planning terms.

Indicative estimates have been made of the cost of implementing this directive in Poland¹⁰⁷ in a study prepared on behalf of DG ENV. The total cumulative investments for the collection, recycling and landfill of domestic urban and rural waste and industrial waste amounted to EUR 2,780 million. Additional sundry costs for the approximation of this directive were also calculated, bringing the total investments needed to comply with the directive to approximately EUR 3.5 billion. Almost 60% of this investment would be required for the aftercare of existing landfills and those due to be closed. Additional investment needs for controlled landfills are relatively small, since the amount of waste to be landfilled will decrease due to higher recycling rates (as required by this directive and, for example, by the Packaging and Packaging Waste Directive (94/62/EC)).

Similar investment estimates have been made for the implementation of this directive in Latvia¹⁰⁸). The total investment required is estimated to be EUR 154 million.

Checklist of the Types of Cost Incurred to Implement the Directive

Initial set-up costs:

- preparation of a strategy to achieve the objectives of the directive;
- preparing procedures for permitting and inspection;
- developing criteria for technical competence and financial security;
- issuing new permits for all existing landfills;
- preparing technical guidance notes;
- developing training courses to establish technical competence.

Capital expenditure:

- provision of alternative facilities to reduce biodegradable waste being landfilled, including:
 - recycling facilities;
 - composting plants;
 - separate collection systems;
- provision of facilities for materials no longer permitted to be landfilled, including:
 - tyres;
 - healthcare wastes;
 - flammable wastes;
 - liquid waste;

¹⁰⁷ DISAE Project POL-101. *Costing and Financial Analysis of Approximation*, Agriconsulting Europe, June 1998

¹⁰⁸ DISAE Project LAT-103. *Development of the Latvian approximation Strategy and Programme*, Halcrow Group Ltd, July 1998

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- new landfills.

Ongoing costs:

- annual operating costs of new landfills and other facilities;
- training of landfill operators and technicians;
- issuing of permits for landfills;
- inspections of landfills to verify compliance, and taking enforcement action.

The Directive on End-of-Life Vehicles (ELVs)

Official Title: Directive 2000/53/EC of the European Parliament and of the Council of 18 September 2000 on end-of-life vehicles (Official Journal L 269, 21.10.2000), as amended by Commission Decision 2002/525/EC (OJ L 170, 29.6.2002)¹⁰⁹, Commission Decision 2005/437/EC (OJ L 152, 15.6.2005)¹¹⁰, Commission Decision 2005/438/EC (OJ L 152, 15.6.2005)¹¹¹ and Council Decision 2005/673/EC (OJ L 254, 30.9.2005)¹¹².

Decision 2005/293/EC of 1 April 2005 laying down detailed rules on the monitoring of the re-use/recovery and re-use/recycling targets set out in Directive 2000/53/EC of the European Parliament and of the Council on end-of-life vehicles [Official Journal L 94 of 13.4.2005]

Decision 2003/138/EC of 27 February 2003 establishing component and material coding standards for vehicles pursuant to Directive 2000/53/EC of the European Parliament and of the Council on end-of-life vehicles [Official Journal L 53 of 28.2.2003]

Decision 2002/151/EC of 19 February 2002 on minimum requirements for the certificate of destruction issued in accordance with Article 5(3) of Directive 2000/53/EC of the European Parliament and of the Council on end-of-life vehicles [Official Journal L 50 of 21.2.2002]

Decision 2001/753/EC of 17 October 2001, concerning a questionnaire for Member States' reports on the implementation of Directive 2000/53/EC of the European Parliament and of the Council on end-of-life vehicles [Official Journal L 282 of 26.10.2001]

1. Summary of Main Aims and Provisions

The ELV Directive aims to reduce the random disposal of end-of-life vehicles and used parts thereof and thus the amount of waste from end-of-life vehicles. In terms of prevention, the directive restricts, in the short term, the use of certain heavy metals. In the longer perspective the aim is to change the way that cars are designed and produced in the first place.

¹⁰⁹ 2002/525/EC: Commission Decision of 27 June 2002 amending Annex II of Directive 2000/53/EC of the European Parliament and of the Council on end-of-life vehicles.

¹¹⁰ 2005/63/EC: Commission Decision of 24 January 2005 amending Annex II to Directive 2000/53/EC of the European Parliament and of the Council on end-of life vehicles.

¹¹¹ 2005/438/EC: Commission Decision of 10 June 2005 amending Annex II to Directive 2000/53/EC of the European Parliament and of the Council on end-of life vehicles

¹¹² 2005/673/EC: Council Decision of 20 September 2005 amending Annex II of Directive 2000/53/EC of the European Parliament and of the Council on end-of-life vehicles.

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The directive sets recovery/recycling targets and requires Member States to ensure that end-of-life vehicles can only be treated by specifically authorised undertakings/treatment centres and that certificates issued by such undertakings are mutually recognised throughout the EU. This is combined with an obligation on the relevant economic operators to establish collection and treatment systems at no expense to the last owner.

The ELV Directive covers any end-of-life vehicle that constitutes waste within the meaning of Directive 2006/12 on waste, being:

- any end-of-life vehicle designated as a category M₁ or N₁ vehicle (as defined in Section A of Annex II to Directive 70/156/EEC);
- two-wheel or three-wheel motor vehicles and their components.

The primary objective of the directive is waste prevention. To this end, vehicle manufacturers and material and equipment manufacturers have to:

- reduce the use of hazardous substances when designing vehicles;
- design and produce vehicles that facilitate the dismantling, re-use, recovery and recycling of end-of-life vehicles;
- increase the use of recycled materials in vehicle manufacture;
- ensure that components of vehicles placed on the market after 1 July 2003 do not contain mercury, hexavalent chromium, cadmium or lead, except in the applications listed in Annex II.

The directive contains provisions on the collection of all end-of-life vehicles (Art. 5). To this end, Member States have to set up collection systems for end-of-life vehicles, ensure that all vehicles are transferred to authorised treatment facilities, and establish a system for the deregistration of discarded vehicles. The storage and treatment of end-of-life vehicles is also subject to strict control, in accordance with the requirements of the directive and of Annex I to the directive.

The aim of this directive is to increase the rate of re-use and recovery from 75% to 85% in terms of average weight per vehicle/year by 2006, and to 95% by 2015, and to increase the rate of re-use and recycling over the same period to at least 80% and 85% respectively in terms of average weight per vehicle/year. Less stringent objectives may be set for vehicles produced before 1980. Member States may incorporate some of the directive's provisions into national law by means of agreements with the economic sectors concerned.

The ELV Directive is adopted on the basis of Article 175(1) of the EC Treaty. This provision concerns the strengthening of environmental protection exclusively. There are no elements of market integration, save for the interest in establishing uniform operating conditions in order to prevent distortions of competition. This also means that Member States are not excluded from setting or maintaining rules that are stricter than the ones in the directive, provided that such measures are otherwise compatible with the EC Treaty. The ELV Directive is a so-called minimum harmonisation directive. The deadline for transposition was 21 April 2002.

The directive has been updated several times, including its Annex II, to reflect technical and scientific process, by:

- Commission Decision 2002/525/EC
- Commission Decision 2005/437/EC and Commission Decision 2005/438/EC
- Decision 2005/437/EC repeals and replaces Decision 2005/63/EC amending Annex II, which granted an earlier exemption to the ban on the use of lead, cadmium or hexavalent chromium in materials in Article 4(2)(a) for spare parts put on the market after 1 July 2003, used for vehicles marketed before 1 July 2003. Decision 2005/438/EC reintroduces this exemption from the ban on the use of these heavy metals in materials for spare parts used for the repair of vehicles already put on the market before 1 July 2003.

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- Decision 2005/673/EC amends Annex II to Directive 2000/53 to reflect the latest technical advances in using applications and machines without heavy metals. Annex II sets out the applications for which the use of heavy metals is temporarily allowed. The exemptions mainly relate to:
 - lead as an alloying element – some of the applications have to be phased out by 1 July 2008;
 - lead and lead compounds in components – some of the listed applications are banned as of 1 July 2006 and 1 July 2007);
 - hexavalent chromium – the only application still allowed is as absorption refrigerators in motor caravans;
 - mercury in discharge lamps and instrument panel displays.

However, the use of cadmium for certain purposes, such as optical components in glass matrixes used for driver assistance systems is no longer allowed as of 1 July 2007. Furthermore, the marketing of NiCd batteries for use in electrical vehicles is banned as of 31 December 2006 unless sold as replacement parts for vehicles put on the market before this date. Decision 2005/673 also contains an obligation to label some of the components containing heavy metals in accordance with Article 4(2)(b)(iv). The Commission was also to review, by the end of 2007, whether further use of heavy metals is unavoidable and whether further temporary derogations are justified.

The ELV Directive should be read in conjunction with:

- Directive 2005/64/EC on the type-approval of motor vehicles with regard to their reusability, recyclability and recoverability, as it lays down minimum thresholds for the re-use, recycling and recovery of the component parts and materials of new vehicles with the aim of facilitating the re-use, recycling and recovery of parts in order to meet the 2015 objectives for the recycling and recovering of end-of-life vehicles. It provides for a preliminary assessment of manufacturers before Member States grant EC type-approval or national type-approval. From 15 December 2008, vehicles that do not comply with the requirements of this directive may not be granted EC type-approval or national type-approval. From 15 July 2010, moreover, the marketing of new vehicles that do not comply with the requirements of this directive will be prohibited (for more details see separate fiche below).
- Decision 2005/293/EC laying down detailed rules on the monitoring of the re-use/recovery and re-use/recycling targets set out in Directive 2000/53/EC on end-of-life vehicles. This decision implements, in particular, Article 7(2) of Directive 2000/53/EC setting out recycling/reuse targets for ELVs to ensure that the Member States can demonstrate that these targets are being met. Decision 2005/293/EC facilitates and harmonises the calculation of the targets so as to make the data comparable between the Member States. It aims both at guaranteeing reliable data and at facilitating the task of assessing the reaching of the targets. For instance, although it obliges Member States to base the denominator for the calculation of the targets on the number of ELVs entering the treatment system of a particular Member State, it allows the use of a metal content assumption for the determination of the amount of metals recoverable from ELVs. It also calls for the use of standardised available vehicle data for the determination of the individual vehicle weight and for calculating the fuel removed during dismantling based on an EU average amount. It also clarifies that recycling and recovery rates from exported vehicle parts are credited to the exporting Member State and not to the Member States of destination. The decision also imposes reporting requirements regarding the quantity of materials from de-pollution and dismantling, the shredding of ELVs, as well as the monitoring of ELVs arising in a Member State and exported for further treatment.
- Decision 2003/138/EC establishing component and material coding standards for vehicles pursuant to Directive 2000/53/EC of the European Parliament and of the Council

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on end-of-life vehicles. This decision sets out requirements for the use and labelling of component and material coding standards to facilitate the identification of components and materials that are suitable for reuse and recovery. This decision entered into force on 1 July 2003 and mainly applies to producers and manufacturers of material and equipment.

- Decision 2002/151/EC on minimum requirements for the certificate of destruction issued in accordance with Article 5(3) of Directive 2000/53/EC of the European Parliament and of the Council on end-of-life vehicles. This decision further implements Articles 5(5) and 11(4) of Directive 2000/53/EC regarding specific requirements applying to the certificate of destruction. The setting out of minimum requirements for the certificate of destruction, which is mandatory for deregistering vehicles, will make it easier for competent authorities to mutually recognise and accept certificates of destruction issued in other Member States. The minimum requirements concern the identity and details of the treatment facility, competent authority and vehicle holder, and important information relating to the vehicle.
- Decision 2001/753/EC concerning a questionnaire for Member States' reports on the implementation of Directive 2000/53/EC of the European Parliament and of the Council on end-of-life vehicles. Member States must complete the questionnaire in the annex to Decision 2001/753/EC concerning the transposition and implementation of the ELV Directive.

2. Principal Obligations of Member States

2.1 Planning

- Encourage vehicle manufacturers to make vehicles more suitable for recycling, to increase the use of recycled material and to make the dismantling of vehicles easy (Art. 4, Directive 2000/53/EC).
- Ensure the existence of an adequate amount of facilities for the collection and treatment of ELVs (Art. 5, Directive 2000/53/EC).
- Ensure that certificates of destruction issued in other Member States are recognised (Art. 5, Directive 2000/53/EC). For this purpose, Commission Decision 2002/151/EC lays down the minimum requirements for the content of such a certificate.
- Introduce a permit system for undertakings treating ELVs and encourage the introduction of certified environmental management systems in such undertakings (Art. 6, Directive 2000/53/EC).
- Ensure that the degree of reuse/recycling/recovery of ELVs reaches certain thresholds during the coming years with a minimum of 85% of reuse/recovery and a minimum of 80% reuse/recycling in terms of average weight by 1 January 2006 and a minimum of 95% of reuse/recovery and a minimum of 85% reuse/recycling in terms of average weight per vehicle/year to be attained by 2015 (Art. 7, Directive 2000/53/EC).
- Ensure that the monitoring and reporting of the quantity of ELVs de-polluted, dismantled, shredded, treated and exported for further treatment is adequately planned and carried out in accordance with Articles 1 to 3 and the annex to Decision 2005/293/EC.
- Ensure that the calculation of the reuse/recovery and reuse/recycling targets referred to in Article 7(2) of Directive 2000/53 is based on reused, recycled and recovered materials from de-pollution, dismantling and post-shredding operations. It is important that the actually achieved recovery is taken into account and in accordance with the annex to Decision 2005/293/EC (Art. 1 of the same decision).

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- Ensure that there is a reliable system/procedure in place to track and collect sufficient evidence about the quantity and quality of the recycling and recovery of ELV materials or parts thereof that were exported to other Member States or third countries for further treatment. The importing countries should be requested to submit reliable information about the actual recycling and recovery that took place there (Art. 2, Decision 2005/293/EC).
- Ensure that the certificate of destruction issued by the competent authority in the Member State is in accordance with the requirements set out in Decision 2002/151/EC and that certificates of destruction issued by other Member States are fully recognised and accepted.

2.2 Regulation

- Prohibit, as of 1 July 2003, the marketing of vehicles in which there are certain heavy metal components (Art. 4, Directive 2005/53/EC). Heavy metals should only be used in components or for processes listed in Annex II to Decision 2005/673/EC. In this regard, Member States and vehicle manufacturers must ensure compliance with the restrictions or the regulation of some of these applications:
 - ban the use of lead as an alloying element in aluminium for machining purposes with a lead content of up to 0.4% by weight and lead-bearing shells and bushes as of 1 July 2008;
 - ban the use of lead and lead components in vulcanising agents and stabilisers for elastomers in fluid-handling and power-train applications, copper in the friction materials of brake linings containing more than 0.4% lead by weight, and valve seats (for engines developed before 1 July 2003), as of 1 July 2006 and 1 July 2007 respectively;
 - ban the use of hexavalent chromium in corrosion preventive coatings and corrosion preventive coatings related to bolt and nut assemblies for chassis applications as of 1 July 2007 and 1 July 2008 respectively;
 - ban the marketing of thick film pastes containing cadmium as of 1 July 2006;
 - ban the use of cadmium in batteries for electrical vehicles as of 31 December 2008, except as replacement parts for vehicles put on the market before this date.
- Ensure labelling, according to Article 4(2)(b)(iv) of Directive 2000/53/EC, of the following components containing heavy metals that are still provisionally allowed:
 - lead in batteries, vibration dampers, lead in solder in electronic circuit boards and other electrical applications and copper in friction materials of brake linings containing more than 0.4% lead by weight;
 - hexavalent chromium in absorption refrigerators in motor caravans;
 - mercury in discharge lamps and instrument panel displays;
 - cadmium in batteries for electrical vehicles.
- Ensure that spare parts for the repair of vehicles put on the market later than 1 July 2003 do not contain components of lead, mercury, cadmium and hexavalent chromium. However, exemptions are allowed for spare parts using lead, mercury or hexavalent chromium in spare parts for the repair of vehicles already put on the market before 1 July 2003 (Art. 4, Directive 2005/53/EC and Annex II, as amended by Decision No 200/438/EC).
- Require that car producers/distributors set up systems for the collection and treatment of ELVs (Art. 5, Directive 2000/53/EC).

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- Ensure that the last owner of an ELV can only have it deregistered upon presentation of a certificate of destruction and that such certificates can only be issued if the ELV has been transferred to an authorised collection/treatment facility (Art. 5, Directive 2000/53/EC).
- Ensure that the certificate of destruction contains at least the information set out in the annex to Decision 2002/151/EC:
 - the name, address, signature and registration or ID number of the establishment issuing the certificate;
 - the name and address of the competent authority that issued the permit for the establishment issuing the certificate of destruction;
 - the date of issue of the certificate of destruction;
 - vehicle nationality mark and registration number;
 - class of vehicle, brand and model;
 - vehicle identification number;
 - name, address, nationality and signature of the holder or owner of the vehicle delivered.
- Ensure that the delivery of ELVs to such facilities does not entail any cost for the last owner (Art. 5), and that this applies as of 1 July 2002 to vehicles put on the market as of that date, and as of 1 January 2007 for vehicles put on the market prior to 1 July 2002 (Art. 12, Directive 2000/53/EC).
- Ensure that the general requirements of the Waste Framework Directive (75/442) are observed as regards the storage and treatment of ELVs (Art. 6, Directive 2000/53/EC).
- Make certain that undertakings carrying out the treatment of ELVs obtain permits in accordance with Directive 75/442 (Art. 6, Directive 2000/53/EC).
- Ensure that such undertakings use certain procedures in order to reduce environmental impact and improve possibilities for reuse, recycling and recovery (Art. 6, Directive 2000/53/EC).
- Require that producers of cars and spare parts provide information about components and materials as well as the location of hazardous substances in order to facilitate the treatment of ELVs. In this connection, the Commission has in its Decision 2003/138/EC issued component and material coding standards (Art.8, Directive 2000/53/EC).
- In the case of ELVs, or materials or parts thereof for which a certificate of destruction has been issued by a national authorised treatment facility and which have been exported to other Member States or third countries for further treatment, any recycling or recovery taking place in the importing country can only be attributed to the exporting Member State and included in the calculation of the recycling/recovery targets if there is sound evidence that such recycling/recovery took place under conditions equivalent to the requirements prescribed under EC law (Art. 2(1), Decision 2005/293/EC).
- Where ELVs, materials or parts thereof are imported into a Member State for recovery and/or recycling and the Member State or a third country exporting it has also issued a certificate of destruction, it is not possible to count this as recycled or recovered in the importing Member State (Art. 2, Decision 2005/293/EC).
- Ensure that, in terms of exports to third countries, sufficient evidence is provided by those countries that the exported materials are actually recycled or recovered. It may be necessary to request specific documentation from the importing third countries (Art. 2(2), Decision 2005/293/EC).

- Ensure that the component and material coding standards (i.e. the nomenclature of ISO standards) set out in the annex to Decision 2003/138/EC are used by producers and material and equipment manufacturers for the labelling and identification of those components and materials suitable for reuse and recovery (Art. 1, Decision 2003/138/EC).

2.3 Reporting and Information

- Report at three-year intervals to the Commission on the implementation of the directive using the questionnaire format laid down in Decision 2001/753/EC (Art. 9, Directive 2000/53/EC).
- Ensure that car producers and distributors etc. provide information on various aspects of the recovery and recyclability qualities of their cars and that such information is included in marketing material etc. (Art. 9, Directive 2000/53/EC).
- Complete Tables 1 to 4 in the annex to Decision 2005/293/EC along with a description of the data used for the calculation of the reuse/recovery and reuse/recycling targets. In filling out these tables, Member States are allowed to use an assumption concerning the average percentage of reused, recycled and recovered materials from ELVs (metal content assumption), supported by detailed data for the assumed percentage of metal content, metal reuse, recovery and recycling. This data must be valid for at least 95% of the ELVs originating from the Member State in question. The Member State must present the data according to the breakdown referred to in Article 1(3) of Decision 2005/293/EC (Art. 1 of the same decision). These tables need to be:
 - completed on an annual basis starting with a date for the year 2006;
 - sent to the Commission within 18 months of the end of the relevant year, i.e. for the year 2006 by 30 June 2008; for 2007 by 30 June 2009, and for 2008 by 30 June 2010 (Art. 3(1), Decision 2005/293/EC);
- Ensure the timely submission of the report on the implementation of Directive 2000/53/EC in accordance with Decision 2001/753/EC concerning a questionnaire for Member States' reports on the implementation of Directive 2000/53/EC of the European Parliament and of the Council on end-of-life vehicles.
- Fill out and submit the questionnaire set out in the annex to Decision 2001/753/EC concerning the transposition and implementation of the ELV Directive.

2.4 Additional Legal Instruments

- Directive 2005/64/EC on the type-approval of motor vehicles with regard to their reusability, recyclability and recoverability and amending Council Directive 70/156/EEC (as last amended by Directive 2007/37/EC¹¹³)
- Decision 2005/293/EC laying down detailed rules on the monitoring of the reuse/recovery and reuse/recycling targets set out in Directive 2000/53/EC
- Decision 2003/138/EC establishing component and material coding standards for vehicles pursuant to Directive 2000/53/EC of the European Parliament and of the Council on end-of-life vehicles

¹¹³ Directive 2007/37/EC amends Annexes I and III to Council Directive 70/156/EEC introducing new points regarding air-conditioning systems and the refrigerant gas used and the leakage rate in terms of ensuring adequate information regarding air-conditioning units using refrigerants of fluorinated greenhouse gases with a greenhouse warming potential above 150.

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- Decision 2002/151/EC on minimum requirements for the certificate of destruction issued in accordance with Article 5(3) of Directive 2000/53/EC of the European Parliament and of the Council on end-of-life vehicles
- Decision 2001/753/EC concerning a questionnaire for Member States' reports on the implementation of Directive 2000/53/EC of the European Parliament and of the Council on end-of-life vehicles
- Directive on the classification, packaging and labelling of dangerous substances (67/548/EEC) (see Section 8 of the Handbook)
- REACH Regulation (see Section 8 of the Handbook)
- Directive on the approximation of laws on the type-approval of motor vehicles and their trailers (70/156/EEC) (and associated Directive 92/61/EEC)
- Directive 96/12/EEC on waste
- Directive 91/689/EEC on hazardous waste
- Reporting Directive (91/692/EEC) (see Section 2 of the Handbook)
- Regulation (EEC) 761/2001 on the Community eco-management and audit scheme (EMAS) (see Section 7 of the Handbook)
- Integrated Pollution Prevention and Control (IPPC) Directive (2008/1/EC) (see Section 7 of the Handbook)
- Regulation (EC) No. 166/2006 on the European Pollutant Release and Transfer Register
- Directive 2002/95/EC on waste electronic and electrical equipment

3. Implementation

3.1 Key Tasks

The key tasks involved in implementing this directive are summarised below, organised in chronological order (where possible) within each subheading.

1. Institutional Organisation
1.1 Appoint competent authority/authorities responsible for implementation, notably the issuing of permits to the relevant undertakings (mainly dismantlers, motor salvagers, shredders and scrap yards) and for the monitoring of these undertakings as well as the supervision of the system for certificates of destruction. The authorities in question can be existing bodies already in charge of environmental issues.
2. Planning and implementation of plans
2.1 Establish an overview of existing problems and resources, i.e. the amount of end-of-life vehicles and used spare parts being sporadically disposed of; the amount of existing treatment undertakings, such as dismantlers, shredders, motor salvagers etc.; existing authorisation schemes applicable; as well as producers/distributors of vehicles and their respective market shares.
2.2 Adjust existing waste planning on central and regional/local level.
2.3 Develop a short- and long-term strategy for the financing of costs in connection with the take-back and treatment of ELVs.
2.4 Initiate public campaigns to introduce the ELV system to the general public.
2.5 Establish a format for the certificate of destruction, and procedures for the issuing of

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such certificates as well as the integration of the certificate system with existing car registers.
2.6 Establish structured contacts with other Member States to ensure the smooth running of the arrangements for the mutual recognition of certificates.
2.7 Co-operate with other Member States on developing measures to ensure that the reuse/recycling and reuse/recovery targets for 2006 are being met.
2.8 Establish a system for reporting between undertakings handling ELVs and the relevant authorities, including a uniform method for calculating reuse/recycling/recovery percentages for each ELV, which is currently being developed by the European Commission.
3. Regulation
3.1 Determine the extent to which transposition of the directive should take place by means of agreements with the relevant enterprises and organisations for those articles as allowed in Article 10 of the directive.
3.2 Determine who should carry the direct responsibility for <ul style="list-style-type: none">• establishing collection systems;• ensuring treatment facilities corresponding to the technical requirements of the directive;• making sure that the targets for reuse/recycling and reuse/recovery are being met.
3.3 Prohibit the charging of last owners as from 1 July 2002 and after 2007 for vehicles put on the market before 1 July 2002 or introduce other measures to ensure that vehicle producers bear the costs connected with the take-back, collection and treatment of ELVs.
3.4 Establish a system for the authorisation and control of collection/treatment undertakings. This includes, notably, requirements as regards both collection/treatment sites and operational and procedural aspects.
4. Reporting and monitoring
4.1 Procedures, formats and addressees for the information on the reuse/recovery/recycling properties of their cars that manufacturers/distributors are obliged to produce. This includes requirements concerning marketing material for consumers.

3.2 Phasing Considerations

Experience within Member States suggests that the most demanding and time-consuming tasks associated with implementing this directive are the following.

As can be seen from the previous points, the directive allows Member States quite a degree of discretion as to how national regulation should look – or whether there should be any national regulation at all to the extent that agreements permitted by the directive with interested parties will suffice. It is particularly important to devote sufficient time to examining existing structures for the treatment of ELVs that involve different types and sizes of enterprises, and to have in-depth consultations with the various stakeholders.

Otherwise, the major tasks will be the setting up of systems for issuing permits for treatment and certificates of destruction. It will also be a substantial task to develop a structure for bringing together the reporting on reuse/recycling/recovery to present national progress towards the targets established in the directive.

However, the main challenges remain with the undertakings, car producers and distributors, as well as existing undertakings dealing with the collection and treatment of ELVs. For this reason as well, it is important to allow sufficient time for consultations.

4. Implementation Guidance

Drawing on the experience of some Member States, a number of general observations and suggestions for implementing the directive are presented below.

- The directive allows several possibilities for assigning responsibility for collecting and treating ELVs and for meeting the overall reuse/recycling and reuse/recovery targets. In UK, for example, several options were considered, the most simple being that car producers/importers are responsible for their respective models. This may result in a corresponding fragmentation of collection and treatment facilities, where some collectors accept certain brands of cars and not others. An alternative option – which would be most convenient for the last owner – would be a system in which a car can be handed in anywhere and where the car producers/importers share costs according to, for example, their respective market share.

Examples of Arrangements in Member States (SE)

Directive 2000/53/EC has been transposed by Ordinance 2007:185 on producer responsibility for cars (Forordning om producentansvar för bilar). There are also a number of other laws that are directly or indirectly linked to producer responsibility, including:

- Regulations by the Road Authority (Vägverket)
- Environmental Code, Chapter 29, Ordinance 2007:185 and Ordinance 1998:950, which contains provisions on sanctions, including the Environmental Sanction Fee (an administrative charge to confiscate the potential advantages of not complying with reporting obligations etc.)
- Handbook (2001:8) with general guidance, although this does not contain the provisions of Ordinance 2007:186 on car scrapping
- Ordinance 1998:900 on supervision according to the Environmental Code

In Sweden, car owners can hand in their car to one of the collection points of the car producers, which are normally linked to the network of car producers. This handover is free of charge unless the car lacks significant parts (e.g. motor, gear box or emission control device) or contains other waste fractions. It is also possible to hand over the car to an accredited car recycler, although such recyclers sometimes charge for this disposal. The Road Authority has published detailed instructions on how to de-register and scrap cars (http://www.vv.se/templates/page3___616.aspx)

Among the responsibilities of car producers facilitating the environmentally sound disposal of cars are:

- To facilitate the collection of discarded cars and refer the car owner to suitable collection points.
- To ensure that collected cars are handled and treated by an accredited car scrapper/recycler.
- To accept not only cars but also buses and lorries that do not exceed 3,500 kg.

- The nature of the collection system will also depend on who will be entitled to issue certificates of destruction. A system where such certificates can be issued by facilities other than the treatment undertakings would be flexible and can work provided that there is ample guarantee that the ELVs in question actually end up in an appropriate treatment facility.

Examples of Practice from Member States regarding Supervisory Tasks (SE)

Municipalities are supervisory authorities and one of their main responsibilities is to monitor how

car producers comply with the provisions of Ordinance 2007:186.

In addition, the county boards (Länsstyrelserna) also have supervisory duties according to Ordinance 1998:900 on supervision according to the Environmental Code.

If two authorities have so-called operative responsibility, they enter into an agreement on how the responsibility will be shared.

The Swedish Environmental Protection Agency (Naturvårdsverket) has central responsibility for the supervision and monitoring/evaluation of the system of producer responsibility for cars. Tasks involve providing guidance to the other supervisory authorities and submitting reports of car producers' data to the European Commission.

- With respect to permits for treatment undertakings, it is appropriate to co-ordinate this system with the other permit schemes required under the Waste Framework Directive (2006/12/EC) as well as Directive 91/689/EC on hazardous waste. The reason is that ELVs that have not had pollutants removed are categorised as hazardous waste in Commission Decision 2000/532/EC, and many, but not necessarily all, treatment undertakings would require a waste permit according to the Waste Framework Directive.

Examples of Implementation in Member States (SE)

Some of the main obligations for car scrappers/recyclers mainly set out in Ordinance 2007:186 on car scrapping include:

- the requirement for accreditation by the county board (länsstyrelsen);
- notification (so-called C application) as environmentally hazardous activities according to the Environmental Code, Chapter 9 (6) and Article 21 of Ordinance 1998:899 on environmentally hazardous activities and health protection in the municipality;
- the requirement for some car scrappers/recyclers, e.g. those handling lorries, to obtain a permit from the county board
- a reporting obligation according to Ordinance 2007:186, with duties to submit data to the relevant car producers that are needed to be able to comply with their reporting obligations. Such reports should be submitted to the official representative of the car producers – Bil Sweden – also submitting a copy to the municipalities where the car scrapper/recycler carries out its activities;
- self-regulation pursuant to the Environmental Code, Chapter 26, Article 19, and Ordinance 1998:901 on operators' self-regulation (förordningen om verksamhetsutövarens egenkontroll).

5. Costs

The main share of costs will be incurred by the private undertakings that need to make investments to meet requirements in connection with the prevention, collection and treatment.

There are also costs associated with the provision of adequate administrative structures regarding, for example, the issuing of certificates of destruction and monitoring compliance with the collection and recycling system. It is possible to make use of financial instruments to minimise these costs, including insurance that may cover some of the costs for administering the ELV system. Most of the costs associated with the above decisions implementing Directive 2000/53/EC are related to administrative tasks, including:

- making changes to the current certificate of destruction to ensure that it meets the minimum requirements in Decision 2002/151/EC and to ensure mutual recognition of certificates issued in other Member States;

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- improving the documentation of ELVs, materials and components thereof exported to other Member States or third countries for recycling and recovery to ensure that this treatment is actually carried out in accordance with EC legal standards;
- collecting information regarding recycling/reuse and recovery/reuse targets and ensuring annual reporting to the Commission as well as compliance with the reporting requirements set out in Decision 2001/753/EC concerning a questionnaire for Member States' reports on the implementation of Directive 2000/53/EC of the European Parliament and of the Council on end-of-life vehicles.

The costs of implementing Decision 2003/138/EC establishing component and material coding standards for ELVs will mainly be borne by producers and material and equipment manufacturers since they have to ensure the use and labelling of these ISO standards.

Motor Vehicle Type-Approval Directive regarding the reusability, recyclability and recoverability of motor vehicles

Official Title: Directive 2005/64/EC of the European Parliament and of the Council of 26 October 2005 on the type-approval of motor vehicles with regard to their reusability, recyclability and recoverability and amending Council Directive 70/156/EEC (OJ L 310, 25.11.2005)

1. Summary of the Main Aims and Provisions

Directive 2005/64/EC is one of a series of new directives within the Community framework dealing with a type-approval system for motor vehicles, which was established under Directive 70/156/EEC. This directive amends Directive 70/156/EEC by introducing minimum thresholds for the reuse, recycling and recovery of component parts and materials for new motor vehicles in categories M₁ (private cars) and N₁ (small vans). Manufacturers must comply with these thresholds from the design stage onwards, such that most of the component parts can be dismantled, recycled and recovered. Directive 2005/64/EC thus aims at facilitating the processing and the reduction of waste from motor vehicles, as established by the End-of-Life Vehicles Directive 2000/53/EC. The other aim of the directive is to ensure that reused component parts continue to offer the same level of performance and that they do not jeopardise road safety or lead to environmental hazards. For this reason it lists in Annex V components that are not to be reused.

The directive entered into force on 15 December 2005 (20 days after its publication in the Official Journal) and had to be transposed by Member States by 15 December 2006. By this time, Member States could not ban the placing on the market of vehicles falling within the scope of the directive that comply with its requirements. Member States shall, by 15 December 2008, refuse to grant EC type-approval and national type-approval to vehicles that do not comply with the requirements of this directive. As of 15 July 2010, they shall consider certificates of conformity that accompany new vehicles not in conformity with the directive as being no longer valid and

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refuse their registration, sale or entry into service unless they are exempt under the directive or where Article 8(2)(b) of Directive 70/156/EEC applies.

The following are the major obligations under Directive 2005/64/EC:

- Setting minimum thresholds for components/materials in M₁ and N₁ motor vehicle categories to ensure their reuse, recycling and recovery at the vehicle's end-of-life stage.
- The manufacturer must comply with thresholds from the design stage onwards, recommending a strategy for the dismantling, reuse, recycling and recovery of component parts/materials.
- The type-approval authority must carry out a preliminary assessment and certification of compliance with minimum thresholds.
- The type-approval authority processes a manufacturer's application for the placing of new motor vehicles on the market only if thresholds are met.
- The type-approval authority must control the placing on the market of new motor vehicles and those already in production to ensure their compatibility with the thresholds and type-approval according to the directive within the time frames set out under Article 10 and referred to above.
- The type-approval authority is to verify standards/thresholds adopted by manufacturers.
- The type-approval authority is to process extensions and renewals of certification.

The directive has six annexes that provide mandatory procedures and methodologies that need to be adopted by the type-approval authorities and manufacturers to satisfy their obligations under the directive. Annex I lists the requirements that category M₁ and N₁ vehicles must satisfy during construction. Annex II is an information document, which corresponds to applicable item numbers and footnotes set out in Annex I of Council Directive 70/156/EEC for the granting of EC type-approval. Annex III provides a model EC type-approval certificate and Annex IV a checklist for the preliminary assessment that the competent body must carry out to ensure the manufacturer has complied with the necessary procedures required by the directive. An appendix to Annex IV provides a model for the certificate of compliance. Annex V lists those component parts that are deemed to be non-reusable and Annex VI provides the amendments that must be made to Directive 70/156/EEC.

The directive excludes from its scope:

- special-purpose vehicles defined in Annex II, Point 5 of Directive 70/156/EEC;
- multi-stage-built vehicles in Category A, except for base vehicles that must comply with the directive;
- vehicles produced in small series (fewer than 500 vehicles a year in each Member State) referred to in Article 8(2) (a) of Directive 70/156/EEC.

2. Principal Obligations of Member States

2.1 Planning

- Identify which vehicles in category M₁ and N₁, whether new models or already in production, must be in accordance with the directive within the time frames set out in Article 10.
- Organise meetings with stakeholders to discuss organisational issues at the manufacturing, placing on the market and end-of-life stages of the vehicles in order to facilitate compliance and discuss the legal obligations involved.

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- Organise meetings with the public authorities involved to delineate duties in order to avoid duplication and gaps.
- Identify which public organisations shall carry out the type-approval authorisations and who may carry out regulatory and monitoring duties at various stages in the vehicles' life. Draw up memoranda of understanding between public authorities that may be involved in the process to keep bureaucracy to a minimum and to adopt, as far as possible, a one-stop-shop approach.
- Devise information campaigns in relation to the implications of the directive for consumers.

2.2 Regulation

National legislation must put into effect the amendment to Council Directive 70/156/EEC brought about by Article 8 in accordance with Annex VI of this directive and include the following obligations:

- Manufacturers must put on the market only motor vehicles, within the scope of the directive, whose components and/or materials are reusable and/or recyclable to a minimum of 85% by mass or are reusable and/or recoverable to a minimum of 95% by mass, within the time frames imposed by Article 10. The minimum thresholds for the recycling and recovery of components (new and used) and materials for new vehicles are set out in Article 7(4) of the End-of-Life Vehicles Directive (2000/53/EC).
- Manufacturers must not put on the market, as of 15 December 2006, motor vehicles that reuse component parts listed under Annex V that have been dismantled from end-of-life vehicles, since their reuse presents serious risks to road safety and environmental protection.
- Manufacturers must provide the approval authority with detailed information such that it can carry out the calculations and checks for compliance with the directive listed in Annex I.
- Manufacturers may, in the event that information is covered by intellectual property rights, supply only the information necessary to carry out such checks and calculations.
- Manufacturers shall use the model of information documented in Annex II when submitting an application for type-approval under Article 3(1) of Council Directive 70/156/EEC.
- Manufacturers shall put into place the necessary measures, arrangements and procedures, and provide the information that the approval authority deems necessary in order to carry out a preliminary assessment for compliance in accordance with Annex IV.
- Manufacturers shall formulate a strategy that consists of a large-scale plan of co-ordinated actions and technical measures that are to be carried out when dismantling, reusing component parts, recycling and recovering materials to meet with the recoverability and recyclability rates established under the directive.
- Manufacturers are to provide the approval authority with the strategy together with the documentation referred to in Annex IV when applying for a type-approval.
- Manufacturers must inform the competent body, after obtaining the compliance certificate, of any change that could affect its relevance.
- National legislation shall refer to a competent body/bodies to carry out the preliminary assessment of the manufacturer and to issue the certificate of compliance. It, or other competent authorities, may also carry out monitoring or other procedural functions under the directive.

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- The competent body is to grant type-approvals in accordance with the directive only after the manufacturer:
 - provides it with the detailed technical information necessary for the purposes of the calculations and checks referred to in Annex I;
 - presents a strategy on how to meet with the recoverability and recyclability rates established under the directive;
 - carries out a preliminary assessment based on Annex IV;
 - issues a compliance certificate in accordance with the model in the appendix to Annex IV valid for not less than two years.
- After two years, the competent authority shall be responsible for making new checks to verify the manufacturer's compliance certificate and may either extend it or, where significant changes have been made, issue a new certificate.

2.3 Monitoring

- The competent body shall carry out checks on components and materials based on standard ISO 22628: 2002 developed by the International Standards Organisation.
- The competent body shall comply with standard EN 45012: 1989 or ISO/IEC Guide 62: 1996 on the general criteria for certification bodies operating quality system certification as regards the management systems implemented by the manufacturer.

National legislation must provide for the following monitoring obligations on the part of the competent body:

- When the manufacturer submits an application for type-approval in accordance with Directive 70/156/EEC the competent body shall ensure that the manufacturer provides the correct and valid information required under the directive.
- The competent body shall check the information provided by the manufacturer further to Annex I and II and, when carrying out the preliminary assessment.
- The competent body shall ensure that the strategy presented by the manufacturer for achieving the recoverability and recyclability rates established under the directive is operable.
- The competent body shall ensure that vehicles do not have any non-reusable component parts listed in Annex V after 15 December 2006. The competent body shall ensure that the materials used for the construction of a vehicle type comply with Article 4(2)(a) of the End-of-Life Vehicles Directive (2000/53/EC).
- The competent body shall monitor and verify any changes relating to the certificate of compliance to ensure that it remains valid, or shall effect any necessary changes/renewals.
- As of 15 December 2008, the competent body shall monitor vehicles falling within the scope of the directive to ensure that those that do not comply with its requirements cannot be granted an EC type-approval and national type-approval.
- As of 15 July 2010, the competent body shall monitor certificates of conformity that accompany new vehicles falling within the scope of the directive and, if not in conformity with this directive, they shall no longer be deemed to be in possession of a valid certificate of conformity. The competent body shall ensure that such vehicles cannot be registered or sold and cannot enter into service unless they are exempt under the directive or where Article 8(2)(b) of Directive 70/156/EEC applies.

2.4 Reporting

- Competent authorities must be endowed with the necessary capacity to fulfil, within the appropriate time frames and on a permanent basis, any reporting requirements to the Commission in relation to this directive.
- Competent authorities must, however, provide for legal instruments that render obligatory reporting/the providing of information to the public both upon request and also at regular intervals such as, for example, in state of the environment reports.
- The competent authorities must be in a position to provide upon request information to the public and to the Commission about the implementation rules adopted.

2.5 Additional Legal Requirements.

Directive 2005/64/EC supplements and is related to the following additional legal instruments:

- Directive 2000/53/EC of the European Parliament and of the Council of 18 September 2000 on end-of-life vehicles
- Council Directive 75/442/EEC of 15 July 1975, the Waste Framework Directive
- Council Directive 70/156/EEC of 6 February 1970 on the approximation of the laws of Member States relating to the type-approval of motor vehicles and their trailers
- Council Directive 67/548/EEC of 27 June 1967 on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances

3. Implementation

3.1 Key Tasks

The key tasks involved in implementing this directive are summarised in the checklist below. The tasks are arranged under subheadings and organised in chronological order of implementation wherever possible.

1. Planning
1.1 Identify any logistical, administrative and regulatory requirements so that M ₁ and N ₁ vehicles, whether new models or already in production, would be in accordance with the directive within the time frames set out in Article 10.
1.2 Organise meetings with stakeholders and public authorities to delineate duties, and facilitate compliance.
1.3 Devise information campaigns related to the implications of the directive for consumers.
1.4 Competent authorities should assess capacity-building requirements for processing applications and issuing permits, provide information to the public in accordance with the directive, and ensure regular monitoring and enforcement.
2. Regulation
2.1 The transposition of this directive must include the amendment to Council Directive 70/156/EEC effected by Article 8 in accordance with Annex VI of this directive.
2.2 Manufacturers are to put on the market motor vehicles, within the scope of the directive, whose components and/or materials are reusable and/or recyclable to a minimum of 85% by mass or are reusable and/or recoverable to a minimum of 95% by mass, within the time

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frames imposed by Article 10.

2.3 Manufacturers must not put on the market, as of 15 December 2006, motor vehicles that reuse component parts listed under Annex V that have been dismantled from end-of-life vehicles, since their reuse presents serious risks to road safety and environmental protection.

2.4 When submitting an application for type-approval, manufacturers must provide the authority with detailed information in accordance with the directive, as well as formulate a strategy regarding the reuse of component parts and the recycling and recovery of materials to meet with the targets in the directive so that the authority can carry out a preliminary assessment.

2.5 If it is satisfied with the preliminary assessment, the authority must issue a compliance certificate in accordance with the model in the appendix to Annex IV valid for not less than two years, and must continue to verify the validity of the certificate thereafter.

3. Training and Capacity Building

3.1 Prepare and publish guidelines explaining the manufacturer's duties and the right of members of the public to be kept informed.

3.2 Provide technical training to officers in public authorities involved in monitoring compliance so as to facilitate compliance and a good organisational set-up. Train a selected group to ensure quality control of data submitted from manufacturers. Also provide training in communication skills for officers who will handle public requests and queries. And further, provide information to stakeholders, including those representing the relevant competent authorities. Training should also be provided in internal management processes.

4. Reporting

4.1 Provide information at regular intervals on a national level and set up an infrastructure to handle demands upon request by the public or public authorities.

4.2 Set up the necessary infrastructure to report to the Commission any information in accordance with the directive, including:

- the experience gained in implementing the directive;
- measures taken to comply with the directive;
- transposition;
- obstacles encountered in implementing the directive.

4.3 Given the importance of good co-ordination amongst public authorities to implement this directive, consider the appointment of one contact point responsible for co-ordination supported by a co-ordination structure.

3.2 Phasing Considerations

Candidate countries are likely already to have in place a public authority responsible for national or EC type-approval for motor vehicles that are placed on the market. To implement this directive, a candidate country needs to introduce, within this set-up, another consideration relating to the reusability, recyclability and recoverability of the components and materials in the manufacturing of motor vehicles. Type-approvals must be supplemented by the obligations of this directive, as it amends Directive 70/156/EEC and supplements Directive 2000/53/EC on end-of-life vehicles. This is likely to require the training of officers within the authority responsible for type-approval, making them conversant with the measures required to achieve the recoverability and recyclability targets imposed by the directive.

The competent authority/ies may not need much time to transpose the directive, but before this can be done the national authorities need to ensure the necessary capacity building both logistically and in terms of human resources. Considerable time needs to be spent to ensure that

stakeholders are well aware of the legal implications of the directive and a road map could be agreed upon by the manufacturers and the authorities in order to work out a plan that ensures that time frames will be respected. In some countries, the authorities might impose the obligations under this directive upon suppliers, since the car manufacturing industry may not be present. This would still entail the need for discussions with these stakeholders in order to estimate the soundness, feasibility and cost-effectiveness of the obligations. Consumers should also be kept informed regarding the implications of the directive and its implementation progress.

Candidate countries need to acquire expertise in the verification of information provided by the manufacturers when carrying out the preliminary assessment and when granting the compliance certificate, as well as when verifying the validity of the manufacturer's strategy and the certificate's validity over time. Competent authorities must train experts to assess whether measures recommended by the manufacturer for recycling and reuse or for the recovery of components at the end of the vehicle's life are appropriate in order to eliminate, as far as possible, or to prevent, risks to the environment and to ensure road safety. Similarly, monitoring compliance requires experts to assess quality control. Other major tasks that are likely to be time-consuming involve the vetting of documentation, including the strategy submitted by the manufacturer, and the setting up of co-ordinating services to facilitate reporting, the exchange of information and data sharing at the national and EU level.

The nature of the directive involves the need also to assess the socio-economic impacts that the obligations on consumers and manufacturers may have at a national level. It is recommended that, although there may be various competent authorities at the regional and local level, there should be one authority responsible for co-ordination and reporting to the Commission. The directive provides specific time frames for compliance by Member States in Article 10, which sets specific time frames for compliance.

4. Implementation Guide

4.1 General

During the transposition phase, careful consideration must be given to a number of legal and organisational issues in order to ensure compliance and better co-ordination. Legal issues that need to be addressed, given the nature of the obligations of the directive, include: principles of confidentiality, conditions under which to justify the withholding of information on the grounds of intellectual property rights, the legal duties and responsibilities of competent authorities involved in carrying out type-approval, compliance monitoring, and the management and verification of information. Training officers within all the authorities involved in the implementation of the directive is essential, both for compliance purposes and in the interests of good governance. The administrative requirements laid down should strike an appropriate balance between, on the one hand, the administrative burden falling on manufacturers applying for a type-approval compliance certificate and the authorities in granting or refusing it; and, on the other hand, the administrative burden involved in meeting the necessary targets set for motor vehicle components, which give rise to better management in terms of environmental protection and road accident prevention. The vetting of applications and strategies and the carrying out of preliminary assessments, as well as the verification of compatibility certificates and their applicability over the passage of time, requires specific expertise.

4.2 Regulation

The definitions of the directive must be carefully transposed and abided by, in order to ensure compliance with the directive. Apart from the specific obligations in the substantive text of the directive, special attention must be given to the annexes that set out the legal obligations of Member States in respect to the information that must be communicated, the conditions for the

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reusability of the components, and the criteria for eligibility for certification. Article 2 sets out the scope of the directive, also listing the type of vehicles to which the directive applies; and Article 3 lists the exemptions. The directive provides models of EC type-approval certificates and of the certificate of compliance. The directive sets out specific conditions under which competent authorities may proceed with issuing a certificate. The directive leaves very little discretion to Member States in transposing the directive into national legislation, particularly with respect to the provision of information on the part of the manufacturers. In the event that it is considered inappropriate to include certain measures in a legal instrument because of their predominantly administrative nature, it is recommended that memoranda of understanding be drawn up to ensure smooth and uniform implementation. Transparency is of vital importance and the competent authority/ies, as the regulator, must keep the stakeholders and the general public informed on a regular basis. Any limitations to access and any derogations on any grounds must be interpreted in a very strict manner.

Example of Transposition in a Member State (MT)

It is essential to explain the context within which this directive exists. Within Europe, two systems of type-approval have been in existence for over 20 years. One is based around EC directives and provides for the approval of whole vehicles, vehicle systems and separate components. The other is based around ECE (United Nations) regulations and provides for the approval of vehicle systems and separate components, but not whole vehicles. The EC Whole Vehicle Type-Approval (WVTA) system has applied, on a mandatory basis, to passenger cars since January 1998. As a result, these categories of vehicles must comply with all the relevant European type-approval directives in order to be placed on the market.

Automotive EC directives and ECE regulations require third-party approval – testing, certification and production conformity assessment by an independent body. Each Member State is required to appoint an approval authority to issue the approvals and a technical service (which could be a third party) to carry out the testing to the standards set down in the directives and regulations. An approval issued by one authority will be accepted in all the Member States.

Malta has transposed this directive by reference. The Product Safety Act Cap. 427 of the Laws of Malta enables the Malta Standards Authority to make a legal reference establishing that the text of a directive is part of Maltese law when the content of the directive is highly technical, but in order to comply with this directive Maltese legislation had to set up a type-approval authority. The Product Safety Act designated the Consumer and Industrial Goods Directorate (CIGD) of the Malta Standards Authority as the Maltese type-approval authority in 2007.

As the Maltese type-approval authority for motor vehicles, the CIGD-MSA is both legally and administratively responsible under both the EU and UN-ECE type-approval schemes. It is the type-approval authority, therefore, which ensures that all forms of type-approvals, including those of reusability, recyclability and recoverability of motor vehicles, fall under its scrutiny for testing. It is the authority that carries out the technical services for type-approvals and that sends the test reports to an independent accreditation authority.

The CIGD-MSA acts as the technical advisory arm of the Ministry for Competitiveness and Communications (MCMP) and of other government entities for all matters related to the free movement and safety of motor vehicles. The role of the CIGD-MSA as a type-approval authority is that of the Maltese “regulator” in the sector of vehicle type-approvals. Operations in the field of the testing, inspection and certification of vehicles is in the hands of third parties that need to be assessed and notified by it according to EC law. The role of the CIGD-MSA involves the granting of type-approvals based on the sound technical analysis of technical-test reports, prepared by a recognised European-designated technical service. It designates and gives notification of technical services (i.e. third-party testing laboratories, inspection facilities, certification) to the Commission and to the approval authorities of other EU Member States. It verifies the conformity of manufacturers’ production arrangements and ensures that necessary measures are taken in accordance with the applicable directives/regulations. It serves as an active contact point with the approval authorities of other EU Member States and UN-ECE contracting parties.

4.3 Monitoring

The primary competent authority for implementing this directive is usually the ministry of environment, or environmental protection agency, or even the authority responsible for standardisation. It might also be the ministry responsible for transport. It is also possible for all of these authorities to be involved, since although the standards authority would be responsible for type-approval certification, other authorities could be responsible for monitoring compliance and enforcement. Sub-national competent authority participation, however, will often be vital, since accountability and everyday communications with stakeholders will also almost inevitably occur at the sub-national level. At the central government level, other competent authorities involved may include government ministries for trade, industry and enterprise. Other types of national bodies that may have regulatory powers and provide related services include environmental protection agencies, federations of industries, and trading and commercial bodies. At the regional and local level, monitoring may be carried out by sub-national or local environmental inspectorates or environment agency offices, local transport authorities, local planning authorities and municipalities.

Although the lead ministry or the focal point for the purposes of the directive may be the ministry responsible for standards/standardisation, the environmental agency would have the necessary regulatory and monitoring powers. Where more than one public authority is involved, a one-stop shop for manufacturers and users is recommended. However, ultimately there needs to be one authority that has overall responsibility.

Competent authorities are responsible for:

- compliance with legal requirements for the granting of preliminary assessment and compliance certificates for type-approvals;
- verification of the contents of the information and the strategy submitted by the manufacturer;
- ensuring that certain components, as listed in Annex V, are not reused in motor vehicles;
- ensuring that manufacturers meet with the targets set by the directive;
- verifying that the certificate can be extended or that it may be required to be renewed to take into consideration changes in the manufacturer's plans regarding recyclability and recoverability;
- assessment tools for quality control and regular inspections to ensure manufacturers' compliance with the conditions imposed by the directive;
- public participation and information;
- reporting to the Commission.

4.4 Enforcement

The directive does not obligate Member States to include penalties in the national legislation transposing this directive. However, it prohibits vehicles from being placed on the market if they are not in compliance with the conditions stipulated in the directive within the set time frames. Any breach of this obligation may entail sanctions imposed by the ECJ or the Commission.

5. Costs

A Member State must build the necessary technical and administrative infrastructure to enable it fully to perform its (motor vehicle) type-approval functions towards the full implementation of this part of the *acquis*. Member States must invest in a management system as well as in providing

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training for staff to enable them to process applications for EC WVTA. The costs borne by the manufacturer and importer would be for testing, but since testing is carried out by private companies the costs are difficult to estimate. Type-approvals are carried out on a cost-recovery basis.

Directive on Port Reception Facilities for Ship Waste and Cargo Residues

Official Title: Directive 2000/59/EC of the European Parliament and of the Council of 27 November 2000 on port reception facilities for ship-generated waste and cargo residues (OJ L 332 of 28 December 2000, page 81), as amended by Commission Directive 2007/71/EC of 13 December 2007 amending Annex II of Directive 2000/59/EC of the European Parliament and the Council on port reception facilities for ship-generated waste and cargo residues (OJ L 329, 14.12.2007)

1. Summary of Main Aims and Provisions

The purpose of the directive is to reduce discharges of ship-generated waste and cargo residues into the sea. This is achieved by obliging ports to establish adequate reception facilities and to require that ships use these facilities.

The directive complements other measures aimed at reducing the pollution of the seas and thereby protecting the marine environment. Such measures on the part of the EC were triggered, in particular, by numerous shipping disasters in or near the waters of Member States. One example in this respect is the EC directive on port state control. It concerns the harmonisation of the rules and procedures for state inspections of ports, including criteria for the detention of ships.

The main elements of the present directive are the requirements for ships to provide notification, prior to their entry into port, of whether they will discharge waste (and, if so, the types and quantities of waste), and to deliver their waste to port reception facilities before leaving port. A mandatory fee is to be collected from ships in respect of the costs of port reception facilities for ship-generated waste.

The directive implements recent protocols to the International Maritime Organisation (IMO) 1973 Convention for the Prevention of Pollution from Ships, more specifically Marpol 73/78, which has been ratified by all Member States. The protocols regulate what wastes can be discharged from ships into the marine environment and requires the provision of adequate reception facilities in ports.

The directive is based on Article 80(2) of the EC Treaty. It is a provision in the transport chapter of the EC Treaty allowing the regulation of sea and air transport in accordance with the general principles applying to the normal areas of EC transport policy, namely rail, road and inland waterways.

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The deadline for transposition was 28 December 2002, subject to a 12-month delay after the entry into force of Annex IV to the Marpol Convention of 1973, as modified by the 1978 Protocol for Sewage covered by Article 2(c) of the directive.

The protocol deals with the prevention of pollution by sewage from ships and Article 16 of Directive 2000/59/EC provides that the implementation of the directive, as regards sewage, will be suspended for 12 months after the entry into force of Annex IV to Marpol.

Article 6 of Directive 2000/59 obliges the master of a ship bound for a port located in the Community to complete the form in Annex II of the directive and to notify the information to the authority or body designated by the Member State in which the port is located. As Annex II did not refer to sewage, it had to be amended to include sewage as an additional type of waste to be notified before entry into the port. The provisions of the directive as regards sewage had to be set in line with Marpol Annex IV regulations specifying the responsibility for discharging sewage at sea. This, in turn, led to the necessity of setting more stringent delivery requirements for ships, adopted in accordance with international law.

All the above reasons led to the adoption of the new Directive 2007/71/EC amending Annex II of Directive 2000/59/EC. Directive 2007/72/EC provided a new form in Annex II to be completed, including information on sewage and allowing it to be discharged into the sea in accordance with Regulation 11 of Annex IV of Marpol. However, if it is intended to make an authorised discharge at sea, the corresponding boxes do not need to be completed. The directive requires that the Member States adopt and bring into force any laws, regulations and administrative provisions necessary to comply with the directive by 15 June 2009 at the latest. The main provisions of the adopted acts should then be communicated to the Commission.

2. Principal Obligations of Member States

2.1 Planning

- Ensure the availability of adequate port facilities for the reception of ship-generated waste and cargo residues (Art. 4).
- Establish procedures for reporting to the port state alleged inadequacies of port reception facilities (Art. 4).
- Take all necessary measures to prevent marine pollution in cases where there is a risk that waste will be discharged at sea (Art. 7).
- Evaluate and approve the waste reception and handling plans, monitor their implementation and ensure their re-approval (Art. 5).
- Ensure that the relevant authorities have the power to prevent ships from leaving ports until ship-generated waste and cargo residue have been delivered to a port reception facility (Art. 11).
- Ensure that relevant authorities have the power to inspect ships (Art. 11).

2.2 Regulation

- Develop and implement a plan for waste reception and handling for each port (Art. 5).
- Impose an obligation on the master of a ship to notify the competent authority in advance concerning delivery of waste and residues (Art. 6 and Annex II).
- Impose an obligation on the master of a ship to deliver all ship-generated waste to a port reception facility before leaving the port, save where it has been demonstrated, by the provision of information required under Article 6 and Annex II, that there is sufficient dedicated storage capacity (Art. 7).

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- Collect fees from ships as part of a cost recovery system for using port reception facilities (Art. 8).
- It is possible to exempt ships from the obligations concerning advance notification, waste delivery and fees when the ship is engaged in scheduled traffic (ferries etc.) and where there are no alternatives to deliver the waste along the route (Art. 9).
- Impose an obligation on the master of a ship to deliver cargo residues to a port reception facility and to pay the fee, in cases where a delivery is made and thus a fee is to be charged (Art. 10).
- Impose an obligation on the master of a ship bound for a port located in the Community to complete the amended form in Annex II of the directive regarding sewage, and to notify the information to the authority or body designated by the Member State in which the port is located.
- Ensure that normal national rules allow any party involved in the delivery or reception of ship-generated waste/cargo residues the right to claim compensation for undue delay (Art. 12).
- Lay down a system of penalties for breaches of the rules of the directive (Art. 13).

2.3 Reporting

- Supply the Commission with information on approved cases for exemption from Articles 6, 7 and 8 for ships engaged in scheduled traffic with frequent and regular port calls (Art. 9).
- Supply the Commission with copies of allegations of inadequate port reception facilities (see Art. 4.3) (Art.12. 1 (f)).

2.4 Additional Legal Instruments

- Directive 2006/12/EC on waste
- Directive 2002/96/EC on waste electronic and electrical equipment
- Directive 75/439/EEC on the disposal of waste oils, as amended by Council Directive 87/101/EEC
- Directive 91/689/EEC on hazardous waste, as amended by Council Directive 94/31/EC
- Regulation (EC) No. 1013/2006 of the European Parliament and of the Council of 14 June 2006 on shipments of waste, as amended by Regulation No. 1379/2007
- Regulation (EEC) 761/2001 on the Community eco-management and audit scheme (EMAS), as amended by Commission Regulation (EC) No. 196/2006 (see Section 7 of the Handbook)
- Directive 95/21/EC concerning the enforcement of port state control
- 97/640/EC: Council Decision on the approval, on behalf of the Community, of the amendment to the Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal (Basel Convention), as laid down in Decision III/1 of the Conference of the Parties

3. Implementation

3.1 Key Tasks

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The key tasks involved in implementing this directive are summarised in the following checklist, organised in chronological order (where possible) within each subheading.

3.1.1 Institutional organisation

Appoint a competent authority or authorities. Responsibilities would include:

- evaluating and approving waste reception and handling plans;
- monitoring the implementation of the plans;
- ensuring that an appropriate fee system for port reception facilities is implemented;
- administering exemptions for ships in scheduled traffic;
- following up on complaints regarding allegedly insufficient port reception facilities in respect of ports under their supervision or the supervision of equivalent authorities in other countries;
- carrying out inspections of ships and of ports;
- developing and implementing information and advisory facilities to ensure that all those concerned are aware of the requirements relating to the delivery of ship-generated waste/cargo residues;
- developing procedures and means of communication with equivalent authorities in other Member States and with individual ports and masters/owners of ships.

3.1.2 Planning and implementation of plans

- Decide who should bear direct responsibility for providing port reception facilities and for maintaining such facilities in each individual port, including the development of waste reception and handling plans.
- Establish format and guidelines for drawing up waste reception and handling plans.
- Establish a methodology for the assessment of existing port reception facilities to determine what additional infrastructure (type and capacity) is needed to fulfil the requirements of the directive.
- Establish procedures for the submission and approval of waste reception and handling plans.
- Determine the type of interested parties (national/local organisations and authorities etc.) that need to be consulted in connection with each plan.
- Determine the procedures and means for enforcing the inspection of ships and, if necessary, for preventing ships from leaving ports.

3.1.3 Regulation

- Determine the procedure to be used by ships to notify ports of call in advance.
- Lay down the methodology for calculating fees and the procedures for fee collection, including whether the fee can be part of the normal fee for using a port.

3.1.4 Reporting and monitoring

- Ensure that the Commission is supplied with information on approved cases for exemption from Articles 6, 7 and 8 for ships engaged in scheduled traffic with frequent and regular port calls (Art. 9).

- Ensure that the Commission is supplied with copies of allegations of inadequate port reception facilities (see Art. 4.3) (Art. 12.1(f)).

3.2 Phasing Considerations

It will be necessary from the outset to establish an inventory of existing facilities in ports covered by the directive. Port authorities will need to be sufficiently informed about the technical and procedural requirements. Essentially, a system of dialogue involving passing ships, shipping agents, as well as port authorities, must be established and this can be done in many ways.

It is only when clarity on these issues, in particular, has been established that the actual elaboration of the detailed rules can take place.

4. Implementation Guidance

Information to Arriving Ships

It is important from the perspective of effective implementation that ships have easy access to information about port facilities. For this purpose the Danish Environmental Agency, for example, has established a special Internet-based information system. This system provides information about reception facilities on a transparent basis, which enables the ports to promote their services and enables ships to identify adequate reception facilities meeting their actual demands. Such information can be retrieved either for a specific port or for a specific type of ship waste.

Where a ship is intending to call at a port, the waste management capacities of that particular port can be checked, including information on handling fees, opening hours, notification terms and conditions, with a direct link to a mail address and home page of the port. The website also contains the form to be used for notifying the Danish environmental authorities in cases where port facilities are allegedly insufficient.

- Fee structure. The directive allows fairly wide discretion as to the choice of fee structure. However, the directive requires that the fee must not, because of its size or otherwise, provide any incentive for dumping waste into the sea. This might, for example, be the case if the fee is wholly dependent on the actual use of the facilities, so that ships with a large amount of waste pay significantly more than ships carrying less waste, or where the level of the fee is excessive for the facilities being used.

Example from a Member State

The Danish rules require that the fee be included in the overall standard fee for using the port. In other words, the fee cannot be made dependent on the amount or type of waste delivered. Separate fees are allowed, for example, if the amount and type of waste is abnormal for ships of the size and category in question; if the waste delivery takes place outside normal working hours; or if prior notification of arrival has not been given. A separate fee can also be levied if the ship does not have the required technical equipment, such as pumps.

- Prior notification. For effective implementation, it is important that there is a clear and uncomplicated notification procedure concerning types/amounts of waste. First of all, the notification should be sent to the port authorities, allowing them to make the necessary preparations. It will then be the responsibility of the port to forward the notification to any other eventual parties, such as the national/regional environmental agency. In practical terms, the required notification could be made subject to procedures for communications identical to those already in place regarding requests for berthing and piloting.

5. Costs

The main areas of expense lie in upgrading port facilities and in setting up the necessary notification systems and information facilities.

Waste Incineration Directive

Official Title: Directive 2000/76/EC of the European Parliament and the Council of 4 December 2000 on the incineration of waste (Official Journal L 332, 28.12.2000)

1. Summary of Main Aims and Provisions

The Waste Incineration Directive (2000/76/EC, hereafter WID) is adopted on the basis of Article 175 (1) of the EC Treaty. This provision concerns the strengthening of environmental protection exclusively. There are no elements of market integration, save for the interest in establishing uniform operating conditions in order to prevent distortions of competition. This also means that Member States are not excluded from setting or maintaining rules that are stricter than those in the directive, provided that such measures are otherwise compatible with the EC Treaty. The WID is a so-called minimum harmonisation directive.

The WID repeals the municipal waste incineration directives (89/429/EEC and 89/369/EEC), as it introduces more stringent rules and provides a common framework for the incineration of both municipal and hazardous waste, the latter previously covered by the Hazardous Waste Incineration Directive (94/67/EC). The WID thus consolidates the previous and new rules on the incineration of waste into one single piece of EC legislation, aiming at improving legal clarity and enforceability. The WID repealed the Hazardous Waste Incineration Directive (94/67/EC) in 2005.

The directive covers virtually all waste incineration and co-incineration plants, going beyond the plants previously covered by the incineration directives. One reason is that, by setting strict rules for all plants incinerating or co-incinerating waste, the transboundary movements of waste to plants operating with lower costs as a result of less stringent environmental standards are largely avoided. Hazardous and non-hazardous wastes differ in terms of waste properties rather than in terms of emissions. Hence the WID introduces the same emission limit values for these types of wastes, although it prescribes different techniques and conditions for the incineration or co-incineration of hazardous and non-hazardous waste, as well as for monitoring measures. Additionally, it also replaced Article 8(1) and the annex to the Waste Oils Directive (75/439/EEC), thus extending the scope of incineration controls to cover the burning of waste oils, with effect from 28 December 2005. Although the WID does not currently cover the incineration and co-incineration of animal waste, the Commission intends to revise Directive 90/667/EEC and possibly propose that the rules of the WID apply also to animal waste.

The directive aims at preventing or limiting as far as possible negative effects on the environment (emissions into air, soil and water) from the incineration of both hazardous and non-hazardous waste, by way of establishing stringent operational conditions and emission limit values. The directive covers waste incineration plants as well as other “co-incineration” plants whose main purpose is to produce energy or products as long as they use waste as fuel. Types of waste excluded from the scope of the directive include, among others, waste from the food processing industry if the generated waste is recovered, animal waste, wood waste, waste from

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paper and pulp production if co-incinerated at the place of production, and the recovered heat generated. The aim of the WID is also to implement the international obligations entered into by the Community through the signing of protocols in 1998 in the context of the United Nations Economic Commission Convention on Atmospheric Pollution. These obligations concern limit values for emissions of dioxins, mercury and dusts arising from waste incineration.

The WID lays down air emission limit values for a range of parameters to air and water. It sets requirements for operating conditions, including gas residence time and temperature. It regulates water discharges from cleaning exhaust gases, ash recycling, plant control and monitoring, and public access to information. The directive also requires all incinerators and co-incinerators to have continuous monitoring of certain pollutants.

The WID is closely linked to various directives aiming at improving the quality of ambient air, notably Directive 96/62/EC on ambient air quality assessment and management; Directive 1999/30/EC on limit values for sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead in ambient air; and Directive 2004/107/EC relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air. Installations for the incineration of municipal waste with a capacity exceeding three tonnes per hour and installations for the disposal or recovery of hazardous waste with a capacity exceeding 10 tonnes per day are covered by the IPPC Directive (2008/1/EC), requiring integrated permit and control measures. Furthermore, the permit for an incineration or co-incineration plant also has to take into account the applicable requirements set out in Directive 91/271/EEC on urban wastewater treatment; Directive 1999/31/EC on the landfilling of waste; and Directive 2006/11/EC on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community. In regard to the IPPC Directive, it is important to note that the Commission adopted a draft directive on industrial emissions in December 2007, which will recast and consolidate seven directives into one single legislative framework. The directives concerned are: the IPPC Directive, the Large Combustion Plants Directive, the Waste Incineration Directive, the Solvents Emissions Directive and three directives on titanium dioxide. The IPPC review brings the waste sector more tightly under the IPPC regime.

The draft directive will lead to significant benefits to the environment and human health by reducing harmful industrial emissions across the EU, in particular through better application of BAT. It introduces minimum provisions covering the inspection of industrial installations, the review of permits and reporting on compliance, and the protection of soil will be introduced with consequent environmental improvements.

2. Principal Obligations of Member States

2.1 Planning

- Ensure that the permit application procedure conforms to Article 4 of the WID and that the application contains all the necessary information, including a description of measures to be taken to ensure that the plant is designed, equipped and operated in accordance with the provisions of the WID; that the heat is, where possible, recovered through combined heat and power; that the amount of residues is minimised, especially through recycling; and that residues are disposed of in accordance with relevant EC legislation. Permits shall not be granted unless the proposed measurement techniques for emissions into air and water comply with Annex III (Art. 4(2,3)).
- Ensure that the implementation of the WID is closely co-ordinated with other permit and monitoring schemes, including, notably, 2008/1/EC (IPPC) and 85/337/EEC on EIA (and see also the SEA Directive 2001/42/EC on the assessment of certain plans and programmes).
- Ensure co-ordination with the implementation measures under directives establishing emission limit values for certain pollutants, i.e. Directive 1999/30/EC on limit values for

sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead in ambient air and Directive 2004/107/EC relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air.

- Endeavour to take an integrated approach to monitoring and reporting obligations arising from various sectoral legislation, including the Regulation on the European Pollutant Release and Transfer Register (No. 166/2006); the decision on the waste questionnaire (e.g. under the Directive on End-of-Life Vehicles); and the Access to Environmental Information Directive (2003/4/EC).
- Ensure that the permit for an incineration or co-incineration plant takes into account the applicable requirements established in Directive 91/271/EEC on urban wastewater treatment, Directive 1999/31/EC on the landfilling of waste, and Directive 2006/11/EC on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community.
- Determine the extent to which the following possibilities of the WID should be exploited, and how:
 - Exemptions for certain plants as regards combustion temperatures and residence times (Art.6).
 - Emission limits for polycyclic aromatic hydrocarbons (PAHs) and other pollutants (Art. 7).
 - Whether to specify measurement requirements in the conditions of the permit or by legislation (Art. 11(1)).
 - Reduction of the frequency of periodic measurements for heavy metals in the permit from twice a year to once a year where emissions are below 50% of the emission limit values (Art. 11(7)).

2.2 Regulation and Monitoring

- Prohibit the operation of a plant without a permit specifying categories and quantities of waste and documenting that the plant fulfils various requirements concerning design, equipment, heat recovery, treatment of residues and emission measurements (Art.4).
- Ensure that permits:
 - list the categories of waste that may be treated, in accordance with the categories set out in the European Waste Catalogue;
 - refer to the total incineration capacity of the plant;
 - specify the sampling and measurement procedures;
 - list the quantities of different hazardous wastes that may be treated (if applicable);
 - specify the minimum and maximum mass flows of hazardous wastes, the calorific values and the maximum contents of pollutants (Art. 4(4,5));
 - specify the measurement requirements to monitor the incineration process;
 - lay down the maximum permissible period of stoppages, disturbances or failures of the purification or measurement devices.
- Ensure that permits are reviewed and updated periodically and that permits are revised in case of substantial changes in operation (e.g. quantities and types of waste incinerated) (Art. 4(7)).
- Lay down a general obligation for operators to prevent negative environmental effects, and, more specifically, to require in advance specific information on the nature of

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incoming waste and to require that operators have in place certain procedures for the reception of waste, including the checking of documents and the taking of representative samples prior to unloading (Art. 5).

- Lay down specific/technical requirements on design and operation, for example specific minimum temperatures for combustion gases and a requirement concerning the recovery of the heat generated by the incineration process. Consider whether to apply the possibility for national authorities in individual cases to deviate from these processing requirements, provided that this does not conflict with the ultimate environmental targets of the directive (Art. 6).
- Require operators to design, equip, build and operate the incineration plant in such a way as to ensure that exhaust gas does not exceed the emission limit values laid down in Annex V (concerning, for example, heavy metals, dioxins and furans, carbon monoxide and dust). In terms of co-incineration plants, the less stringent limit values in Annex II apply unless the predominant type of waste incinerated is hazardous waste. Consider whether to apply the possibility for national authorities to set similar limits for polycyclic aromatic hydrocarbons or other pollutants (Art. 7).
- Ensure that measurements taken to verify compliance with emission limit values are standardised in accordance with Article 11.
- Require a special permit to discharge wastewater from cleaning exhaust gases, which establishes emission limit values for the pollutants referred to in Annex IV and sets operational control parameters for pH, temperature and flow (Art. 8).
- Ensure that wastewater discharges are:
 - in accordance with the emission limit values set out in the wastewater permit and are in line with other relevant emission limit values established by EU, national and local provisions;
 - measured at the point where wastewater from the cleaning of exhaust gases is discharged;
 - not diluted for the purposes of complying with the emission limit values (Art. 8).
- Require operators to minimise residues resulting from incineration; to ensure that such residues are recycled; to prevent the dispersal of dry residues, especially during storage or transportation; and to determine the physical and chemical characteristics of residues for the purposes of handling residues in the most environmentally safe way (Art. 9).
- Oblige operators to install measurement equipment and use techniques to monitor the incineration or co-incineration process. This equipment must be controlled annually and calibrated every third year (Art. 10).
- Ensure that measurement requirements are specified either in a permit or in general binding rules and that they are fully complied with, including: mandatory measurements of air pollutants in accordance with Annex III; verification of residence time, minimum temperature and oxygen content of exhaust gases; standardisation of measurement results and of the recording, processing and presentation of measurement results; the conditions for achieving full compliance with the limit values; and the carrying out of measurements at the point of wastewater discharge (Art. 11).
- Ensure that operators take all necessary measures to reduce the number of stoppages and, in the case of breakdown, that the operator reduces or closes down operations until normal operations can be restored. The maximum uninterrupted period during which emission limit values may be exceeded due to unavoidable stoppages, disturbances or failure of the purification devices is four hours (Art. 13).

- Establish a system of enforcement and suitable sanctions to ensure implementation in practice of the directive and in particular with the conditions of the permit (Arts. 4(9) and 19).
- Ensure that installations incinerating municipal waste with a capacity exceeding three tonnes per hour and installations for the disposal or recovery of hazardous waste with a capacity exceeding 10 tonnes per day meet all the requirements set out in the IPPC Directive.

2.3 Reporting and Information

- Report to the Commission on the implementation of the WID (the first report covered the period 2003 to 2005), in accordance with the relevant questionnaire (Art. 15).
- Applications for new permits must be made accessible to the public, so that the public may comment before the competent authority reaches a decision (Art. 12(1)).
- For a plant with a nominal capacity of two tonnes or more per hour, the operator must provide the competent authority with an annual report on the functioning and monitoring of the plant, to be made available to the public. A list of plants with a nominal capacity of less than two tonnes per hour must be drawn up by the competent authority and made available to the public (Art. 12(2)).

2.4 Additional Legal Instruments

A number of other legislative instruments have relevance to the incineration of municipal wastes and must also be borne in mind during the implementation of these directives. In particular, there are strong connections with the air sector. Relevant legal acts include:

- Waste Framework Directive (2006/12/EC)
- Waste Oils Directive (75/439/EEC)
- Directive on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community (2006/11/EC) (see Section 5 of the Handbook)
- Hazardous Waste Directive (91/689/EEC)
- Integrated Pollution Prevention and Control (IPPC) Directive (2008/1/EC) (see Section 7 of the Handbook)
- Air Quality Framework Directive (96/62/EC) (see Section 3 of the Handbook)
- Environmental Impact Assessment Directive (85/337/EEC, as amended)
- SEA Directive on assessment of certain plans and programmes (2001/42/EC) and Directive 2003/35/EC on public participation and access to justice (see Section 2 of the Handbook)
- Directive on limit values for air pollutants (99/30/EC) (see Section 3 of the Handbook)
- Directive 1999/30/EC on limit values for sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead in ambient air
- Directive 2004/107/EC relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air
- Landfill Directive (99/31/EC)
- Regulation on the European Pollutant Release and Transfer Register (No. 166/2006)
- Directive on end-of-life vehicles (2000/53/EC) regarding the treatment of components containing heavy metals

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- Access to Environmental Information Directive (2003/4/EC)

3. Implementation

THE WASTE INCINERATION DIRECTIVE KEY IMPLEMENTATION TASKS	
1	Administrative Arrangements
1.1	Establish the competent authority (or authorities) for permitting and inspection, as required under the Waste Framework and IPPC Directives (2006/12/EC and 2008/1/EC).
2	Regulation and Monitoring
2.1	Classify incinerators in terms of their nominal capacity.
2.2	Establish, if considered appropriate, emission limit values for pollutants other than those specified in the directive.
2.3	Introduce controls (including permits) on the co-incineration of hazardous waste in plants not intended primarily for the incineration of hazardous wastes.
2.4	Introduce controls to cover environmental impacts other than those set out in the directive to deal with air pollution. These would cover, <i>inter alia</i> , wastewater discharges, waste residues and heat recovery.
2.5	Set up a system for monitoring and inspections of hazardous waste incinerators to ensure compliance with permits. The system would set minimum sampling frequencies; and the requirement on operators to monitor emissions and notify competent authorities in the event of non-compliance with permit conditions.
2.6	Set rules and systems for dealing with non-compliance events, including periods when emission limit values may be breached due to unavoidable stoppages, disturbances or failures of purification or measuring equipment.
2.7	Inspect municipal solid waste incinerators to ensure compliance with permit conditions and take action as necessary.
2.8	Require operators of municipal waste incinerators to inform the competent authority of abnormal operating conditions. Specify situations that the authorities should be informed about, and requirement that would be imposed before the incinerator would be allowed to operate again.
3	Planning and Provision of Facilities
3.1	Evaluate the performance of existing incinerators and determine whether they can be upgraded economically to meet the standards of the directive.
3.2	Develop a plan to upgrade existing incinerators and construct new plants.
3.3	Ensure that adequate plant capacity is provided by the date of implementation of the directive.
4	Communication and Reporting
4.1	Establish a public register of information on the incineration of hazardous waste. This information would include applications for permits; decisions of competent authorities; and the results of monitoring hazardous waste incineration facilities.
4.2	Establish reporting and data recording systems to ensure that the data required (see below) are collected.

4.3	Report to the Commission on: <ul style="list-style-type: none">• transposition measures and implementation of the directive;• operating conditions and results of verifications.
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3.1 Key Tasks

The key tasks involved in implementing this directive are summarised below, organised in chronological order (where possible) within each subheading.

3.1.1 Administrative arrangements

- Assign responsibility for permitting, inspection and enforcement to an appropriate authority as required under the Waste Framework and IPPC Directives (2006/12/EC and 2008/1/EC).
- Where it is proposed, as allowed under the directive, to set emission limits for substances not included in the directive, the competent authority must collect data on the harmfulness of these substances. A decision-making procedure should be set up to evaluate the data and adopt suitable emission limits.
- The competent authority should establish a technical assessment system to enable it to assess whether the design of incinerators and the conditions under which they operate will meet the emission standards in the directive. This will involve training staff in assessment techniques. The competent authority must also have the technical capability to assess the implications of changes in design.
- Municipal solid waste incinerators require permits under the IPPC Directive (2008/1/EC). Therefore, whilst this directive concentrates on emissions to air, consideration must be given to emissions to all media.

Example of Process relating to the Siting of Facilities

The siting of waste incinerators in one Member State (UK) is subject to land-use planning legislation, which involves a public consultation process. Day-to-day operation is subject to scrutiny under health and safety legislation. For the purposes of this directive, the design and operation of waste incinerators rated at more than one tonne per hour is subject to a permitting regime operated by the national competent authority – an environment agency regulating emissions to all environmental media. Emission standards for permits are individually determined as a result of a full integrated pollution control assessment. Standards that apply to discharges to air and water and the disposal of solid residues take account of those set out in the directive, but may be more stringent.

Smaller incinerators are subject to control by local authorities under their responsibilities for air pollution control. These competent authorities operate a permitting system and carry out thorough inspections and monitoring. Very small incinerators with a capacity of less than 50kg/hour do not require authorisation, with the exception of those burning sewage sludge, clinical waste and other hazardous waste.

- The directive specifies the monitoring regime to be applied. In order to achieve effective monitoring, permit conditions should include a requirement that plant operators develop and implement monitoring programmes. A system for recording the results and relaying them to the competent authority should be defined in the permit. These monitoring programmes may then be inspected by the competent authorities, which will also undertake their own monitoring to ensure the reliability of the work done by the operators.

Example of Arrangements for Monitoring

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In one Member State (UK), the competent authority operates monitoring and inspection programmes. These rely heavily upon self-monitoring by the operators, but the equipment used for this and the methods adopted are specified in the permit, according to the type of facility. It is the responsibility of operators to propose sampling methodologies in the permit application. Audit sampling may also be undertaken by the competent authority. Similar systems exist in most other Member States.

- Inspection and monitoring will require analysis of air samples at laboratories that have appropriate facilities and recognised quality assurance procedures. An analytical quality control regime should be introduced. Only methods of analysis that are approved by the competent authority and that are at least equivalent to those in the directive should be used. Laboratories that undertake monitoring should have proven quality assurance/quality control procedures and should be approved by the national certification body or the competent authority.
- In order to assist regulators and permit applicants, the competent authority or other appropriate body should issue guidance on the design, equipment and operation of municipal waste incinerators and the use of waste heat. This can be made the standard against which permit applications are evaluated. Alternatively, specific standards can be made mandatory. The former approach provides for greater flexibility, especially since there are rapid advances in the technology and guidance notes are easier to reissue than mandatory standards.

Example of Arrangements relating to Guidance Notes

In one Member State (UK), process guidance notes have been issued for use by both regulators and plant operators, stating the requirements for BATNEEC for incineration plants. This is as a result of extensive research into available methods. If operational methods other than those recommended are proposed by operators, the operators have to supply evidence that the emission limits will be met and that the proposed methods are at least equivalent to BATNEEC.

3.1.2 Planning and provision of facilities

- Oblige operators to evaluate the performance of existing incinerators and determine whether they can economically be upgraded to meet the standards of the directive. Lay down format and requirements as regards the content of the evaluation.
- Oblige the operators on this basis to develop a plan to upgrade or replace existing incinerators. Establish requirements regarding the format and content of the plan.
- Possible improvement plans should identify the method by which the provision of new facilities is to be financed. This may require an effective cost recovery scheme.

3.1.3 Data collection and reporting

- Members of the public should have access to details of permits and the results of monitoring. This will require the development of a public register of such information.

3.1.4 Regulation

- Develop procedures and sets of conditions for issuing operating permits, including the special permit for wastewater discharge.
- Lay down detailed requirements for operators concerning the carrying out of measurements of air and water pollutants, including technical requirements for measuring equipment and its maintenance.

- Develop monitoring/inspection procedures in general and for the periodic reconsideration of existing permits.
- Develop detailed requirements concerning heat recovery in plants.
- Elaborate adequate means of enforcement, notably the power to shut down plants that are operating unsatisfactorily.
- Develop guidelines for the content of waste reception procedures in the individual plants.
- Develop detailed regulation concerning the treatment of residues resulting from the operation of plants.

3.1.5 Reporting

- Develop and/or apply existing public consultation procedures.
- Establish requirements regarding the content of and procedures for annual reporting for large-scale plants.
- Require operators of waste incinerators to inform the competent authority of normal as well as abnormal changes in operating conditions. Specify situations that the authorities should be informed about, and the requirements to be imposed before incinerators are allowed to recommence operations.

3.2 Phasing Considerations

Experience within Member States suggests that the most demanding and time-consuming tasks associated with implementing this directive are the following:

- Transposing the requirements of the directive into national legislation.
- Preparing a programme identifying how the various requirements of the directive are to be met, including an implementation plan, with timescales and responsibilities clearly allocated.
- The detailed planning, design, permitting and construction of new or upgraded facilities.

Planning for implementation of the requirements of the directive should be carried out in accordance with the overall waste management strategy under the Waste Framework Directive (2006/12/EC).

4. Implementation Guidance

In implementing this directive, the candidate countries should take into account European Community and national legislation relating to the health and safety of workers at incineration plants.

4.1 Administrative Arrangements and Planning

- Incineration installations will be the type of plant where an EIA is normally required and most plants will also be regulated under the IPPC Directive (2008/1/EC). For this reason, it would seem sensible to incorporate the administration of WID within the structures for EIA and IPPC.
- The competent authority should examine the status of existing incinerators and develop a plan to improve or replace them to ensure that they meet the standards of the directive by the implementation date. In addition, new plants may be required, where incineration is the only method acceptable under the Waste Framework Directive (2006/12/EC) or

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Hazardous Waste Directive (91/689/EEC, as amended) for the disposal of certain hazardous wastes that may not currently be incinerated.

- Such plans should identify the method by which the provision of new facilities is to be financed and ensure that such finance is provided. This will require an effective cost recovery scheme but may also require subsidy in the short term to phase in the financial burden to industry over an acceptable period.
- Smaller Member States (IE, PT), producing small quantities of hazardous waste for incineration, have found that the construction of facilities that meet the requirements of the directive is not economic. Consequently, they rely on facilities established in larger Member States, to which they export wastes for incineration.

Example of Policy Approach in Opting for Waste Management Solutions

There are currently some 30 incinerators in Sweden for the incineration of municipal waste. The quantity of waste incinerated has increased during the last few years mainly due to the ban on the landfilling of organic and combustible waste. In 2006, approximately 2.1 million tonnes of municipal waste were incinerated. In the incinerators for municipal waste, 11.5 TWh of energy was produced (10.3 TWh heat and 1.2 TWh electricity) according to Waste Sweden (Avfall Sverige). The heat from the combustion of waste corresponds to roughly 20% of the total district heating demand in Sweden and in certain regions this proportion is as much as 50%. One of the reasons for the high figures in Sweden compared to many other countries is the sophisticated heating networks throughout the territory of Sweden.

Examples of Considerations when Deciding on the Construction of Facilities

In one Member State (PT), the former Hazardous Waste Directive was transposed by Law Decree 273/98 of 2 September 1998. After a lengthy national discussion, the decision not to build a hazardous waste incineration plant was taken last year. This was due to the implementation of the principle of non-importation of waste, the adoption of a new list of hazardous wastes, and banning the incineration of particular categories of hazardous wastes, thus rendering the project economically non-viable. The Government adopted the co-incineration solution by identifying the use of cement industry kilns, but at present only hospital waste is being incinerated in this country.

4.2 Regulation

- The competent authority should establish a technical assessment system to enable it to assess whether the design and conditions under which incinerators operate meet the emission limits and other requirements of the directive. The competent authority must also have the technical capability to assess the implications of changes in design. This will involve training staff in assessment techniques, including assessment of measurement information from the operators.
- The competent authority must establish a monitoring and inspection regime to assess the operating conditions of each hazardous waste incinerator and measure emissions. This would also include regulations/guidelines concerning the installation and use of measurement equipment as well as its maintenance.
- The analysis of samples requires the existence of laboratories with the appropriate facilities and recognised quality assurance/control procedures.

4.3 Data Collection, Monitoring and Reporting

- The requirement for public consultation will require the establishment of special procedures to ensure effective communication and public hearing facilities in order to

make it easy for the public to participate meaningfully in such consultations. An essential element will be rules guaranteeing this right of citizens by making an appropriately completed consultation a pre-condition for the validity of any permit issued. Inspiration can be found in existing schemes in the field of physical planning.

- The competent authority must establish a monitoring and inspection regime to assess the operating conditions of each hazardous waste incinerator and measure emissions. Monitoring must be carried out as specified in the directive. Monitoring programmes by plant operators should be included as part of the permit conditions.
- Inspection will require analysis of air samples at laboratories with the appropriate facilities and recognised quality assurance procedures.
- A system for recording the results of monitoring by plant operators and relaying them to the competent authority must be agreed between it and the operators and defined in the permit.

Examples of Arrangements relating to Monitoring and Inspection of Facilities

In one Member State (UK), the competent authority operates monitoring and inspection programmes. These rely heavily upon self-monitoring by the operators, although the equipment used for this, and the methods adopted, are specified in the permit. It is the responsibility of operators to propose sampling regimes in the permit application. The competent authority may also undertake audit sampling.

- An analytical quality control regime should be introduced. Only methods of analysis approved by the competent authority, and which must be at least equivalent to those in the directive, should be used. The laboratory (or laboratories) that undertake monitoring should have proven quality assurance/quality control procedures and should be approved by the national certification body or the competent authority.
- The competent authority should issue guidance on the design, equipment and operation of hazardous waste incinerators and the use of waste heat. The competent authority should take account of compliance with this guidance in the examination of applications for permits.

5. Costs

The WID covers a broad spectrum of plants in both the public and private sectors. Implementation will require significant investments to upgrade existing plants and ultimately to construct new plants.

The administrative costs will not be significantly higher than those incurred by the implementation of the Waste Framework, Hazardous Waste and IPPC Directives.

A checklist of the costs of implementing the directive is presented below.

Checklist of the Types of Cost Incurred to Implement the Directive

Initial set-up costs:

- preparation of a strategy to achieve the objectives of the directive;
- preparing procedures for permitting and inspection;
- issuing new permits for all existing incinerators;
- preparing technical guidance notes.

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Capital expenditure:

- upgrading of incinerators which do not meet criteria;
- establishment of suitable testing laboratories.

Ongoing costs:

- annual operating costs of upgraded and new incinerators or replacement facilities;
- training of operators and technicians;
- issuing of permits for incinerators;
- inspections of incinerators to verify compliance, and taking appropriate enforcement action.

The costs associated with the implementation of this directive are indicated in the checklist below. They mainly refer to the costs of upgrading existing facilities to meet the new standards and the higher costs for new plants of meeting standards. A typical large-scale new plant may cost around EUR 100 million or more. Unit costs lie in the range of EUR 40 to 80 per tonne.

Due to the very high cost of upgrading existing incinerators, many have been closed and replaced by new plants. Costs are borne by the operators, many of which operate the plants on a commercial basis. This usually leads to increased charges. Costs associated with applications for permits, inspections and monitoring are borne by the operators.

There are also administrative costs in establishing a permitting and inspection regime that will be borne by the competent authorities. These, however, are likely not to be significantly higher than those incurred by the implementation of the Waste Framework, Hazardous Waste and IPPC Directives.

Directives on Electrical and Electronic Equipment & Restriction of Hazardous Substances (WEEE & ROHS)

Official Title:

Directive 2002/96/EC of the European Parliament and of the Council of 27 January 2003 on waste electrical and electronic equipment (WEEE) (OJ, L 037, 13/02/2003 P. 24), as amended by Directive 2003/108/EC (OJ L 345, 31.12.2003)¹¹⁴

Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (ROHS) (Official Journal L 037, 13/02/2003 19), as amended by Commission Decision 2005/618/EC (OJ L 214/65, 19.8.2005)¹¹⁵, Commission Decision 2005/717/EC (OJ L L 271/48, 15.10.2005)¹¹⁶, Commission Decision 2005/747/EC (OJ L 280/18, 25.10.2005)¹¹⁷, Commission Decision 2006/310/EC (OJ L 115/38, 28.4.2006)¹¹⁸, Commission Decision 2006/690/EC (OJ L

¹¹⁴ Directive 2003/108/EC of the European Parliament and of the Council of 8 December 2003 amending Directive 2002/96/EC on waste electrical and electronic equipment (WEEE).

¹¹⁵ Commission Decision 2005/618/EC of 18 August 2005 amending Directive 2002/95/EC of the European Parliament and the Council for the purpose of establishing the maximum concentration values for certain hazardous substances in electrical and electronic equipment.

¹¹⁶ Commission Decision 2005/717/EC of 13 October 2005 amending, for the purposes of adapting to technical progress, the annex to Directive 2002/95/EC of the European Parliament and of the Council on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

¹¹⁷ Commission Decision 2005/747/EC of 21 October 2005 amending, for the purposes of adapting to technical progress, the annex to Directive 2002/95/EC of the European Parliament and of the Council on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

¹¹⁸ Commission Decision 2006/310/EC of 21 April 2006 amending, for the purposes of adapting to technical progress, the annex to Directive 2002/95/EC of the European Parliament and of the Council as regards exemptions for applications of lead.

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283/47, 14.10.2006)¹¹⁹, Commission Decision 2006/691/EC (OJ L 283/48, 14.10.2006)¹²⁰ and Commission Decision 2006/692/EC (OJ L 283/50, 14.10.2006)¹²¹

1. Summary of Main Aims and Provisions

The WEEE and ROHS Directives are complementary measures aimed at addressing the rapidly increasing amounts of waste from electrical and electronic equipment. The main categories are household and office equipment and various audio/visual machines. The amount of waste is increasing because of sharply falling consumer prices. In addition, treatment of this type of waste is made difficult because of the content of hazardous components.

The WEEE Directive requires separate collection and reuse of such waste. In addition, the producers are made responsible for their products in the end-of-life phase. This will presumably motivate them towards designing their products in such a way that recovery, reuse and dismantling are facilitated.

The WEEE Directive is adopted on the basis of Article 175(1) of the EC Treaty. This provision concerns the strengthening of environmental protection exclusively. There are no elements of market integration, save for the interest in establishing uniform operating conditions in order to prevent distortions of competition. This also means that Member States are not excluded from setting or maintaining rules that are stricter than the ones in the directive, provided those measures are otherwise compatible with the EC Treaty. The WEEE Directive is a so-called minimum harmonisation directive.

The ROHS Directive concerns the reduction of the content of certain hazardous substances in electrical and electronic equipment (EEE). Even when EEE is collected separately according to the WEEE Directive, the content of hazardous substances will still pose a risk. The substances in question are heavy metals, PBB and PBDE. Hence, the ROHS Directive lays down restrictions as to the composition of products, particularly in terms of the use of hazardous substances. The directive is thus relevant for the free movement of such products. For the functioning of the internal market it is vital that such restrictions are applied uniformly in all Member States. The legal basis is therefore Article 95 of the EC Treaty, which limits Member States from introducing more stringent measures than legislation based on Article 175(1).

The directives should be seen in connection with a third initiative aimed at products in general and where the purpose is to establish common environmental standards and obligations in respect of eco-labelling and documentation for environmental qualities. This so-called EEE Directive is still at the drafting stage and will, like the ROHS Directive, be aimed at facilitating free movement within the internal market.

The deadline for transposition for both directives, including the amendments, was 13 August 2004.

Directive 2002/95/EC has been amended several times, particularly in regard to its annex restricting certain substances in new electrical and electronic equipment put on the market from 1 July 2006. This annex sets out exemptions from the complete ban in Article 4(1) on the use of heavy metals in electrical and electronic equipment. The amendments concerned are:

¹¹⁹ Commission Decision 2006/690/EC of 12 October 2006 amending, for the purposes of adapting to technical progress, the annex to Directive 2002/95/EC of the European Parliament and of the Council as regards exemptions for applications of lead in crystal glass.

¹²⁰ Commission Decision 2006/691/EC of 12 October 2006 amending, for the purposes of adapting to technical progress, the annex to Directive 2002/95/EC of the European Parliament and of the Council as regards exemptions for applications of lead and cadmium.

¹²¹ Commission Decision 2006/692/EC of 12 October 2006 amending, for the purposes of adapting to technical progress, the annex to Directive 2002/95/EC of the European Parliament and of the Council as regards exemptions for applications of hexavalent chromium.

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- Commission Decision 2005/618/EC for the purpose of establishing the maximum concentration values for certain hazardous substances in electrical and electronic equipment.

This decision establishes a maximum concentration value of 0.1% by weight in homogeneous materials for lead, mercury, hexavalent chromium, polybrominated biphenyls and polybrominated diphenyl ethers, and of 0.01% by weight in homogeneous materials for cadmium. This concentration value applies from 1 July 2006.

- Commission Decision 2005/717/EC for the purposes of adapting to technical progress the annex to Directive 2002/95/EC.

This decision amends the annex regarding restricted applications by adding two sub-headings under heading 9 regarding allowed applications of hexavalent chromium as an anti-corrosive in the carbon steel cooling system of absorption refrigerators. Points 9a and 9b extend the exemption to DecaBDE in polymeric applications and lead in lead-bronze bearing shells and bushes.

- Commission Decision (2005/747/EC) of 21 October 2005 amending, for the purposes of adapting to technical progress, the annex to Directive 2002/95/EC.

This decision amends the annex considerably by extending the exempted applications of lead, and partly of cadmium. Firstly, it amends point 7 by slightly revising the text regarding the use of lead in high melting temperature-type solders. The same point 7 also abolishes the previous time limitation of the exemption of lead in solders for servers, storage and storage array systems until 2010. Secondly, point 8 slightly extends the exempted application of cadmium by also allowing cadmium and its compounds in electrical contacts (unless an application banned under Directive 91/338/EEC). Thirdly, the decision adds points 11 to 15 to the list of exempted applications regarding lead used in compliant pin connector systems, as coating material for the thermal conduction module c-ring, lead and cadmium in optical and filter glass, and lead in certain solders.

- Commission Decision 2006/310/EC amending, for the purposes of adapting to technical progress, the annex to Directive 2002/95/EC as regards exemptions for applications of lead.

This decision amends the annex by adding another five points to the list of applications of lead, mercury, cadmium and hexavalent chromium exempted from the ban set out in Article 4(1). Points 16 to 20 now extend exemptions of lead in certain lamps (linear incandescent lamps, high-intensity discharge lamps, sun-tanning lamps, speciality lamps, and lead in certain amalgams in very compact energy-saving lamps and fluorescent lamps used for liquid crystal displays).

- Commission Decision 2006/691/EC of 12 October 2006 amending, for the purposes of adapting to technical progress, the annex to Directive 2002/95/EC of the European Parliament and of the Council as regards exemptions for applications of lead and cadmium.

This decision introduces a major amendment to the annex by adding points 21 to 27 to the list of exempted applications. These applications mainly concern the use of lead in certain entertainment equipment (e.g. certain TVs, loudspeakers and communication systems). It extends the exemptions for certain printing inks, in fibre optic communications systems, in finishes of fine pitch components, in certain solders, and as lead oxide in plasma display panels, surface-conduction electron-emitter displays and special lamps, as well as the use of lead alloys in certain solder applications.

- Commission Decision 2006/692/EC of 12 October 2006 amending, for the purposes of adapting to technical progress, the annex to Directive 2002/95/EC of the European

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Parliament and of the Council as regards exemptions for applications of hexavalent chromium.

This last decision adds point 28 to the annex regarding allowing the temporary application of hexavalent chromium in the corrosion-preventive coating of certain metal sheetings and fasteners. However, it should be noted that this exemption was only granted until 1 July 2007.

- Commission Decision 2006/690/EC amending, for the purposes of adapting to technical progress, the annex to Directive 2002/95/EC as regards exemptions for applications of lead in crystal glass.

This decision amends the annex by adding point 29 regarding the use of lead bound in crystal glass as defined in Annex I of Directive 69/493/EEC.

Directive 2002/96 has been amended by Directive 2003/108/EC in order to deal with the issue of retroactive liability, which was not covered by the former directive. The revised Article 9 makes producers of EEE financially liable for new WEEE (EEE put on the EU market after 13 August 2005). With respect to historical waste, meaning WEEE from products put on the market before 13 August 2005, Member States have some flexibility in deciding how to allocate financial liability. Where historical waste is taken back by producers or retailers upon purchase of new EEE, Member States can choose whether to make producers completely liable or to have the costs of collecting, storing, disassembling, recycling and disposal shared between the producers, municipalities and other users (other than private households), such as retailers and importers, amongst others. Where WEEE is discarded without the purchase of a new equivalent product fulfilling the same function, the financing of the collection, recovery and disposal costs should be provided by users other than private households.

Under Directive 2002/96/EC, Member States have to send to the Commission a report on the implementation of Directive 2002/96/EC. The report should cover in detail both the incorporation of the directive into national law and its implementation. It should be drawn up on the basis of the questionnaire set out in the decision of 11 March 2004 concerning a questionnaire for Member States' reports on the implementation of Directive 2002/96/EC of the European Parliament and of the Council on WEEE.

2. Principal Obligations of Member States

2.1 Planning

- Take measures to encourage the designing of electrical/electronic products in such a way as to take into account and facilitate dismantling, recovery and recycling (Directive 2002/96/EC (hereinafter WEEE Directive), Art. 4).
- Ensure that, by 13 August 2005, collection systems are set up where electrical/electronic waste from private households can be returned free of charge, including necessary collection points where such waste can be deposited/handed in (WEEE Directive, Art. 5).
- Take measures to arrive, by 31 December 2006, at a collection target for household electrical/electronic waste of 4 kg annually per head of population (WEEE Directive, Art. 5).
- Take measures to ensure that, by 31 December 2006, certain recovery rates must be attained. The rates range from 50% to 80%, and a certain amount must be achieved through recycling and reuse, as opposed to, for example, incineration with energy recovery (WEEE Directive, Art. 7).
- Ensure that, as of 1 July 2006, new electrical and electronic equipment sold to any other EU Member State does not contain lead, mercury, cadmium, hexavalent chromium,

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polybrominated biphenyls or polybrominated diphenyl ethers unless contained in the list of exempted applications set out in the annex (as amended by Decisions 2005/618/EC, 2005/717/EC, 2005/747/EC, 2006/310/EC, 2006/690/EC, 2006/691/EC and 2006/692/EC) (Directive 2002/95/EC (hereinafter ROHS Directive, Art. 4.1).

- Take measures to ensure the effective enforcement of the directives (WEEE Directive, Art. 15 and ROHS Directive Art. 8).

2.2 Regulation

- Producers must provide for separate collection of non-household electrical/electronic waste (WEEE Directive, Art. 5).
- Producers must set up waste treatment systems enabling removal of all fluids and other treatment. Only enterprises with appropriate authorisation can run such treatment systems. Subject to the application of the EC rules on waste transport, this treatment can be done in another Member State or even outside the EC (WEEE Directive, Art. 6 and Annex II).
- As of 13 August 2005, producers must pay for the collection, treatment and recovery/recycling of household electrical/electronic waste deposited under a collection system as mentioned under 2.1. The financing is to be provided by the producers collectively and in proportion to market share (WEEE Directive, Arts. 5 and 8).
- For products placed on the market after 13 August 2005, producers are responsible for financing the collection, treatment and recovery/recycling of their own products and must, in advance of marketing, provide a financial guarantee that waste will be managed (WEEE Directive, Art. 8).
- Producers must be responsible for costs related to the collection, treatment and recovery/recycling of non-household electrical/electronic waste. Member States have the option of making users partly or wholly responsible for these costs (WEEE Directive, Art. 9).
- For household products placed on the market after 13 August 2005, the distributor is responsible for ensuring take-back arrangements for electrical/electronic waste. Member States can allow alternative solutions provided that they are free of charge for the user (WEEE Directive, Art. 5).

2.3 Reporting and information

- Member States must draw up registers of producers of electrical and electronic equipment (WEEE Directive, Art. 12).
- A separate collection symbol (crossed-out wheellie bin) must be attached to all products from 13 August 2005 (WEEE Directive, Art. 10).
- Users must be informed about their role in contributing to the collection of WEEE, available collection/return facilities, the health and environmental hazards from hazardous substances used in electrical and electronic equipment and the meaning of the wheellie bin symbol. All or some of these obligations may be put on producers (Art. 10, Directive 2002/96/EC).
- Producers must provide treatment facilities with all appropriate information to identify components, materials and the location of hazardous substances in products (WEEE Directive, Art. 11).
- Member States must record the amount of goods on the market and levels of recycling achieved (WEEE Directive, Art. 12).

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- Member States have to send to the Commission a report on the implementation of Directive 2002/96/EC on the basis of Article 12 in particular. The report should cover in detail both the incorporation of the directive into national law and its implementation. It should be drawn up on the basis of the questionnaire set out in Decision 2004/449/EC.

2.4 Additional Legal Instruments

- Directive 2006/12/EC on waste, and newly adopted Directive 2008/98/EC
- Directive 2006/66/EC on batteries and accumulators
- Directive 91/689/EEC on hazardous waste
- Regulation (EEC) 761/2001 on the Community eco-management and audit scheme (EMAS), as amended by Regulation 196/2006 (see Section 7 of the Handbook)
- Directive 2008/1/EC on integrated pollution prevention and control (IPPC) (see Section 7 of the Handbook)

3. Implementation

3.1 Key Tasks

The key tasks involved in implementing these directives are summarised below, organised in chronological order (where possible) within each subheading.

3.1.1 Institutional organisation

- Identification of a suitable competent authority to carry responsibility for the implementation. This includes not only the various tasks connected to waste collection and treatment but also co-ordination with other authorities responsible for market monitoring in order to enforce the restrictions of the ROHS Directive.

3.1.2 Planning and implementation of plans

- Develop strategies and measures to encourage eco-design and production for the purpose of preventing waste accumulation and to encourage R&D to develop new recovery, recycling and treatment technologies.
- Implement various types of measures (for example monitoring and information activities) to ensure the separation of electrical/electronic waste and thus avoid it being mixed with normal municipal waste.
- Consider whether national minimum quality standards for electrical/electronic waste treatment should be developed.
- Development of systems for the producer financing of the handling of household waste and requirements concerning the producer guarantee as a condition for marketing, eventually by setting up a common insurance scheme.
- Consider, in the case of non-household waste, the possibility of having part of the costs borne by commercial users.

3.1.3 Regulation

- Determine who should carry the direct responsibility for
 - establishing collection systems;

- ensuring treatment facilities corresponding to the technical requirements of the directives;
 - making sure that the targets for recovery are being met.
- Consider the possibility of having treatment and information issues regulated by private agreements as an alternative to regulation.
 - Set up permit and inspection schemes for waste treatment plants. Ensure co-ordination with other permit arrangements (IPPC and Waste Framework Directives) and consider ways to encourage EMAS.
 - Establish guidelines and regulations concerning producer-initiated take-back systems for household as well as non-household waste.
 - Prohibit any charges or other measures that entail expenses for households in connection with the collection or treatment of electrical/electronic waste.
 - Lay down requirements regarding the manner in which producers must keep records for the purposes of calculating recovery targets.

3.1.4 Reporting and monitoring

- Development of an information strategy composed of general campaigns in the media as well as more targeted communications and guidelines. Determine whether there should be any obligations for producers in this respect.
- Determine the format and content of the product information to be provided to treatment plants.

3.2 Phasing Considerations

As can be seen from the previous points, the directive allows Member States quite a degree of discretion as to how national regulation should look – or in fact whether, in certain areas, there should be any national regulation at all to the extent that agreements permitted and implemented with interested parties in accordance with the directive will suffice.

Otherwise, the major tasks will be the setting up of collection systems, and financing schemes and systems for issuing permits for treatment. Because of the broad nature of this type of waste, it will also be a substantial task to develop a comprehensive information strategy in relation to the public at large.

For all these issues, it is important to devote sufficient time for the examination of existing structures and to have in-depth consultations with the various stakeholders.

4. Implementation Guidance

There is at present nothing to report on experiences in Member States on what measures to take to ensure efficient implementation. However, based on experiences with existing national schemes, the following observations can be made:

- This directive involves not only aspects of waste management but also, more importantly, market surveillance to enforce the prohibition against certain substances (ROHS Directive). Implementation of the directive could, therefore, involve more than one competent authority – for example, the ministry/department responsible for trade, and the bodies responsible for developing and implementing standards. If this is the case, a single authority should be given the role of co-ordinating the implementation of the

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directive and clear channels of communication between the competent authorities should be established.

- The aim of the financial mechanisms of the directive is clearly to encourage preventive measures at the design/production stage. During recent years, methods have been established to integrate the problem of waste and other environmental aspects in the product development process. In the field of electronics, recent years have, for example, seen the creation of a PC-based tool for the “eco-conscious design of electrical and electronic equipment”.
- In addition to improvement of design, a review of the production process as such can improve the resource efficiency of the products and thus reduce waste creation. The tools for increasing the efficiency of production processes are internal and external quality and eco-management (such as ISO 9000, the ISO 1400 series, EMAS and supply chain management).
- Given the minimum nature of the directive rules, there is the possibility to have a system with the mandatory separation of electrical/electronic waste for private households as well as enterprises. This option must be considered. Such a system will only function in a reasonable manner when a generous amount of collection points and other facilities are available and when the launch has been prepared by means of considerable information campaigns.

Examples of Practice in a Member State (DK)

Since 1999, everyone in Denmark is obliged to use municipal collection schemes for electrical/electronic waste. For private households, retailers can establish take-back arrangements, albeit still linked to the municipal scheme. Enterprises can arrange for the handling of their own waste provided that they can document that treatment etc. is equivalent to the municipal scheme.

Producers, importers and retailers can obtain permission to establish take-back schemes for their own products with the aim of treatment and recovery. A condition for the permit is that annual accounts are made regarding waste handling.

5. Costs

Producers are likely to bear the majority of the costs of treating and recovering. Distributors and business users are likely to bear costs in relation to free take-back. Local authorities may bear some costs as a result of increased separate collection, but they will benefit from avoiding the costs associated with the current landfilling or incineration.

The financial burden for local authorities depends upon whether the WEEE is from products put on the market prior to 13 August 2005 (historic waste) or after this date (new WEEE), and on whether the waste is from private household users or from users other than private households (e.g. industrial users, business sector). For instance, the financial burden for local authorities is greater for historic waste, and in particular for WEEE deriving from users other than private households (e.g. professional users such as the business sector, industry etc.), since Article 9 (as amended by Directive 2003/108/EC) established a provision to mitigate the economic burden on EEE producers by limiting the mandatory financial responsibility for the collection, treatment, recovery and disposal of WEEE from professional users with respect to products put on the market prior to 13 August 2005. For such historic WEEE from professional users, EEE producers are only obliged to cover the costs of waste management when WEEE is replaced by a new equivalent product fulfilling the same function, i.e. on the basis of the old-for-new rule. Member States can also provide that other users are made totally or partly responsible for the financing of the waste management costs.

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Hence, Member States have some flexibility in deciding how to allocate the financial liability for historic waste. Where historic waste is taken back by producers or retailers upon the purchase of new EEE, Member States can choose whether to make producers completely liable or to have the costs for collecting, storing, disassembling, recycling and disposal shared between the producers, municipalities and other users (other than private households), such as retailers and importers, amongst others. Producers and users can enter into agreements on how to share the financial burden. Where WEEE is discarded without the purchase of a new equivalent product fulfilling the same function, the financing of the collection, recovery and disposal should be provided by users other than private households.

For new WEEE, there is less flexibility and producers should, in principle, be fully responsible for all the waste management, although some Member States, like Denmark and Sweden, still share some of the financial burden for this waste management. Additional cost factors are:

- the costs of covering the management of WEEE from free-riders, e.g. producers that are not part of well-established WEEE collection and recovery schemes and that state that they will establish individual schemes but do not fulfil these tasks properly;
- the management of WEEE dumped in nature or otherwise not properly disposed of.

In as far as the costs borne by producers and/or distributors are passed on to consumers, it is expected that consumers will also bear some costs. Some Member States choose to impose a mandatory environmental fee on WEEE, mainly to provide consumer information about the environmental costs involved in the disposal and recovery of certain WEEE. The European Commission estimates that the WEEE Directive will result in average price increases of 1% for most products, and 2 to 3% for some products, such as refrigerators and televisions. However, with falling prices for a large range of EEE, the additional costs passed on to consumers are likely to have no more than a negligent impact on their purchasing power and on the market overall.

The costs for implementing and complying with the ROHS Directive differ slightly from those related to the WEEE Directive, as ROHS restricts the use of certain substances and components. By imposing such restrictions, it gives strong incentives to EEE producers to make design changes to ensure compliance with the directive and to cater to changing consumer preferences.

The main costs here are borne by the EEE industry, rather than local authorities. The actual distribution of the costs of the ROHS Directive depends on the market structure of the particular sector concerned. The extent to which costs are passed on to consumers also depends on how easy it is to make the design changes (e.g. whether it is cumbersome and expensive to substitute materials, substances etc.). In the short term, component suppliers are likely to be substantially affected and to bear a large share of the costs. For instance, a supplier of components or materials not meeting the requirements in the ROHS Directive will not be able to supply their products and it is expected that some of these operators will disappear from the market. On the other hand, ROHS provides economic opportunities for producers and suppliers of more environmentally friendly components.

However, in the medium to long term they are likely to pass these additional costs on to product assemblers and/or manufacturers. The magnitude of this pass-on will again depend on the relevant market structure.

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The Extracting Waste (Mining) Directive

Official Title: Directive 2006/21/EC of the European Parliament and of the Council of 15 March 2006 on the management of waste from extractive industries and amending Directive 2004/35/EC (OJ L 102, 11.04.2006)

The directive will enter into force before 1 May 2008

1. Summary of the Main Aims and Provisions

This directive addresses the management of waste resulting from the prospecting, extraction, treatment and storage of mineral resources and the working of quarries, which is referred to in the directive as “extractive waste”. It provides for measures, procedures and guidance to prevent or reduce as far as possible any adverse effects on the environment and any resultant risks to human health brought about as a result of waste generated from the extractive industries. The objective of the directive expressed in Article 4 is to ensure that extractive waste is managed without using processes that could harm human health or pose environmental risks. In this regard it targets, in particular, adverse effects on water, air, soil, fauna, flora, the landscape and places of interest, as well as the curbing of noise and odours.

The directive imposes the following measures to meet its objective:

- A waste management plan for extractive waste.
- Major accident prevention measures and the provision of information to that effect.
- Rules for applications and permits for extractive waste facilities.
- Classification of extractive waste facilities.
- Measures addressing excavation voids.
- Rules on the construction and management of extractive waste facilities.
- Rules on the closure and after-closure procedures for extractive waste facilities;
- Inspections of extractive waste facilities by the competent authority.
- Inventory of closed extractive waste facilities.
- Prevention of air and soil pollution as well as water status deterioration.
- Controls to prevent transboundary harm.
- Financial guarantee provisions.

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- Applicability of the Environmental Liability Directive.
- Rules for public participation.
- Exchange of information with the Commission and other Member States.
- Penalties.

The directive has three annexes. Annex I lists the major-accident prevention policy and information that is to be communicated to the public concerned. Annex II lists waste characterisation criteria; and Annex III lists criteria for determining the classification of waste facilities, establishing when a waste facility is to be classified as belonging to Category A. Category A waste facilities are those posing a higher risk to the environment and human health.

The directive excludes from its scope extractive waste resulting from:

- offshore activities;
- the injection of water or re-injection of pumped groundwater;
- the extraction, treatment and storage of peat, unless deposited in a Category A waste facility.

It also excludes inert waste and unpolluted soil resulting from the prospecting, extraction, treatment and storage of mineral resources and the working of quarries, unless such waste is deposited in a Category A waste facility.

2. Principal Obligations of Member States

2.1 Planning

- Identify operators generating extractive waste and waste facilities that manage extractive waste, assessing the classification of waste in accordance with Annex II and facilities in accordance with Annex III of the directive.
- Identify which are the best disposal options in the short and long term for inclusion in waste management plans in accordance with Article 5.
- Identify the responsibilities of the competent authorities that will be responsible for fulfilling the different obligations of the directive, namely regulation, compliance monitoring, enforcement, co-ordination with the public and the stakeholders, and reporting to the Commission, to other Member States, to the competent authorities and to the general public. Identify any additional capacity-building needs to implement the directive.
- Identify the stakeholders that are involved in order to facilitate co-ordination and to ensure that there is no duplication of roles or uncertainties regarding responsibilities.
- Identify any extractive waste facilities that are likely to cause transboundary harm and, in consultation with stakeholders, discuss best-practice methodologies and procedures to implement the obligations under Article 16 of the directive.
- Assess existing waste management application and permit systems to ensure conformity with Article 13 of the directive and to determine whether any further legal, administrative and logistical measures are required.
- Identify monitoring procedures for extractive waste management facilities to ensure compliance with the directive from construction to operation, as well as closure, after closure and rehabilitation.

2.2 Regulation

2.2.1 Basic regulatory obligations.

- Article 4 of the directive provides the ultimate objective of the legislation transposing the directive. The general regulatory requirements are:
 - to ensure that extractive waste is managed without endangering human health and without using processes or methods that could harm the environment, and in particular without risk to water, air, soil and fauna and flora, without causing a nuisance through noise or odours, and without adversely affecting the landscape or places of special interest;
 - to prohibit the abandonment, dumping or uncontrolled depositing of extractive waste.
- The obligation to prevent or reduce adverse effects on the environment and human health is to be imposed upon the operator managing the extractive waste, who is to be made legally responsible for:
 - managing the waste facility from construction to closure and post-closure;
 - the prevention of major accidents involving the facility; and
 - taking measures to limit the consequences of major accidents for the environment and human health.
- The establishment of competent authority/ies responsible for the regulation of extractive waste management operations, compliance monitoring, enforcement, co-ordination with stakeholders including transboundary dealings with the competent authorities of other Member States, and the carrying out of reporting requirements towards the public and the Commission.
- Effective, proportionate and dissuasive penalties shall be included in national legislation transposing this directive for infringement of the obligations imposed thereunder. Measures must be included in national legislation to ensure that these penalties are implemented.

2.2.2 Specific regulatory obligations upon operators to be included in national legislation:

- The drawing up of a waste management plan with the same objectives as those listed in Article 5, which entails:
 - the prevention and minimisation of waste by taking the necessary measures at the design phase and through the choice of extracting methods:
 - assessing which type of treatment is required to prevent impacts on the environment following extraction;
 - reusing the extractive waste on site, for example by placing it in excavation voids and encouraging recovery, in accordance with the directive;
 - the prevention and reduction of the harmful effects of the management of extractive waste:
 - using less dangerous substances for the treatment of mineral resources;
 - ensuring the safe long-term and short-term disposal of extractive waste during design and operation and after the closure of the waste facility;
 - the classification of the waste facility in accordance with Annex III;

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- Category A waste facilities must provide, in their waste management plan:
 - a major-accident prevention policy;
 - a safety management system for implementation; and
 - an internal emergency plan;
- non-Category A waste management facilities must provide in their waste management plan:
 - justification for their non-Category A classification; and
 - identification of possible accident hazards;
- the waste management plan must also provide details of:
 - the amount of waste to be generated during operations;
 - the characteristics of the extractive waste;
 - the adverse effects on the environment and on human health resulting from the deposit of such waste;
 - the preventive measures that will be taken during operation and after closure in accordance with Article 11 (2);
 - a closure plan, including after-closure procedures;
 - measures for the prevention of water status deterioration in accordance with the Water Framework Directive (2000/60/EC), and for the prevention of air and soil pollution in accordance with Article 13;
 - a survey of the condition of the land that will be affected by the waste facility;
 - the best-practice tools that will be adopted to deliver appropriate safe management of the waste;
 - any information proving the operator’s ability to meet the objectives of the waste management plan for evaluation by the competent authorities.
- A review of the waste management plan every five years and the effecting of the necessary amendments if there are any changes in operations and in the waste deposited by the facility. The operator is to notify the competent authorities accordingly.

The compulsory elements of the waste management plan required under Article 5 stipulate all the obligations on operators under the directive. In addition to those specified above, in relation to the contents of such plans, operators must:

- Ensure, before disposing of extractive waste or treating it:
 - that waste management methods are tailored to the particular characteristics of the waste;
 - the long-term stability of the waste;
 - that the stockpiling or permanent storage of large amounts of waste is avoided.
- Take the measures to ensure the safety of waste management facilities referred to above, similar to those contained in the Seveso II Directive and including the appointment of a safety manager responsible for implementation. Such measures would apply to waste management facilities that are included as Category A waste facilities and that are not already included in the scope of the revised Seveso II Directive.
- Set up the infrastructure to communicate the necessary information to the public and the relevant services or authorities in the area in the event of a major accident.

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- Provide for rehabilitation, restoration and clean-up following a major accident. Legislation should provide for the right of the competent authority to carry out such responsibilities at the operator's expense if necessary.
- Take adequate measures to reduce any dust or gas emissions.
- Take necessary measures when placing extractive waste back in excavation voids to prevent or minimise water status deterioration, and water and soil pollution.
- Provide the necessary information to the competent authorities to ensure compliance with the Water Framework Directive and any other applicable Community legislation.
- Comply with the discharge limits within the specified time frames provided in Article 13 (6), in the case of extractive operations resulting in a pond (defined in the directive as a natural or engineered facility for disposing of fine-grained waste with varying amounts of water) involving cyanide. Provide, at the request of the competent authority, a risk assessment showing that concentration limits need not be further lowered.
- Provide information immediately, and not later than 48 hours after any event likely to affect the stability of the waste facility and any significant adverse effects this may cause to the environment and human health. The operator must implement an internal emergency plan and follow the instructions of the competent authority.
- Provide, prior to the commencement of operations, a financial guarantee to ensure an appropriate level of financial security such that sufficient funds are available to leave waste sites in a satisfactory state after closure, after becoming insolvent or even engaging in asset-stripping practices, and to rehabilitate land affected by a waste facility to a satisfactory state in the event that an operator defaults on their closure obligations. This is in line with a similar requirement in Article 8(a) (iv) of the Landfill Directive.
- Comply with the permit conditions at all times, and keep up-to-date-records and make them available for inspection by the competent authorities.
- Ensure that there is an appropriate transfer of information, and update the records of the waste facility in the case of a transfer of ownership. Responsibility should rest with the first owner until the transfer obligations are complied with and the necessary information has been submitted to the competent authorities.

2.2.3 Specific regulatory obligations to be fulfilled by the competent authority, which are to be included in national legislation:

- The competent authority shall impose a permit for all extractive waste management operations and stipulate conditions that are to be imposed when issuing operating permits and authorising extractive waste management facilities, to ensure that the operator allows for sufficient environmental and safety measures.
- The competent authority shall only issue a permit for an extractive waste management facility if the permit is accompanied by:
 - the following details, as a minimum:
 - the identity of the operator;
 - the location of the facility and any alternative locations;
 - details of the financial security provided by the operator to ensure it is adequate to provide financial cover for risks involved in the type of operation that will be undertaken in accordance with Article 14;
 - a waste management plan in accordance with Article 5 and any information related to Article 5 of the Environmental Impact Assessment Directive (85/337/EEC), where applicable;

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- detailed information that the operator is capable of managing the extractive waste in accordance with the waste management plan under Article 5 of this directive and Article 7 of the Waste Framework Directive. The competent authority shall ensure that the operator prepares the waste management plan before it issues a permit.
- A financial guarantee that all obligations under the permit issued, including for closure and after closure of the facility, can be executed by the operator and that there is sufficient funding at any time for the rehabilitation of the land where the facility is located. The competent authority shall calculate the guarantee on the basis of Article 14 (2) (a) and (b).
- Set up the necessary infrastructure to provide information to the public, at the earliest stages in the procedure of granting a permit (or whenever the information becomes available). The infrastructure must be able to function on a national level and, where applicable, for transboundary consultations in accordance with Article 16.
- The information to the public, which should be provided by the competent authority, should include:
 - the application for the permit/details of amendments to a permit, where applicable;
 - whether transboundary consultations are required;
 - details regarding the competent authorities responsible for taking the decision and regarding which authorities can provide the relevant information;
 - details of the time frames that the public has for submitting questions and comments and for the competent authority to provide replies;
 - the nature of possible decisions that will be taken by competent authorities;
 - details on public participation arrangements.
- The competent authority cannot take a final decision unless it provides the necessary procedures for the public to express comments and opinions to it beforehand.
- The competent authority is ultimately responsible for classifying waste facilities as Category A in accordance with Annex III. It can therefore either confirm or reject the operator's classification of the facility, which it submits together with the waste plan and the application for the permit.
- The competent authority shall instruct the operator to implement any other measures it deems necessary (apart from the measures in the internal emergency plan), if any events affect the stability of the waste facility and significant adverse effects on the environment and human health ensue.
- The competent authority has the right to appoint an independent expert to verify the information that the operator may provide it with in order to prove its compliance with the permit conditions.
- The competent authority may authorise the closure of an extractive waste management facility only after it has carried out an on-site inspection, assessed the reports submitted by the operator and certified the land affected as rehabilitated and reports to the operator accordingly.
- The competent authority shall take over the operator's tasks for the closure of the facility to minimise or eliminate any environmental and health risks and may do so at the expense of the operator.
- The competent authority shall ensure that the owner of every closed-down facility draws up an inventory. It shall make such inventory available to the public. The competent authority shall ensure that the management of extractive waste is listed in Annex III of the

Environmental Liability Directive 2006/21/EC. The amendment provided by Article 15 of this directive must be transposed into national legislation and enforced accordingly.

2.3 Monitoring

Competent authorities established by law shall be legally responsible for monitoring the following:

- That all extractive waste management facilities operate with a permit obtained after the operator:
 - has fulfilled all the requirements in accordance with Article 7;
 - has submitted a waste management plan in accordance with Article 5;
 - has had the classification of the waste management facility endorsed by it;
 - has adopted all the necessary plans for major-accident prevention and handling in case of an occurrence;
 - has shown that the design, management of operations and closure will be carried out in accordance with the directive;
 - has an adequate financial guarantee approved by it that is monitored regularly for any necessary readjustments;
 - has shown that it has the capacity to ensure stability as well as to prevent or minimise as far as possible adverse impacts on the environment and on human health in accordance with the directive.
- That all operators of extractive waste management facilities strictly comply with the conditions stipulated in the permit from the design stage to the operations stage and up to the closure and post-closure phase.
- Whether, in view of any changes undertaken by the facility or the availability of new techniques, more conditions need to be stipulated in the permit and/or whether existing conditions should be revised.
- That all operators of extractive waste management facilities strictly comply with the waste management plan in accordance with Article 5 and that operators review it regularly every five years.
- That all operators comply with the Landfill Directive (1999/31/EC) when using excavation waste to fill excavation voids and that they ensure stability, including after closure, in accordance with Article 10 of this directive.
- That all operators manage the waste facility in a competent manner and that technical development and the training of staff are regular activities.
- That all operators keep their records up to date and that records are made available to the competent authority upon demand.
- That the construction or modification of existing facilities, as well as their management and maintenance, meet the necessary conditions to prevent pollution from point and diffuse sources in accordance with the Water Framework Directive (2000/60/EC), the Groundwater Directive (80/68/EEC), Directive 76/646/EEC on pollution caused by certain dangerous substances discharged into the aquatic environment, and the provisions of Article 13 of this directive.
- That all operators have the waste facility monitored and inspected by competent persons to ensure stability and take the necessary action if environmental harm or hazards to human health arise.

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- That all operators who apply for their waste facilities to be declared closed must satisfy the conditions stipulated in Article 12 before and after it declares the facility to be closed.
- That a final on-site inspection has been carried out by it in order to declare the facility to be closed.
- That the inventory of closed-down facilities is regularly updated.

2.4 Reporting

- Candidate countries must endow their competent authorities with the necessary capacity to fulfil, within the appropriate time frames and on a permanent basis, reporting requirements to the Commission under Article 18 of the directive. This is a legal obligation that is binding upon the competent authorities of candidate countries but need not be included in a national legal instrument.
- Candidate countries must, however, provide for legal instruments that render obligatory reporting/providing information to the public both upon request and also at regular intervals such as, for example, in state of the environment reports.
- The competent authority must be in a position to provide upon request information to the public, even in the case of transboundary consultations, and to the Commission on the implementation rules adopted. The exchange of information with other Member States is also obligatory.
- The operator has reporting obligations towards the competent authority, which must be provided for in the national legislation transposing the directive. The operator must report, on the basis of aggregated data, all monitoring results to the competent authorities to demonstrate compliance with permit conditions and increasing knowledge about waste and facility conditions.

2.5 Additional Legal Requirements

- The Extractive Waste Directive introduces an amendment to the Environmental Liability Directive (2004/35/EC). Article 15 of the Extractive Waste Directive provides that the following provision is to be included in Annex III of the Liability Directive: "13. The management of extractive waste pursuant to Directive 2006/21/EC of the European Parliament and of the Council of 15 March 2006 on the management of waste from extractive industries." As a result, extractive waste management facilities are now included as one of those operative industries that are bound by strict environmental liability under this directive.
- Council Directive 75/442/EEC of 15 July 1975 on waste (the Waste Framework Directive) lays down general provisions and principles for the handling of waste, as defined in Article 1(a) of the directive. Article 2(1)(b)(ii) of the directive establishes that waste resulting from prospecting for, extracting, treating and storing mineral resources and the working of quarries will be excluded from the scope of Directive 75/442/EEC where they are already covered by other legislation. This directive therefore complements the Waste Framework Directive on the basis of Article 2(2) of Directive 75/442/EEC and of a cross-reference made to that directive, specifying that, unless otherwise stated, the new directive will supplement the provisions of the Waste Framework Directive.
- Council Directive 1999/31/EC of 26 April 1999 on the landfilling of waste (the Landfill Directive) also covers waste from the extractive industries. The Extractive Waste Directive supplements the Landfill Directive by providing for the safe management of waste generated from mineral extraction operations, introducing tailored controls in respect of the management of such waste. It also provides for the prevention of accidents, in particular relating to the stability of dams in tailings ponds.

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- Council Directive 96/61/EC of 24 September 1996 concerning integrated pollution prevention and control (the IPPC Directive) provides that all installations covered by its Annex I are required to obtain an operating permit from the competent authorities in the Member States. Although extraction activities as such are not specifically addressed by the IPPC Directive, certain metallurgical activities, mineral processing activities, chemicals production activities and landfill activities (involving waste other than inert waste) fall within the scope of the directive. Thus, if extraction is carried out as a “directly associated activity” to any of the activities listed in Annex I to the IPPC Directive, it must be covered by an IPPC permit.
- Council Directive 96/82/EC of 9 December 1996 on the control of major-accident hazards involving dangerous substances (Seveso II Directive) aims to contribute to the prevention of major accidents that involve dangerous substances. In addition, it seeks to limit the adverse consequences of such accidents for human health and the environment. The Extractive Waste Directive complements the Seveso II Directive because Article 4(e) of the latter directive excludes from its scope the main activities of the extractive industries, namely the prospecting for and exploitation of minerals in mines and quarries or by means of boreholes. Moreover, Article 4(f) excludes “waste landfill sites”.
- Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy (the Water Framework Directive) establishes a general framework for the protection of all waters. It aims to prevent pollution at source and sets out control mechanisms to ensure the sustainable management of all pollution sources. The Water Framework Directive also has the potential to ensure that pollution originating from abandoned waste management facilities of extractive industries is properly addressed. It is referred to in the Extractive Waste Directive as a legal standard to prevent water status deterioration by extractive waste management.
- Council Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment, as amended by Council Directive 97/11/EC of 3 March 1997 (the EIA Directive) provides that projects that are likely to have significant effects on the environment are made subject to an environmental impact assessment (EIA) prior to development consent being given. The annexes to the directive, which list those activities that are likely to have significant environmental impacts and that are to be subject to an EIA, include the extractive industry, particularly quarries and open-cast and underground mining and drillings.

3. Implementation

3.1 Key Tasks

The key tasks involved in implementing this directive are summarised in the checklist below. The tasks are arranged under subheadings and organised in chronological order of implementation wherever possible.

1. Planning
1.1 Identify existing extractive waste facilities in accordance with Annex III of the directive, including those that are likely to cause risks to the environment and to human health at a transboundary level. Identify streams of extractive wastes in accordance with Annex II of the directive.
1.2 Identify the competent authority/ies that should act as regulators and the stakeholders involved in the extractive waste management processes. Ensure a proper delineation of roles and duties to avoid gaps and the duplication of work.
1.3 Hold discussions with stakeholders to identify the best disposal options and best available

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techniques to implement the obligations of the directive in order to estimate their soundness, efficiency, feasibility and cost-effectiveness.

1.4 Organise meetings to determine how to co-ordinate the implementation of the directive with competent authorities in other Member States likely to be affected at a transboundary level.

1.5 Assess capacity-building requirements to process applications and issue permits, provide information to the public in accordance with the directive, and ensure regular monitoring and enforcement.

2. Regulation

2.1 Operators must address, prior to the commencement of operations, the category of the waste facility, the amount of waste likely to be generated and its characteristics, and the method of management, including monitoring and closure procedures, by producing a waste management plan.

2.2 Operators must only operate waste facilities if they hold a valid permit and if they comply with the conditions stipulated therein to secure environmental and safety measures to protect the environment and prevent accidents.

2.3 Operators of Category A waste facilities, because they present a significant accident hazard, must develop a major-accident prevention policy (similar to the provisions in the Seveso II Directive) to minimise the risk of accidents and to plan for clean-up in the event that an accident occurs.

2.4 Operators must draw up closure plans to ensure that the land affected by the waste facility is restored to a satisfactory state.

2.5 Operators must provide a financial guarantee, prior to the commencement of operations involving the deposit/accumulation of waste in a waste facility. The guarantee, the value of which will be assessed by the competent authority, needs to be able to cover the costs of carrying out all obligations under the permit and of rehabilitating the land affected to a satisfactory state, and to cover any rehabilitation costs in the case of an accident or in the event that an operator defaults on their closure obligations.

2.6 Operators must ensure the prevention of pollution or its reduction to a minimum. Discharges from point and diffuse sources occurring at the facility and/or as a result of extractive waste management at the facility must comply with all the applicable Community environmental legislation. Operators must ensure long-term stability at the waste facility.

2.7 Operators must have the necessary capacity to provide information on a regular basis to the competent authority and must keep up-to-date records, showing compliance with the permit conditions. Operators must also be in a position to inform, with immediate effect, the competent authority and the public in case of an accident.

2.8 The competent authority must provide information to the public on a regular basis and cannot take any decisions on the issuing of a permit for an extractive waste facility to start operating unless it has consulted the public first and considered any comments and suggestions made. It must ensure that operators are in full compliance with permit conditions once they start operations.

2.9 The competent authority can only allow an operator to close down a facility if it is satisfied, after an inspection, that the permit conditions were and are being complied with.

2.10 The competent authority shall take the necessary legal measures to include extractive waste management as an activity that falls within the scope of activities listed in Annex III to the Environmental Liability Directive (2004/35/EC).

3. Training and Capacity Building

3.1 Prepare and publish guidelines on the role of the competent authority/ies, explaining operators' duties and the rights of members of the public to be kept informed and to participate in the decision-making process with respect to the permitting and management of

extractive waste facilities.

3.2 Provide technical training to officers in public authorities involved in monitoring compliance and to waste facilities operators, addressing small and medium-sized industries in particular so as to facilitate compliance and organisational set-up. Train a selected group to ensure the quality control of data submitted from operators and monitoring exercises. Also, provide training in communication skills for officers who will handle public requests and queries.

3.3 Provide information to stakeholders, including those representing the relevant competent authorities. The technical training should also assist trainees in internal management processes.

4. Reporting

4.1 Provide information at regular intervals at a national level and set up an infrastructure to handle demands upon request by the public or public authorities, whether national or from other Member States.

4.2 Set up the necessary infrastructure to report to the Commission any information in accordance with the directive, including:

- experience gained in implementing the directive;
- measures taken to comply with the directive;
- transposition;
- obstacles encountered in implementing the directive.

4.3 Given the importance of good co-ordination amongst public authorities for the implementation of this directive, consider the appointment of one contact point responsible for co-ordination supported by a co-ordination structure.

3.2 Phasing Considerations

Candidate countries are likely already to have formulated and started implementing a national waste management plan, which includes the extractive waste stream and extractive waste management facilities. Some national authorities may already be carrying out monitoring exercises to ensure that extractive waste facilities comply with environmental legislation, but the directive will help to ensure better synergy and integrated compliance. The competent authority/ies may not need much time to transpose the directive, but before it can be transposed the national authorities need to ensure the necessary capacity building, both logistically and in terms of human resources. Considerable time needs to be spent to determine the best disposal options and best available techniques to implement the obligations of the directive. This entails discussions with stakeholders in order to estimate the soundness, feasibility and cost-effectiveness of the available options.

Furthermore, candidate countries need to acquire expertise in developing a major-accident prevention policy (similar to the provisions in the Seveso II Directive) and plans for rehabilitation and damage containment in the event that an accident occurs. Competent authorities must train experts to assess whether preventive measures taken at the facilities are appropriate to eliminate as far as possible or prevent risks to the environment and human health. Similarly, the examination of closure plans submitted by the operator and data submitted by the operator as a result of compliance monitoring requires experts to assess quality control. Another time-intensive and challenging task is the estimation of the financial guarantees required by operators under the directive. Other major tasks that are also likely to be time-consuming involve vetting waste management plans submitted by operators and setting up co-ordinating services to facilitate reporting, the exchange of information and data sharing at national and EU level.

The nature of the directive also involves the need to assess the socio-economic impacts that the obligations upon operators of extractive waste facilities may have at a national level. It is

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recommended that, although there may be various competent authorities at the regional and local level, there should be one authority responsible for co-ordination and reporting to the Commission.

The directive provides specific time frames for compliance by Member States in Article 24, which depend on when the facilities were granted a permit and on which facilities are already in operation.

Hence, by 1 May 2006, extractive waste shall be managed in compliance with Article 4(1) (the general requirement to prevent harm to the environment and to human health) and any other applicable Community legislation. Facilities in operation or that have been granted a permit by 1 May 2008 shall comply with the directive by 1 May 2012. The only exception is compliance with Article 14 (1) (the requirement of a financial guarantee prior to the commencement of operations), which shall come into force in these facilities by 1 May 2014 and with the measures set out in Article 13(6) (measures for ponds containing cyanide) where the timetable laid down therein shall apply. Facilities that stopped accepting waste before 1 May 2006, that are completing closing procedures, or that will be effectively closed by 31 December 2010 will not be subject to Articles 5, 6(3)-(5), 7, 8, 12(1) and (2) and 14 (1)-(3) of the directive. Waste facilities closed by 1 May 2008 are not bound by Article 24(1).

4. Implementation Guide

4.1 General

During the transposition phase, careful consideration must be given to a number of legal and organisational issues to ensure compliance and better co-ordination. Legal issues that need to be addressed, given the nature of the obligations of the directive, include: principles of confidentiality, conditions under which to allow a request for information to be refused, the legal duties and responsibilities of competent authorities involved when carrying out compliance monitoring, managing data or exchanging such data. Training officers in all authorities that will be involved in the implementation of the directive is essential, both for compliance purposes and good governance. The permitting requirements laid down should strike an appropriate balance between, on the one hand, the extent of the administrative burden falling on operators or competent authorities when applying for or delivering a comprehensive waste management permit and, on the other hand, the benefits arising in terms of environmental protection and accident prevention. The vetting of waste management plans and emergency plans as well as the drawing up of financial guarantees requires specific expertise.

Member States are required to transpose this directive into national law by 1 May 2008. It is to be noted that extractive industries' waste has until now been mainly covered by the Waste Framework Directive, the Hazardous Waste Directive and the Landfill Directive. The transposition of the directive may in fact make use of existing legislation although the Extractive Waste Directive introduces specific requirements for the extractive industries and their management of waste. As a result, care should be taken to avoid duplication in permitting requirements.

Example of Practical Implementation in Member States (UK)

As a general approach in transposing the directive the UK Government is seeking to ensure that the outcome is based on a proportionate and risk-based approach to the management of extractive waste. The Scottish Government's intention is to transpose the directive by modifying existing planning application procedures so that they explicitly incorporate most of the requirements of the Extractive Waste Directive. This option was preferred because in this manner, applications for the management of extractive waste would be considered as an integral part of the whole mineral extraction process, lessening the impact of development on local communities and ensuring that negative effects on the environment can be fully addressed. Pre-application

discussions are already an integral part of the planning application preparation process and, in the case of the transposition of this directive, would serve to manage the interface between planning, pollution and health and safety controls under this directive.

Operators would need to assess whether their extractive waste facility falls within the scope of the directive and, if so, whether an Article 7 permit is required to operate that facility. If such is the case, it is being proposed that operators must submit a planning application by 1 May 2010. This is considered to be the most appropriate way of ensuring that the directive's requirements, particularly those relating to public participation, are met. The application should include all the information, including the proposed waste management plan, to ensure compliance with the relevant requirements of the directive. The application would address only those aspects of the operation involving the management of extractive waste. The planning authority would then determine the application and subject it to consultation within the relevant competent authorities and among the public. The planning authority would only grant planning permission if it were satisfied that the operation complied with all the relevant requirements of the directive. Planning permission would supersede any other existing permits.

The consultation process referred to is particularly valid for compliance with the requirements of the directive. As a result, the Scottish Government is proposing that the competent authorities involved be established by law as consultees on all new planning applications involving extractive waste. This will help ensure that all proposals satisfy the requirements of the directive prior to the commencement of work. It is also envisaged that the transposing regulations will include an amendment to the definition of "development" in Section 26 of the Town and Country Planning (Scotland) Act 1997 to make explicit that "development" includes the "management of extractive waste". Furthermore, existing legislation permitting development rights relating to waste tipping at mines will be amended to ensure that planning permission would be required to undertake these activities.

In addition to a waste management plan, operators of waste facilities will be required to obtain a permit that complies with Article 7 of the directive. Permits are subject to the further requirements of public participation and requirements relating to the construction and management of waste facilities, closure and after-closure procedures, the prevention of water status deterioration and air and soil pollution, financial guarantees and inspections by the competent authority.

Enforcement will continue to be complemented by existing environmental and health and safety legislation but it is envisaged that the transposition of the directive would still need to include specific provisions to ensure compliance with the directive's requirements in Article 6 relating to major-accident prevention, which applies only to extractive industries listed in Category A of Annex III. These provisions would render it compulsory for industries falling within the scope of Category A, Annex III, to have a safety management system and emergency plans, as well as to provide the dissemination of information to people likely to be affected. Additionally, the new legislation would ensure that these industries would be legally bound to have the required capacity to provide competent authorities with the relevant information to address actual or potential environmental damage in case of an accident.

Closure procedures will be governed by existing planning conditions dealing with the restoration and aftercare of mineral sites, and existing health and safety and environmental legislation. However, to ensure that the relevant requirements of the directive are met, the Scottish Government proposes to provide planning authorities with the power to impose additional planning conditions where necessary.

It is intended that all available derogations within the directive will be availed of under Scottish legislation. Planning authorities will, therefore, be given powers to waive or reduce the directive's requirements in the circumstances set out in Article 2(3) of the same directive.

(The information is based on the "Mining Waste Directive: Consultation Paper" dated April 2008, published by the Scottish Government.)

4.2 Regulation

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The definitions of the directive must be carefully transposed and abided by, to ensure compliance with the directive. Apart from the specific obligations in the substantive text of the directive, special attention must be given to the annexes, which set out the legal obligations upon Member States with respect to the contents of major-accident policies, the information that must be communicated to the public concerned, the conditions for waste characterisation, and the criteria for classifying waste facilities. Article 2 sets the scope of the directive, also listing which type of extractive waste is excluded from the directive, and Article 4 sets the general requirements. Candidate countries must draw up parameters to determine criteria that would regulate the licensing of applicants who wish to initiate extractive waste management operations. However, the directive sets out specific conditions according to which competent authorities may proceed with issuing a permit. The directive requires competent authorities to ensure that the public is involved in the decision-making process (Art. 8), and that a waste management plan (Art. 5) that includes emergency plans for major-accident prevention and information (Art. 6), as well as closure plans (Art. 12) and a financial guarantee (Art. 14) are submitted and endorsed by it. The directive sets out specific obligations that national authorities in candidate countries must require operators to comply with, both in the construction and the management of waste facilities (Art. 11).

National legislation should leave as little discretion as possible to the operators to ensure smooth implementation and uniform application. Provision should also be made in legal instruments to establish how requests for information may be made. In case it is considered inappropriate to include certain measures in a legal instrument because of their predominantly administrative nature, it is recommended that memoranda of understanding be drawn up to ensure smooth and uniform implementation. Transparency is of vital importance and the competent authority/ies, as the regulator, must keep the public informed on a regular basis. Any limitations to access and any derogations, on any grounds, must be interpreted in a very strict manner.

Examples of National Transposition (MT)

The directive will be transposed through the draft Waste Management (Management of Waste from Extractive Industries) Regulations, 2008.

At this stage, the Malta Environment and Planning Authority has been considering which is the best regulatory regime, particularly in the context of better regulation.

The policy objective is to prevent or reduce harm to the environment and resultant risks to human health, whilst minimising the regulatory burden on the quarrying industry, by the effective and timely transposition of Directive 2006/21/EC in Malta.

The intention is that regulations implementing the directive's requirements, making use of all derogations and transitional provisions available, should come into force as soon as possible.

Although no impact assessment has been carried out by the Maltese Government, the following can be taken into consideration:

1. The "do nothing" option should be taken into account as the base situation, against which the cost impact of the transposition options should be compared. To do nothing would mean that quarrying operations in Malta would continue to be subject to existing planning, health and safety and environmental regulations, as appropriate. In particular, the quarrying industry would still be subject to the requirements of Council Directive 1999/31/EC of 26 April 1999 on the landfilling of waste, while Directive 2006/21/EC proposes a regulatory approach for extractive waste that is tailor-made for the extractive industry. Typically, extractive wastes in Malta are limited to inert non-hazardous wastes that can be deposited in excavation voids with minimal impacts on the environment. Impacts usually associated with disposal are generally limited to dust generation and potentially minor impacts on the final physical stability of the deposited waste masses. To do nothing would penalise quarry operators who want to rehabilitate their quarries by means of infilling them with inert non-hazardous extractive waste. The deposition of inert wastes in quarry voids is a practice that is desirable from an environmental and land-use point of view as it ensures the effective rehabilitation of quarry voids. Any measures that

might make it more difficult for quarry operators to rehabilitate disused quarries should be avoided. Finally, certain important aspects of Directive 2006/21/EC, including the requirements for a waste management plan and for a specific permit to operate a waste facility, would not be transposed into national law, leaving Malta in breach of its obligations under the directive.

2. The Malta Environment and Planning Authority has considered two main options for transposing the directive:
 - the planning and existing consents option; and
 - the environmental permitting option, with the competent authority being the Malta Environment and Planning Authority.

The authority's preferred option is transposition through environmental permitting.

Indeed, should option 1 be adopted, there would be an added burden on the Planning Directorate of the Malta Environment and Planning Authority, given that its main role is the planning and regulation of the use of land, whereas the directive is concerned with the management of waste. However, the environmental permitting option has been specifically designed as a platform to deliver environmental permitting directives at lower cost and in a more efficient way than would be the case should a stand-alone system be designed to deliver the directive's requirements.

Past evidence indicates that the environmental permitting option implemented by the Malta Environment and Planning Authority will be the least costly option overall, with slightly lower direct costs for industry and significantly lower costs for the Government.

4.3 Monitoring

The primary competent authority for implementing this directive is usually the ministry of environment, or an agency for environmental protection, which shall be the regulator responsible for monitoring compliance and enforcement. Sub-national competent authority participation, however, will often be vital as accountability and everyday communications with stakeholders will also almost inevitably take place at the sub-national level. Extractive industries may also be regulated by other public bodies within a state. At the central government level, these may include government ministries for spatial planning, trade, statistics, resources, industry and enterprise. Other types of national bodies that may have regulatory powers and provide related services include environmental protection agencies, federations of industries, and trading and commercial bodies. At the regional and local level, monitoring may be carried out by sub-national or local environmental inspectorates or environment agency offices, local government offices, local planning authorities, and municipalities.

Although the lead ministry or the focal point for the purposes of the directive may be the environment ministry or the environment agency that would have the necessary regulatory and monitoring powers, other public authorities may also be involved to avoid duplication and to ensure a one-stop shop. However, ultimately there needs to be one authority that has overall responsibility.

Competent authorities are responsible for determining:

- compliance with the legal requirements for the granting of permits;
- the contents of waste management plans, including the construction and maintenance, as well as the closure and post-closure plans of waste facilities;
- waste characterisation;
- a hierarchy of preferred disposal options and techniques to be used, including reuse and recovery options;
- criteria for waste facility classification;
- the contents of emergency plans;

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- assessment tools for quality control to ensure operators' compliance with permit conditions;
- public participation;
- the calculation of the financial guarantee cover;
- co-ordination of compliance with environmental legislation by the waste facilities;
- regular inspections and final inspections for closure permitting and the compilation of inventories for closed facilities;
- transboundary consultations;
- reporting to the Commission.

4.4 Enforcement

The directive obligates Member States to include effective, proportionate and dissuasive penalties under national legislation for the infringement of obligations specified in the directive. The directive also imposes strict liability for extractive waste management facilities in case of environmental harm resulting from their operations as one of the activities listed in Annex III of the Environment Liability Directive (2004/35/EC).

5. Costs

The directive requires a financial guarantee, or equivalent, before the commencement of operations that involve the accumulation or deposit of extractive waste in a waste facility. A financial guarantee is only required if the waste is to be deposited in a Category A waste facility. This may not be considered as an added cost, since it is already required and may already have been deemed necessary before a planning application to extract minerals is approved. The Commission's upcoming guidelines will be used as a basis for quantifying the financial guarantees.

Existing and new sites that require an Article 7 permit may be subject to planning fees for the processing of applications. However, it may be the case that, since operators already pay for such planning fees in applications for a development permit, no additional fees will be necessary. Facilities coming under Category A in Annex II would also be subject to additional costs to fulfil the extra requirements imposed upon such facilities by the directive.

Administrative costs for the authorities would depend upon the extent to which the transposition of the directive would be integrated in the existing administrative structure. The directive introduces specific requirements that would require Member States to invest in new personnel and to carry out additional permitting, application processing, monitoring and consultation.