EU Waste Policy and Challenges for Regional and Local Authorities

Background Paper for the Seminar on Household Waste Management "Capacity Building on European Community's Environmental Policy"

December 2002

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Contents

1. Introduction to EU Waste Policy ____ *3*

1.1 Hierarchy of Waste Management ____ 3

1.2 General Principles ____ 4

1.2.1 Precautionary Principle ____ 4

1.2.2 Proximity Principle ____ 5

1.2.3 Polluter-Pays/Producer Responsibility Principle ____ 5

1.3 The Aquis Communitaire on Waste ____ 5

2. Challenges for Regional and Local Authorities ____ *6*

2.1 General Challenges ____ 6

2.2 Challenges specific to the Packaging Directive ____ 8

2.3 Challenges specific to the Landfill Directive ____ 8

3. Key Directives and Further Development of European Waste Policy ____ *9*

3.1 Framework Directive (75/442/EEC) ____ 9

3.1.1 Objectives. ____ 9

3.1.2 Obligations. ____ 9

3.2 Packaging/Package Waste Directive (94/62/EC) ____ 10

3.2.1 Objectives. ____ 10

3.2.2 Obligations. ____ 11

3.3 Landfill Directive (99/31/EC) ____ 11

3.3.1 Objectives ____ 11

3.3.2 Obligations ____ 11

3.4 Further Development of European Waste Policy ____ 13

3.4.1 Waste Management Statistics (Regulation) ____ 13

3.4.2 Electric and Electronic Waste (proposal for a Directive) ____ 13

3.4.3 Biodegradable Waste (Directive to be proposed end of 2004) ____ 14

4. Conclusion ____ *14*

List of EU Waste Policy ____ *16*

Bibliography ____ *17*

1. Introduction to EU Waste Policy

Waste is defined by the Waste Framework Directive (75/442/EEC) as 'any substance or object which the holder disposes of or is required to dispose of.' The European Community generates over 2 billion tonnes of waste each year, 200 million tonnes of which is municipal waste. Over the last six years the amount of waste generated increased by more than 10 per cent[1]. The municipal waste stream[2] itself is increasing as well. Waste mountains have become a danger not only to the environment but to human health as well.

Legal landfills are becoming increasingly full, producing toxic and explosive gases and leaking heavy metals and toxins into groundwater and soil. The risks from illegal landfills cannot even be described. Incineration produces toxins and heavy metals. Even when expensive filters are installed, they become hazardous and must eventually be disposed of, along with the residue from the incinerated waste.

Focusing on disposal options, however, is not a solution to the waste problem. The production of waste is closely tied to other issues, including consumption patterns, lifestyle, jobs and income levels, as well as a host of other socio-economic and cultural factors. Therefore, it is important to view waste management within the larger arena of socio-economic development and resource management. Effective waste management begins with prevention; what is not produced does not have to be disposed of.

Waste management is recognised as a key area in environmental protection, as it is where the outputs of production, distribution, and consumption interface with the natural environment-soil, air, water, climate. Waste management is a complex topic with multiple component parts, encompassing collection, treatment, and final disposal of waste produced by households, small and medium sized businesses, clinics, industry, and agriculture. There are, however, a number of key principles which guide the creation of legislation, as well as some important broad issues involved in waste management policy and options. The overarching ideal of sustainability governs the general direction of waste management and forms the basis for the hierarchy of waste management options in EU policy. The principles of Precaution, Proximity, and Polluter-Pays also direct waste legislation.

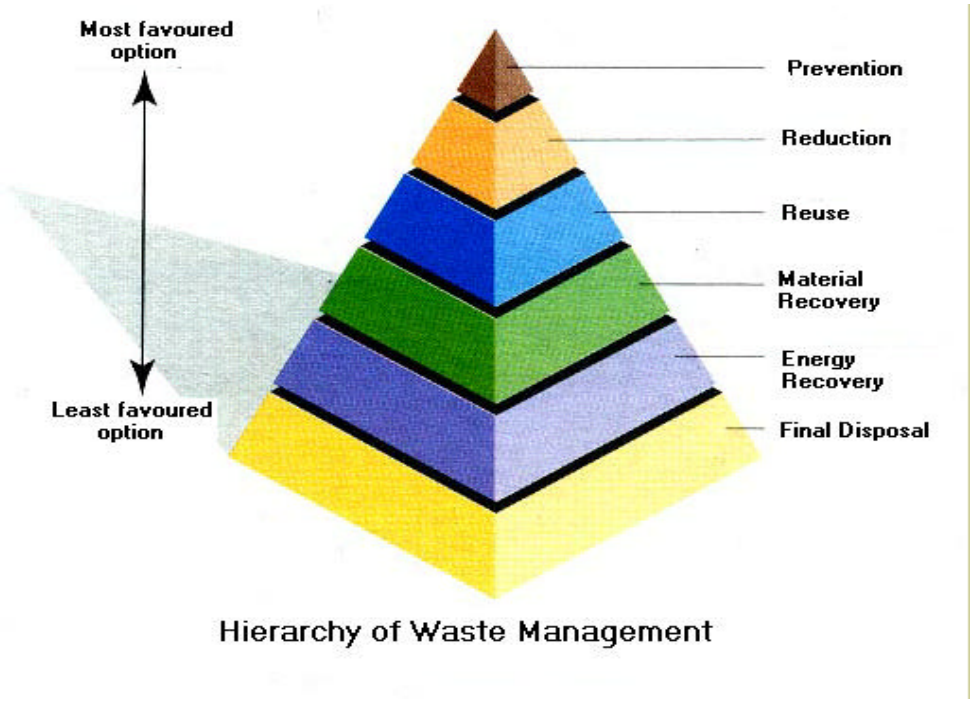
While most Member States already have a waste management system in place, even the most developed systems have to meet substantially increasing environmental and legal standards, best practices, the need for efficiency, and quality management.

1.1 Hierarchy of Waste Management

In its waste policy and legislation, the European Commission has set out a clear hierarchy of waste management options in its legislation. The hierarchy establishes preferred program priorities based on sustainability. To be sustainable, waste management cannot be solved only with technical end-of-pipe solutions; as this is realised, waste management as a whole is moving towards more integrated approaches. The hierarchy was first introduced in the Waste Framework Directive (75/442/EEC), and now is a component of all relevant waste directives. Its implementation is guided by the consideration of the Best Practicable Environmental Option taking into account both social and economic costs.

[1] Source: European Commission. "EU focus on waste management." 1999.

[2] Waste streams are defined as 'the total flow of solid waste from homes, businesses, institutions, and manufacturing plants that is recycled, burned, or disposed of in landfills; or segments thereof.' The total waste stream can, and is, divided into many, smaller component streams, such as household waste, which can further be separated into biodegradable household waste, recyclable household waste, etc.



Hierarchy of Waste Management

The **prevention of waste** is the paramount point in the waste hierarchy. Prevention or reduction minimises the generation of waste products in the first place. Prevention usually results in the least environmental and economic life cycle costs because it requires no collecting or processing of materials. It also typically produces significant benefits in terms of production efficiencies and use of resources.

The **reuse of waste** is the next most desirable option. Reuse is the using again of a material without any structural changes in that material. Reusing waste often requires collection but relatively little or no processing.

The **recovery of waste** is further separated into categories: recovery of materials and recovery of energy. Whichever of these two options is better for the environment and human health is the preferred; the recovery of materials is most often the more preferred option. **Recovery of materials** includes activities such as **recycling and composting**. These activities generally require a collection system, as well as a method of material processing or conversion into a new product. **Recovery of energy**, such as incineration[3], is usually the less preferred option.

Final disposal is always a last resort, only considered once all other possibilities have been explored. Before final disposal, a considerable amount of pre-treatment is necessary. Pre-treatment includes physical, thermal, chemical, or biological processes which change the characteristics of the waste in order to reduce the quantity and/or harmfulness of the waste. Landfilling is final disposal.

1.2 General Principles

1.2.1 Precautionary Principle

The Precautionary Principle broadly states that when an activity causes a threat or threats to human health or the environment, precautionary measures should be taken even if a direct cause and effect relationship has not been scientifically proven. The proponents of the activity, not the public, bear the burden of proof. This Principle permits a lower level of proof of harm to be used when making policy if waiting for a higher level of proof may cause significant or irreversible damage to human health or the environment.

[3] A recent decision by a European Court of Justice Judge ruled that an operation should only be regarded as recovery if the use of waste meant replacing other materials that would otherwise have been used to create energy. The decision makes the incineration of all municipal waste a disposal operation rather than recovery, as the principle objective is to dispose of the waste and the energy recovery is only incidental.

1.2.2 Proximity Principle

The Proximity Principle clearly states that waste should be disposed of as close as possible to where it is produced. This reduces time, energy, the likelihood of accidents, and the financial and environmental expense of long distance transport; all of which may eventually outweigh the benefits of options such as recycling or composting.

1.2.3 Polluter-Pays/Producer Responsibility Principle

The **Polluter-Pays Principle** broadly states that the Polluter should bear the expenses of carrying out policies and measures to ensure that the environment is in an acceptable state. In other words, the cost of these measures should be reflected in the cost of goods and services which cause pollution in production and/or consumption.

Producer Responsibility is based on the Polluter-Pays principle and holds the producer of a good physically or financially responsible for the entire lifecycle of that good and its packaging, even when they cease to be of use to the consumer. In making manufacturers liable for the cost of recovery and disposal of their products, they will be more likely to design less wasteful products, which are easier to disassembly and reuse, as well as recycle. The Commission has consolidated its Producer Responsibility approach, looking at the entire lifecycle of the product from mining of the raw resources to final disposal in its Integrated Product Policy.

Within waste management, these two principles become very important. For example, the Waste Framework Directive (75/442/EEC) clearly states that 'in accordance with the Polluter-Pays Principle, the waste producer is financially responsible for the disposal of the waste. Both the Directive on End-of-Life Vehicles (2000/53/EC) and the proposal for a Directive on Waste Electric and Electronic Equipment centre around Producer Responsibility, placing the financial and physical responsibility of collecting, sorting, and recycling these materials on producers.

1.3 The Aquis Communitaire on Waste

EU policy on waste has developed largely over the last 25 years, driven by the goal of harmonising waste policy to prevent any distortion in competition. Initially, directives were solely concerned with the definition of waste and the control of dangerous and/or hazardous waste, the prevention of transfrontier shipment of waste, and reporting standards. Since 1993, however, EU waste policy has shifted to focus more on increasing sustainability in waste management and reducing the environmental impact of waste management options. The policy has led to an emphasis on prevention and minimisation of waste, in conjunction with integrated waste management planning. In order to implement directives on waste it is important to view them as a whole, as well as within the larger context of all EU legislation, environmental or otherwise (see attached list of EU waste policy).

The Waste Framework Directive (75/442/EEC) was adopted in 1975 in order to harmonise different Member States' approaches to waste management in a coherent way. The later Directive on Hazardous Waste (91/689/EEC) establishes a definition and a framework for managing all waste that is defined as 'hazardous,' doing for hazardous waste what the Waste Framework Directive did for waste. These two directives, together with legislation on the movement of waste, provide the backbone of waste legislation within the European Community.

In the past, European nations have exported waste to less developed nations in other parts of the world. The Regulation on the Shipment of waste (259/93) establishes systems to monitor and control, and in some cases prohibit, the shipment of waste within, out, and into the European Community. There are prohibitions on all exports of waste for disposal from the Community, and hazardous waste destined for recovery cannot be exported from the Community either.

Several other directives focus on specific priority waste streams, such as the Directive on Packaging and Packaging Waste (94/62/EC) and the Directive on batteries and accumulators (91/86/EEC). Other directives focus on the impact of treatment and disposal on the environment by setting up common technical standards, for instance the Directive on the incineration of hazardous waste (94/67/EEC) or the Directive on the landfill of waste (99/31/EC). The Commission has also drawn up a list of wastes, known as the European Waste Catalogue, to standardise waste classification and reporting.

In 1989, the Commission published its first broad-based communication on waste***, A Community Strategy for Waste Management.*** This was then revised in 1996. The strategy 'establishes as the general objective of the waste management policy the need to ensure a high degree of environmental protection without distorting the functioning of the internal market with a view to promoting sustainable development.' The hierarchy of waste management options, the Proximity Principle, Producer Responsibility, appropriate definitions of waste related concepts, and the need for reliable data and a comprehensive and integrated legal framework are all reaffirmed.

Three of the directives most important in the field of managing household waste are the Waste Framework Directive (75/442/EEC), which sets out a general framework for waste management; the Packaging and Packaging Waste Directive (94/62/EC), which deals with a specific priority waste stream; and the Landfill Directive (99/31/EC), which sets standards for a method of disposal. These are outlined and discussed in this paper with regards to the major associated challenges for local and regional authorities. The objectives and obligations of these three directives are summarised in Chapter 3 where the future development of European waste policy is also discussed.

2. Challenges for Regional and Local Authorities

2.1 General Challenges

For the purposes of this paper, it is assumed that each directive has already been fully legally transposed into and aligned with national legislation. The legal competence and the physical responsibility for each task of waste management within a country must be clearly delegated to the different levels of administration (national, regional, local) and to other possible actors (industry or private companies). It is particularly important to delegate the responsibility of meeting new requirements, such as separate collection systems for different waste streams or establishing and management of new treatment facilities.

For implementing the "*aquis communitaire*" on waste, local and regional authorities are particularly challenged by the following issues:

- A coherent **waste management strategy** (including management plans at different levels) must be set up and implemented;
- Separate **collection and sorting systems** for many different waste streams need to be established (see Challenges specific to the Packaging Directive and Challenges specific to the Landfill Directive);
- New adequate **treatment and disposal facilities** must be established;
- An effective horizontal **co-operation** between local authorities (municipalities) and a vertical co-operation between different levels of authorities (local – regional and where beneficial also national) needs to be established;
- **Financing** for the establishing/upgrading of expensive sustainable waste management infrastructure must be found;
- **Lack of data** availability must be overcome and extensive **monitoring** requirements must be met;
- Effective **enforcement and control** is needed;
- Lack of **administrative capacity** at the regional and local level, (lack of finances, information, and technical expertise) must be overcome;
- Transparency and **public participation** must be enhanced.

Waste management strategy

Competent authorities are required to develop coherent waste management plans by not only the Waste Framework Directive but also other EU waste legislation. National plans should set strategic goals and targets, and the regional and local plans should be more detailed and practical. The requirements for the separate collection and sorting of different waste streams need to be included in the waste management plans as well as strategies for upgrading or closing old and building new treatment facilities and landfills. These treatment facilities and landfills then need to be set up and managed (see also Challenges specific for Packaging Directive and Landfill Directive), this being the major challenge.

Co-operation.
Co-operation across levels of governance and among different regions is important to a successful waste management program. Regional authorities should be in regular communication with both the local authorities within their administrative territory and other regional authorities. This will allow for co-ordination and efficiency of operations, and will provide a way to share experiences about best implementation practices and solutions to common problems. Co-operation among municipalities to set up and run regional facilities (e.g. for sorting, treatment and final disposal) are necessary and can help to share costs.

Financing.
Setting up infrastructure is an expensive process, and sources of **financing** must be found. Financing is frequently a limiting factor in the quality of waste management, and fees charged by local governments for waste management often do not cover the operation costs. An economically viable financing system, employing incentives and/or other mechanisms, must be installed to meet the set requirements. One option is variable charging, or pay-as-you-throw charges. This requires waste producers to pay for the amount of waste produced, thereby causing them to consider how to reduce the amount of waste.

The Polluter-Pays Principle, however, is difficult to implement in countries where most waste producers have a very low income, and therefore, a low willingness and ability to pay. The local authority should lobby the national level to ensure enough funds are available to them to comply with requirements of the directives, but funds must be correctly allocated within the municipality as well.

Public Participation.
The public needs to contribute to meet the targets of the different directives by e.g. preventing and reusing waste, or by sorting packaging wastes as well as other waste streams (biodegradable or hazardous household waste). To achieve this, the public needs to be well informed and educated to understand how and why they should separately collect packaging waste of different material.

A key to the success of proper waste management is, therefore, the information, consultation, and participation of all stakeholders, including industry, trade, and particularly households. Educational campaigns at the local level are needed to generate public awareness, interest, and support. Local authorities will have to organise public hearings in order to inform the public of waste management options, the problems created by waste, and their ability to contribute to more sustainable waste management. Behavioural changes and movement towards sustainability can only be accomplished through education.

Lack of capacities.
Regional authorities, mainly responsible for planning, enforcement and control, often are not able to fulfil their tasks adequately because of a lack of administrative and/or financial capacity. The same applies to regional authorities that are responsible for the technical implementation (setting up and managing the collection, sorting, treatment and final disposal). As these new EU requirements put intensive burdens on the authorities, there is an urgent need to overcome these constraints.

The following need to be considered:

- Access to relevant material on new EU requirements printed in native languages, maybe a handbook, detailing the requirements of EU Directives, the role of local authorities, implementation mechanisms, and best implementation practices from other local authorities both within and outside of the Member States should be provided
- Information, knowledge, and expertise must be disseminated to regional and local authorities;
- Systematic training including seminars will be useful for regional and local authorities and other actors involved to transport information especially on technical solutions and financing mechanisms;
- It is important to support the technical competence of staff involved in waste management (e.g. new landfills, close old landfills, operate recycling facilities) by seminars and training.
- When private (often probably foreign) companies are delegated to perform waste collection and/or disposal tasks, it is of particular importance to obtain expert legal advice and develop well defined contracts to avoid future problems. Municipalities might need some support with this;

- Financial resources need to be provided.

2.2 Challenges specific to the Packaging Directive

A **system for managing packaging waste** needs to be built up in order to meet current and future recovery and recycling targets set in the Directive. In this system, separate collection and/or sorting of used packaging and packaging wastes must be organised. This includes the packaging waste that is generated in households as well as in industry or at the retailers. Facilities for reuse or recovery, including recycling, for the different packaging materials also need to be installed and managed. To build up and manage this infrastructure well is a large challenge, especially with regards to organisational, technical, and financial aspects.

Inter alia, the following specific challenges/problems need to be considered within this context:

- No or limited data available on quantities of packaging placed on the market;
- Who will build the system? Municipalities alone, in combination with industry/retailers, or the latter group alone?
- Who should and will pay for the system? Producer Responsibility is often not enforced yet;
- The quality of the collected packaging material needs to be higher to recover/recycle it;
- Insufficient capacities for recycling and recovering;
- Uninformed and so far poorly involved public.

> Existing experiences exist e.g. with the creation of a partially voluntary system where the economic actors commit themselves to reaching the targets within the set deadlines before regulatory requirements are set by the authorities.

To overcome constrains and to apply the Polluter-Pays Principle for the establishment of such an extensive system, **financial mechanisms** (e.g. subsidies, taxes, levies, charges) must be developed and employed at different levels and for different "users of the system", e.g. the households, industry, and retailers.

A specific requirement of the Directive and a key to the success of sustainable management of packaging waste is **public participation**. The public has to contribute to meeting the targets of the Directive by preventing and sorting packaging wastes. For this aim, the public needs to be informed and educated to understand how and why they should separately collect packaging waste of different material and the reasons behind it. Local authorities play a major role in educating and informing the public.

2.3 Challenges specific to the Landfill Directive

By limiting the quality and quantity of waste material going to landfill, the Directive implicitly requires certain waste streams to be separately collected and all waste be treated before going to landfill sites, so pre-treatment facilities need to be built. The Directive differentiates between three main categories of waste: non-hazardous waste, hazardous waste and inert waste, and it sets out different requirements for each.

The major challenges/problems the local and regional authorities are as follows:

- A large number of landfill sites (several hundred) do not meet the EU standards;
  - Strategy needs to be developed through strong inter-municipal co-operation;
  - Many landfill sites need to be closed, others need to be upgraded, new landfill facilities may be needed;
  - Illegal dumping next to existing landfill sites needs to be stopped;
- Generally neither biodegradable waste nor hazardous household waste (e.g. batteries, medicines) is yet separately collected or sorted;
- Pre-treatment facilities are lacking;
- Data must be collected on the type of waste that is being landfilled at each site and then reported;
- The system must be financed and the right incentives set.

Many **existing landfill** sites do not meet the set requirements. When these landfills were sited, it is unlikely that economic, social, and environmental aspects of the location were taken into account.

Some are close to water bodies, and few have proper bottom liners or leachate treatment facilities. Not many have biogas collection systems. Waste is often illegally dumped at the edge of landfill sites as well. A large number of these landfill sites need to be closed down and aftercare needs to be provided. Local authorities must develop a strategy for upgrading or closing and aftercare of these landfill sites, as well as for the siting of future final disposal facilities. As technical requirements are detailed and require advanced technologies, large inter-municipal sites are planned and therefore, co-ordination and arrangements are needed between the municipalities and the regions.

The specific targets for **biodegradable waste** must be met. There are different options to achieve this: Municipalities may set up separate collection of the biodegradable waste stream within households and establish large central composting facilities. Another option is for local authorities to set up or encourage residents to set up multiple small compost heaps, where residents can bring their biodegradable waste and later be able to take home fertiliser for free. As composting is not too labour-intensive, this could be a cost-effective way to meet targets.

The Directive **prohibits co-disposal**, so local authorities need to establish separate collection and/or sorting systems and treatment/disposal facilities to deal with wastes such as batteries, medicines, and electronic equipment.

Local authorities must **finance** the system and decide on how and how much to collect from waste producers, as a fee or a tax. A landfill tax should provide an **incentive** to divert waste from going directly to landfill, but only if the tax is high enough, will it cause waste producers to examine other options.

3. Key Directives and Further Development of European Waste Policy

In chapter 1.3 an overview of the EU Waste Policy is given. In this chapter, three directives that are particularly relevant for household waste management are discussed and an outlook on further policy developments in the field of household waste management is given.

3.1 Framework Directive (75/442/EEC)

The Waste Framework Directive was adopted in 1975 to harmonise waste management standards among Member States. It provides a clear definition of waste and waste-related terms and a framework for waste management. It also provides that all waste management costs should be paid by the waste producer or holder, thus implementing the Polluter-Pays Principle (Art. 15 of Directive). The Directive was entirely revised in 1991 with the approval of an amending Directive 91/156/EEC. All references to Articles and Annexes refer to those present in Directive 91/156/EEC, unless otherwise noted.

3.1.1 Objectives.

The Framework Directive identifies a number of general duties for the Member States to fulfil, following the hierarchy of waste management options (Art.3 and Art. 4). They must:

1. Take appropriate measures to encourage the prevention or reduction of waste, by developing clean technologies;
2. Promote the development and marketing of products which have little or no environmental impact in any stage of their manufacture, use or disposal;
3. Set up a program of recovery of waste, including recycling, reuse, or reclamation of secondary raw materials or energy;
4. Ensure that waste is recovered or disposed of without endangering human health or the environment, especially air, water soil, plants, and animals; and
5. Take necessary measures to control and prohibit the abandonment, illegal dumping, or uncontrolled disposal of waste.

3.1.2 Obligations.

Member States have to establish an **integrated and adequate network of disposal systems**, taking into account best available technology not entailing excessive costs (Art. 5). This network should aim

to help the Community, as well as the Member State, to become self-sufficient in waste disposal, taking into account the Proximity Principle and the need for specialised installations for particular wastes. In doing this, Member States must establish or designate a competent authority or authorities to implement the Directive (Art. 6). The main obligations of the Directive are summarised below.

Waste management plans.
In order to achieve the objectives laid out in the Framework Directive, competent authorities are required to draw up **waste management plans** (Art. 7). These plans may include other items but *must*, as laid out by the Directive, include information on:

- the type, quantity, and origin of waste to be recovered or disposed of;
- general technical requirements;
- any special arrangements for particular wastes; and
- suitable disposal sites or installations.

The Directive also points out the necessity for collaboration on waste management plans (Art. 7).

Member States must ensure that each waste producer has his waste handled by a private or public waste collector or disposes of it himself in accordance with the Framework Directive (Art. 8).

Permits and Inspection.
Any establishment or undertaking which carries out operations of 'recovery' or 'disposal,' as defined by Annexes II A and II B, must obtain a **permit** from the competent authority (Art. 10).[4] These permits must be issued to any private waste transport company operating in the local territory. Any disposal or treatment installations must be **inspected** and upgraded to ensure compliance with Community standards in preventing harm to the health of local inhabitants and the environment (Art. 13).

Reporting.
Member States are required to report to the Commission every three years (Art. 16). All establishments or undertakings which carry out operations of 'disposal' or recovery'[5] are also required to keep a record of the quantity, nature, origin, and where relevant, the destination, frequency of collection, mode of transport, and treatment method in respect of all waste referred to in Annex I and all operations referred in Annexes II A and II B (Art. 14). All of this information should also be available to the public.

3.2 Packaging/Package Waste Directive (94/62/EC)

3.2.1 Objectives.

Adopted in 1994, the Packaging Directive focuses on the management of packaging and packaging waste, implementing the hierarchy of waste management options. The Directive seeks to reduce the impact of packaging waste on the environment by limiting the amount going to final disposal in landfills through reuse and recovery. The Directive also aims to harmonise national measures to prevent market distortions and ensure the free movement of packaged goods.

The Directive is concerned with all products made of any material which is used for 'the containment, protection, handling, delivery, and presentation of goods' (Art. 3) and an annex exists detailing what constitutes packaging. For example, a plastic carrier bag is packaging but a plastic sandwich bag is not. The Directive covers three types of packaging waste:

- sales or **primary packaging** which is normally acquired by the purchaser or consumer;
- grouping or **secondary packaging**, which is generally removed by the distributor or retailer at or near the point of sale; and
- **tertiary packaging**, which may be designed to facilitate bulk handling and transport.

[4] The permit must cover the types and quantity of waste, the technical requirements, the security precautions to be taken, the disposal site, and the treatment method.
[5] As defined in Annexes II A and II B.

3.2.2 Obligations.

In keeping with the hierarchy of waste management options, the first priority of Member States should be the prevention and minimisation of packaging waste, followed by the reuse of packaging and recycling and other forms of recovery of packaging waste (Art. 1). Reuse and recycling, however, are preferable to other forms of recovery until scientific and technological progress is made in the other areas of recovery. Member States must ensure that systems are set up to provide for the return and/or collection, reuse, and recovery, including recycling (Art. 7). In accordance with the Polluter-Pays Principle, economic instruments should be set up to finance measures, but the type of instruments is at the discretion of the Member State (Art.15).

Recovery and Recycling Targets.

The Directive sets recovery and recycling targets to be achieved within five years after the formal compliance date, i. e by 30 June 2001, and requires the Commission to propose new sets of targets every five years (Art. 6). The amendment to the Packaging Directive, which has not yet been passed, will set targets which were supposed to be met no later than 30 June 2006 but the deadline has been extended to 2008. The Environmental Council adopted a Common Position on the proposed Amending Directive on 17 October 2002.

Table: Recovery and Recycling Targets

	2001	**2008***
Overall Recovery Targets	50-65%	min 60%; no max
Overall Recycling Targets	25-45%	50-80%
Glass Recycling Target	15%	60%
Paper/Cardboard Recycling Targets	15%	60%
Metals Recycling Targets	15%	50%
Plastics Recycling Targets	15%	22.5%
Wood Recycling Targets	15%	15%

*Note: These targets are tentative until the proposal for an amendment to the Directive is passed.

Reporting and Monitoring.

A database on packaging and packaging waste must be established to aid in the monitoring of the implementation of this Directive (Art. 12). The database or databases must provide information on the magnitude, characteristics, and evolution of packaging and packaging waste flows, including information on toxicity, or danger of materials or components used for their manufacture. Commission Decision 97/138 establishes a standard format to create uniform presentation.

Public Awareness.

The Directive requires campaigns educating the public, as well as producers (Art.13), concerning:

- the return, collection, and recovery systems available to them;
- their role in contributing to reuse, recovery, and recycling of packaging and packaging waste;
- the meaning of markings on packaging existing on the market; and
- the appropriate elements of the management plans for packaging and packaging waste within the larger, more comprehensive waste management plans.

3.3 Landfill Directive (99/31/EC)

3.3.1 Objectives

The Landfill Directive encourages the prevention, recycling, and recovery of waste by limiting the amount and controlling the quality of waste going to final disposal in landfills. The Directive intends to safeguard the health of humans and the environment through standardised licensing, operating, monitoring, and aftercare procedures for new and existing landfills.

3.3.2 Obligations

The Directive requires landfills be classified and different kinds of waste pre-treated and disposed of in separate landfills. Targets for biodegradable waste reduction are also laid out. The Directive standardises control and operating procedures, including leachate treatment, gas control, and

protection of water and soil. Landfill operators must perform specific and extensive monitoring of landfills even after closure. The Directive also sets out a procedure by which new technical standards will be developed and adopted by the Commission from time to time.

Landfill Classification.
The Directive requires that all landfills be classified in one of three categories: those for hazardous waste, those for non-hazardous waste (i.e. for municipal waste), and those for inert waste[6] (Art. 4). Co-disposal, the mixing of different types of waste at one landfill, is prohibited (Art. 6). Some landfills will also fall within the scope of the Directive on Integrated Pollution and Prevention Control (IPPC). However, the Landfill Directive provides that the relevant requirements of the IPPC Directive will be deemed fulfilled if the requirements of the Landfill Directive are fulfilled.

Pre-treatment.
All waste going into a landfill must be pre-treated first, unless it is inert waste for which no treatment[7] is technically feasible or waste for which treatment would not result in a reduction in the quantity or hazards to health or the environment (Art. 6).

Biodegradable Waste.
The Directive also aims to reduce the amount of methane gas emissions from landfills by setting limits on the amount of biodegradable waste going to landfills (Art. 5). The targets for reduction of biodegradable municipal waste going to landfills are:

- a reduction to 75% by weight of 1995 levels by 2006;
- a reduction to 50% by weight of 1995 levels by 2009; and
- a reduction to 35% by weight of 1995 levels by 2016.

These targets are meant to not only reduce methane emissions but also to promote the use of alternative waste management options for biodegradable waste, such as recycling, composting, biogas recovery, or other material or energy recovery.[8]

Existing and Closing Landfills.
Competent authorities must also handle the existing landfill sites (Art. 14). Operators of existing landfills must present a 'conditioning plan' dealing with any corrective measures that must be undertaken to ensure compliance with EU standards. The competent authorities must decide whether these sites are fit to continue operating or must close down 'as soon as possible.' Existing landfills have a maximum of eight years to finish the work necessary to comply with the Directive, so 2009 at the latest, with certain tighter deadlines for hazardous waste landfills.

Operating and Control of Landfills.
The Directive sets out a stringent and detailed **permitting process** (Art. 7-9). The competent authority is also required to inspect the landfill site prior to commencement of disposal operations to ensure that it complies with relevant conditions of the permit. Operators of landfills, be they public or private enterprises, must follow the **procedures for accepting, controlling, and monitoring** of waste, as laid out in the Annexes of the Directive (Art. 11 and Art.12). This includes installing a methane collection and utilisation system and a leachate collection and treatment facility. Operators of landfills must ensure that certain wastes are **not accepted** by landfill sites (Art. 5).[9] In addition, operators must ensure the safe and proper closure of the landfill, under the authorisation of the competent authority (Art. 13). After closure, it is the duty of the operator to continue to monitor the site, including analysing landfill leachate and gas, as well as the groundwater in the vicinity of the landfill site. The operator must continue to take aftercare measures until that time when the competent authority no longer considers the landfill a hazard to human health or the environment (Art. 13). The Member

[6] **'Inert waste'** is defined as waste that does not undergo any significant physical, biological, or chemical transformations.

[7] **'Treatment'** is defined as 'physical, thermal, chemical, or biological processes, including sorting, that change the characteristics of waste in order to reduce its volume or hazardous nature, facilitate its handling, or enhance its recovery.'

[8] A national strategy for implementation of reduction of biodegradable waste must be in place by 16 July 2003. Member States that put more than 80% of their municipal waste in landfills in 1995 were permitted to obtain a postponement of up to 4 years for each target. A proposal for a new Directive on biodegradable waste is now being considered by the Commission (see section 3 of this paper).

[9] These include: liquid waste; waste, which in the conditions of landfill, is explosive, corrosive, oxidising, highly flammable, or flammable; infectious clinical waste; whole tyres (from 2003) and shredded tyres (from 2006), except large tyres and bicycle tyres; and any other waste that does not fulfil the acceptance criteria determined in Annex II of the Directive.

State is required to report to the Commission every three years on the implementation of this Directive (Art. 15).

Cost Recovery.
The Directive requires Member States to take measures to ensure that all costs involved in the setting up and operation of a landfill site, including the estimated costs of closure and aftercare for at least a period of 30 years, will be covered by the price charged by the operator of the landfill (Art. 10). In doing this, the Directive seeks to ensure the true price of landfilling is reflected in the price to the waste producer, so that it is not treated as a cheap option. The Directive aims to make other, currently more expensive waste management options seem more attractive to waste producers.

3.4 Further Development of European Waste Policy

Policy is dynamic; it is developing as new challenges, concepts, and technologies develop. As knowledge about waste and its effects grows, new requirements are adopted into law. Other proposals for directives the Commission is now considering include: an Amending Directive on construction and demolition waste; an Amending Directive on packaging waste recovery and recycling targets; an Amending Directive on sewage sludge; a Directive on batteries and accumulators, which would replace the previous Directive; and a Directive on mining waste. The three proposals discussed below - Regulation on waste management statistics; Directive on electric and electronic waste; Directive on biodegradable waste - were chosen because of their relevance to municipal waste management.

3.4.1 Waste Management Statistics (Regulation)

This new Regulation requires each Member State to send statistics on waste to the Commission for the first time by 2006 (based on data from 2004), and every two years after that. The statistics will have to be reported in a common format, using common quality criteria. The draft measure, binding and directly applicable in Member States, sets out procedures for data collection, as well as categories of waste, treatment operations, and economic activities. A classification system on which to base the statistics is also attached to the measure. The data to be collected comes under two main headings: waste that is generated and waste that is recovered and/or disposed of in each Member State. If a Member State needs more time to adapt its data collection systems, it may apply for a derogation of up to 2 years.

This Regulation was originally proposed in January 1999. Final legal and linguistic changes have been made to the draft Regulation, which has been adopted and was published on 9 December 2002. It will come into force by the end of 2002.

3.4.2 Electric and Electronic Waste (proposal for a Directive)

This Directive aims to reduce waste electrical and electronic equipment (WEEE) and encourage recovery. It employs Producer Responsibility, allowing private households to return WEEE free of charge. Producers will be responsible to finance, collectively or individually, the collection, treatment, recovery, and disposal of WEEE. Producers would also have to collectively finance collection of 'historic waste,' equipment put on the market before entry into force of the Directive. Member States may provide that end users, other than private households, must finance historic waste, partially or totally. The Directive will set recovery and reuse/recycling targets for:

- domestic appliances,
- electrical and electronic tools,
- toys,
- monitoring instruments,
- automatic dispensers,
- Information Technology equipment,

- consumer equipment,
- lighting equipment, and
- medical equipment.

This Directive was initially proposed in June 2000. In mid-October 2002, the Commission welcomed an agreement between the Council and the Parliament on this issue. A binding target for each Member State to separately collect 4 kg per capita per year of WEEE from private households was set[10].

3.4.3 Biodegradable Waste (Directive to be proposed end of 2004)

This Directive will aim to promote separate collection and treatment of biodegradable waste to help meet the targets set in the Landfill Directive (99/31/EC). It follows closely the hierarchy of waste management options, laying out options in the following order:

1. prevention/reduction;
2. reuse;
3. recovery/recycling;
4. composting of waste recovered separately;
5. mechanical/biological treatment of unsorted biodegradable waste;
6. use as a source of energy.

Member States will be required to establish separate biodegradable waste collection schemes within urban areas with a population above 100,000 within 3 years, and in agglomerates over 2,000 within 5 years. The Directive also intends to require a permit system for treatment plants for biowaste, and will introduce 3 classes of compost quality standards, applicable throughout the EU. Emission limit values will also be set for biogas generated by biowaste treatment.

While the Commission has committed itself to a proposal by the end of 2004 on biodegradable waste, it is unlikely until a separate initiative on mining waste is finalised.

4. Conclusion

Waste policy in the EU has evolved from dealing mostly with specific streams of waste to a more integrated approach to waste management and to resource management as a whole with a focus on producer responsibility. The implementation of the European requirements is challenging not only for the Accession Countries but also for European Member States.

The main challenges for the local and regional authorities are to set up waste management strategies and plans that are coherent with national waste management plans. As a basis for this, data on waste amounts and composition have to be gathered and an inventory of existing waste management facilities, including the large amount of dumpsites, has to be drawn up. Based on the future integrated waste management strategy envisaged by the national authority and in line with European policy, implementation steps to meet aims need to be well planned and taken. This includes the closure of hundreds of dumpsites, the setting up of waste collection systems with separate waste streams collection and sorting, the building of recycling and treatments facilities, and the building of landfills according to EU standards. A clear division of physical and financial responsibilities between the actors (levels of administration, producers and importers of waste and packaging, citizens) is essential.

For setting up the strategy and for the actual implementation, an intensive and effective horizontal and vertical co-operation is needed between local authorities and between different levels of administration (local - regional - national - international). Financial, technical, and informational capacities are to be built and strengthened within the local and regional authorities that are responsible for implementation, enforcement, as well as for control. A robust financing strategy needs to be included into the planning process.

[10] For the proposal to now be adopted, the Parliament must confirm it with a majority of votes cast and the Council must confirm it with a qualified majority.

A key to successful implementation is the acceptance of the policy and the participation of the public. The policy process, therefore, needs to be transparent and public participation needs to be organised and supported by information, consultation, and educational activities.

List of EU Waste Policy

Directives/Regulations

- 75/439/EEC Directive on the **disposal of waste oils**
- 75/442/EEC **Waste Framework Directive**
- 78/176/EEC Directive on waste from the **titanium dioxide** industry
- 86/278/EEC Directive on **sewage sludge**
- 91/156/EEC Directive **amending Waste Framework Directive** (75/442/EEC)
- 91/157/EEC Directive on **batteries** and **accumulators** containing certain dangerous substances
- 91/689/EEC Directive on **hazardous waste**
- 91/692/EEC Directive **standardising and rationalising reports** on the implementation of certain Directives relating to the environment
- 259/93/EEC Regulation on the supervision and control of **transfrontier shipment of waste**
- 94/62/EC Directive on **packaging** and **packaging waste**
- 94/67/EC Directive on the **incineration of hazardous waste**
- 96/59/EC Directive on the **disposal of polychlorinated biphenyls and polychlorinated terphenyls (PCB/PCT)**
- 96/61/EC Directive concerning **integrated pollution prevention and control**
- 97/138/EC Decision **establishing formats** relating to the **database system** pursuant to the Directive on **packaging** and **packaging waste** (94/62/EC)
- 97/129/EC Decision **establishing the identification system** for packaging materials pursuant to the Directive on **packaging** and **packaging waste** (94/62/EC)
- 99/31/EC Directive on the **landfill** of waste
- 1980/2000/EC Regulation on revised Community **eco-label award scheme**
- 2000/53/EC Directive on **end-of-life vehicles**
- 2000/532/EC Decision establishing a **list of wastes** pursuant to Article 1(a) of the Waste Framework Directive (75/442/EEC) and establishing a **list of hazardous wastes** pursuant to Article 1 (4) of the Directive on hazardous waste (91/689/EEC)
- 2000/76/EC Directive on the **incineration of waste**
- 2150/2002/EC Regulation on waste management **statistics**

Proposals

- Directive of electrical and electronic waste
- Amending Directive on packaging waste recovery and recycling targets
- Decision on criteria and procedures for disposing of waste in landfills
- Recommendation on construction and demolition waste
- Amending Directive on sewage sludge
- Directive on batteries and accumulators
- Decision on classification of waste-to-energy processes
- Directive on mining waste
- Directive on biodegradable waste

Other Relevant Programmes

- Environmental Action Programmes (2002, 1993, 1987, 1982, 1977, 1973)
- Community Strategy for Waste Management (1989, 1996)

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