COMMISSION OF THE EUROPEAN COMMUNITIES

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Annex to the:

REPORT FROM THE COMMISSION TO THE COUNCIL AND THE EUROPEAN PARLIAMENT

ON THE IMPLEMENTATION OF COMMUNITY WASTE LEGISLATION
Directive 75/442/EEC on waste,
Directive 91/689/EEC on hazardous waste,
Directive 75/439/EEC on waste oils,
Directive 86/278/EEC on sewage sludge and
Directive 94/62/EC on packaging and packaging waste
Directive 1999/31/EC on the landfill of waste

FOR THE PERIOD 2001-2003

{COM(2006) 406 final}

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I. INTRODUCTION

This report intends to inform the other Community Institutions, Member States and the interested public of the implementation of waste legislation for the period 2001 - 2003, in particular the implementation of

- Directive 75/442/EEC[1] on waste
- Directive 91/689/EEC[2] on hazardous waste
- Directive 75/439/EEC[3] on the disposal of waste oils
- Directive 86/278/EEC[4] on the protection of the environment, and in particular of the soil, when sewage sludge is used in agriculture
- Directive 94/62/EC[5] on packaging and packaging waste
- Directive 1999/31/EC[6] on the landfill of waste

These directives differ in their content and structure. Directives 75/442/EEC and 91/689/EEC lay down general and basic provisions for all wastes; directive 1999/31/EC contains requirements for a specific waste treatment method; while directives 75/439/EEC, 86/278/EEC and 94/62/EC deal with waste streams involving specific characteristics and management issues.

The report has been drafted according to Article 5 of Directive 91/692/EEC[7] standardising and rationalising reports on the implementation of certain Directives relating to the environment. The Commission has already published a report on the implementation of Directives 75/442/EEC, 91/689/EEC, 75/439/EEC, 86/278/EEC and 94/62/EC for the period 1998 to 2000[8], a report on the implementation of Directives 75/442/EEC, 91/689/EEC, 75/439/EEC and 86/278/EEC for the period 1995 to 1997[9], as well as a report for the period 1990-1994[10].

Under Directive 91/692/EEC Member States are required to submit reports, drawn up on the basis of questionnaires. Questionnaires relating to Directives 75/439/EEC, 75/442/EEC and 86/278/EEC were adopted by Commission Decision 94/741/EC[11] of 24 October 1994. Questionnaires relating to Directives 91/689/EEC and 94/62/EC were adopted by Commission Decision 97/622/EC[12] of 27 May 1997. A questionnaire relating to Directive 1999/31/EC was adopted by Commission Decision 2000/738/EC[13] of 25 November 2000.

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1 OJ L 194, 25.07.1975, p. 47 as amended by Directive 91/156/EEC (OJ L 78, 18.03.1991, p. 32)
2 OJ L 377, 31.12.1991, p. 20
3 OJ L 194, 25.07.1975, p. 31 as amended by Directive 87/101/EEC (OJ L 42, 22.12.1986, p. 43)
4 OJ L 181, 04.07.1986, p. 6
5 OJ L 365, 31.12.1994, p. 10
6 OJ L 182, 16.07.1999, p. 1
7 OJ L 377, 23.12.1991, p. 48
8 COM (2003) 250 final of 19.05.2003
9 COM (99) 752 final of 10.01.2000
10 COM (97) 23 final of 27.02.1997
11 OJ L 296, 17.11.1994, p. 42
12 OJ L 256, 19.9.1997, p. 13
13 OJ L 298, 25.11.2000, p. 24

Directive 91/692/EEC requires the Commission to publish a consolidated report. The aim of this Community report is to enable Member States and the Commission to assess the progress made in implementing the waste management directives throughout the Community and, at the same time, provide the general public with information on the state of the environment.[14]

The report is primarily based on information received from Member States; as such, its content depends largely on the completeness, quality and precision of the national contributions. As regards in particular the legal case mentioned in the report, updated information has been included which is subsequent to the reporting period 2001-2003.

The report covers the period 2001-2003, i.e. before the accession of the ten new Member States to the EU on 1 May 2004. Thus, for this period the new Member States were invited to submit their reports on a voluntary basis. Czech Republic, Hungary, Slovenia, and Slovakia did so.

According to Directive 91/692/EEC Member States had to submit their reports by 30 September 2004. By the end of 2004 reports for all 6 directives concerned had been submitted only by Germany, Denmark, Greece, Finland, Portugal, Sweden, as well as by the Czech Republic, Slovenia and Slovakia. The remaining EU-15 Member States as well as Hungary supplied their reports later on.

Most countries reported also electronically, via EIONET (European Environment Information and Observation Network).

An initial assessment of Member State reports by the Commission revealed a number of gaps and/or inconsistencies, for which clarifications were subsequently sought from the Member States concerned.

The table below presents the correspondence between the levels of NUTS (Nomenclature of territorial units for statistics) and the national administrative units, which are quoted in various tables throughout this report.

Co-operation with the European Topic Centre on Resources and Waste Management (ETC/RWM)

This is the third time that the European Environment Agency (EEA), through its European Topic Centre/Resources&Waste Management (ETC/RWM - formerly ETC/Waste&Material Flows), assisted the Commission in the preparation of its report, mainly with regard to analysing and processing waste data provided in the questionnaires.

The ETC/RWM, established in 1997, is one of five Topic Centres under the European Environment Agency. Its mission is to provide reliable and comparable data and information on resource and waste in Europe to decision-makers and the public. The ETC/RWM is part of the European Information and Observation Network (Eionet), which is a co-operative activity between the Agency and the member countries and was set up in order to help the Agency to

[14] The Commission shall also submit to the European Parliament and the Council a report on the implementation of Directive 2000/59/EC (OJ L332 , 28/12/2000 p. 81) on port reception facilities for ship-generated waste and cargo residues, pursuant to Article 17(2) of that directive.

retrieve information, identify special issues and produce efficient and timely information on Europe's environment.

Perspectives

Overall, further progress has been achieved but the implementation of waste legislation cannot still be considered satisfactory, as also demonstrated by the large number of infringement procedures in the area of waste. Significant efforts need therefore to be made towards full implementation, especially as regards promoting waste prevention and recycling. Along with other initiatives, these issues are now in particular addressed by the recently adopted EU Thematic Strategy on waste prevention and recycling[15]. The Strategy focuses on environmental impact of waste and life cycle thinking in waste management and was accompanied by a Commission proposal[16] to revise the Waste Framework Directive 75/442/EEC and merge it with the Hazardous Waste Directive 91/689/EEC, as well as to integrate parts of the Waste Oils Directive 75/439/EEC in it.

[15] COM(2005) 666 final, 21.12.2005
[16] COM(2005) 667 final, 21.12.2005

	NUTS 1		NUTS 2		NUTS 3		NUTS 4		NUTS 5	
BE	Régions	3	Provinces	11	Arrondissements	43	-		Communes	589
DK	-	1	-	1	Amter	15	-		Kommuner	276
DE	Länder	16	Regierungsbezirke	38	Kreise	445	-		Gemeinden	16176
GR	Groups of development regions	4	Development regions	13	Nomoi	51	Eparchies	150	Demoi/Koinotites	5921
ES	Agrupacion de comunidades autonomas	7	Comunidades autonomas +Ceuta y Mellila	17 1	Provincias (4) +Ceuta Mellila	50 2	Comarras (41)		Municipios	8077
FR	Z.E.A.T +DOM	8 1	Régions +DOM	22 4	Départements +DOM	96 4			Communes	36664
IE	-	1	-	1	Regional Authority Regions	8	Counties/County boroughs	34	DEDs/Wards	3445
IT	Gruppi di regioni	11	Regioni	20	Provincie	103	-		Comuni	8100
LU		1		1		1	Cantons	12	Communes	118
NL	Landsdelen	4	Provincies	12	COROP regio's	40	-		Gemeenten	672
AT	Gruppen von Bundesländern	3	Bundesländer	9	Gruppen von Politischen Bezirken	35	-		Gemeinden	2351
PT	Continente +Regioes autonomas	1 2	Cimissaoes de coordenacao regional +Regioes autonomas	5 2	Grupos de Concelhos	30	Concelhos minicipion	305	Freguesias	4208
FI	Manner-Suomi/Ahvenanmaa	2	Suuralueet	6	Maakunnat	19	Seutukunnat	88	Kunnat	455
SE		1	Riksområden	8	Län	24	-		Kommuner	286

UK	Standard regions	11	Groups of counties	35	Counties/Local authority regions	65	Districts	485	Wards/Communities/ Localities	11095
EUR 15		**77**		**206**		**1031**		**1074**		**98433**

Table : Correspondence between the NUTS levels and the national administrative units.

The national totals of one level take the superior levels belonging to this level into consideration (e.g. Belgium: 10 provinces and 1 unit, Brussels, which belongs also to Nuts 1.

II. DIRECTIVE 75/442/EEC ON WASTE, AS AMENDED BY DIRECTIVE 91/156/EEC

1. INTRODUCTION

Directive 75/442/EEC[17] constitutes the fundamental legal framework instrument on waste management at Community level. After entering into force in 1977 it was amended by Directive 91/156/EEC[18] in order to incorporate the guidelines set out in the Community Strategy for Waste Management of 1989. In 1996, Annex II of Directive 75/442/EEC containing the lists of disposal and recovery operations was amended by way of Commission Decision[19]. The review of the Community Strategy for Waste Management of 30 July 1996[20] confirmed the main elements of the 1989 Strategy and adapted it to the requirements for the next five years.

The main provisions of Directive 75/442/EEC as amended are in particular:

– definition of waste, further specified by the European Waste Catalogue (EWC) as consolidated by Commission Decision 2000/532/EC as amended21, and other waste management terminology (Article 1)

– the hierarchy of waste management principles: waste prevention, recovery, safe disposal (Article 3 and 4)

– the principle of proximity and self-sufficiency applying to waste for final disposal and the establishment of an integrated network of disposal installations (Article 5)

– the obligation on the part of Member States to establish waste management plans, which are essential to the realisation of this policy (Article 7)

– permits for establishments and undertakings carrying out disposal and recovery operations (Article 9 and 10)

– inspections by competent authorities (Article 13)

– record keeping requirements (Article 14)

– the polluter-pays principle (Article 15)

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17 OJ L 194, 25.07.1975, p. 47

18 OJ L 78, 18.03.1991, p. 32

19 OJ L 135, 06.06.1996, p.32

20 COM(96) 399 final, 30.07.1996

21 OJ L 226, 6.9.2000, p.3 (Commission Decision 2000/532/EC replacing Decision 94/3/EC establishing a list of wastes pursuant to Article 1(a) of Council Directive 75/442/EEC on waste and Council Decision 94/404/EC establishing a list of hazardous waste pursuant to Article 1(4) of Council Directive 91/689/EEC) as amended by Commission Decisions 2001/118/EC (OJ L 47, 16.1.2001, p.1) and 2001/119/EC (OJ L 47, 22.1.2001, p.32) as well as Council Decision 2001/573/EC (OJ L 203, 23.7.2001,p.18).

– reporting requirements (Article 16)

This report is based on the questionnaire adopted by Commission Decision 94/741/EC[22] of 24 October 1994. It covers the period 2001-2003.

In addition to the first part of the questionnaire, comments have been incorporated with regard to the state of implementation of the definition of waste and the European Waste Catalogue. This has been done with a view to follow up the evaluation made in the Commission reports on implementation of Community waste legislation for the periods 1995-1997 and 1998-2000.

2. INCORPORATION INTO NATIONAL LAW

2.1. National Law

All Member States confirmed that they have provided the Commission with details of the current laws and regulations in force to incorporate the Directive 75/442/EEC on waste as amended into national law. Lists of national provisions communicated by the Member States concerning Directives 75/442/EEC and 91/156/EEC are available on the European Union's CELEX Website[23].

2.2. Definition of "waste" and the European Waste Catalogue (Article 1(a))

Under Directive 75/442/EEC "waste" shall mean any substance or object in the categories set out in Annex I of the directive which the holder discards or intends or is required to discard (Article 1(a), first subparagraph). The Commission has taken measures to establish the so-called European Waste Catalogue (EWC), pursuant to Article 1(a). This is now set down in consolidated form[24] in Commission Decision 2000/532/EC, as amended.

The previous implementation report 1998-2000 noted that a number of Member States still had not transposed the waste definition set out in Article 1(a) correctly into national law. It is clear that correct implementation of the waste definition is of pivotal importance to ensure that Member States properly fulfil their waste management obligations under Directive 75/442/EEC and related waste legislation. In particular, this is necessary to ensure that a common scope of environmental protection applies on a Community-wide basis and that the functioning of the internal market is not undermined.

During the reporting period a number of infringement procedures and Court cases concerned the waste definition.

In **Italy** Article 14 of Law n. 178 of 8 August 2002 provides for interpretative criteria to the term "discard" as laid down in Article 6(1)(a) of the Italian Decree 22/97 (basic statute on waste) which transposed Directive 75/442/EEC into national law. Specifically, Article 14 foresees an exclusion from the legislation on waste of all substances and

22 OJ L 296, 17.11.1994, p. 42

23 http://www.europa.eu.int/celex

24 Non-exhaustive list.

objects destined to the disposal and recovery operations not explicitly listed in the Annexes to Decree 22/97. In addition, it establishes that there is no decision to discard when residual goods, substances and materials from a production or consumption cycle, may be and are effectively or objectively re-used in the same or in a similar or in a different production or consumption cycle without being subjected to any preventive treatment process and without causing any harm to ; or even after having been subjected to a preventive treatment process, when the latter does not constitute a recovery operation listed in Annex C of Decree n. 22/97. The Commission considers that these provisions are inconsistent with the case law of the European Court of Justice and have the potential to exclude certain materials from the scope of Italian waste legislation that would otherwise fall under the Community waste definition.

Infringement proceedings were initiated against **Austria** concerning the incorrect transposition of the Community waste definition.[25] The transposition of the Community waste definition was corrected by amendments of national legislation and the case was closed on that point.

In December 2001, the Commission decided to refer the **United Kingdom** to the European Court of Justice concerning the incorrect transposition of the definition of waste (case C-62/03). Section 75 of the Environment Protection Act 1990[26] only transposes the requirements of Directive 75/442/EEC in relation to "controlled waste", which is defined under the 1990 Act as meaning only "household, industrial and commercial waste or any such waste". This is a more limited definition that the waste definition set out in Article 1(a) of Directive 75/442/EEC as amended. Similar problems arise in connection with the transposition legislation applicable to Northern Ireland[27] and Gibraltar.[28]

2.3. Competent Authorities – Article 6

According to Article 6, Member States have to establish or designate the respective authorities responsible for the implementation of the Directive.

Table 1 provides an overview of the different structures of the national waste administrations. The number of authorities in the waste sector and their competencies differs widely throughout the European Union.

3. IMPLEMENTATION OF THE DIRECTIVE

3.1. Waste Management Plans – Article 7

According to Article 7 (1) the competent authorities shall draw up waste management plans which shall, in particular, relate to the type, quantity and origin of waste to be

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25 Judgment of the European Court of Justice in Case *C-194/01 Commission v Austria (29 April 2004)*.

26 Applicable to England, Scotland and Wales.

27 Waste and Contaminated Land (Northern Ireland) Order 1997.

28 Public Health Ordinance, as amended by Public Health (Waste) (N°2) Regulations 1995 and Public Health (Amendment) Ordinance 1997.

recovered and disposed of, general requirements, any special arrangements for particular wastes and suitable disposal sites or installations.

Waste management plans are a key element in the Community's waste management policy as, without appropriate planning, Member States are not in a position to be able to account for and deal with the waste that arises in their territories. In addition to directive 75/442/EEC, Article 6 of Directive 91/689/EEC on hazardous waste and Article 14 of Directive 94/62/EC on packaging and packaging waste require also waste management plans for those wastes.

Table 2 gives an overview of the existing waste management plans. As stated in the previous Commission reports, the submitted plans vary widely in their structure, content and degree of detail, depending on whether they are drawn up at national, regional or local level, and on the experience of Member States in waste management planning.

All Member States have to date drawn up and notified waste management plans referring to the Directive.

Where the national waste management plans were not notified timely and correctly, the Commission had initiated infringement proceedings pursuant to the Treaty or decided to lodge an application with the European Court of Justice. During 2001-2003 France, UK and Italy were condemned by the European Court of Justice for failure to ensure that adequate waste management plans were in place.

The problems identified by the Court for France and UK have now been settled and the Court proceedings have been closed. Furthermore, the Commission has initiated new infringement proceedings against Italy and Greece for inadequacies in their waste planning.

Belgium, the **Czech Republic**, **Finland**, **Germany** and **Ireland** have collaborated with other Member States to draw up waste management plans.

The **Czech Republic** has collaborated with Austria, France and Italy concerning the preparation of the Czech Republic Waste Management during two short missions of experts, as part of a twinning project (CZ2000/IB/EN/02 Waste Management Centre).

In **Finland**, regional cooperation has taken place with Norway and Sweden concerning final disposal of municipal waste, and with Sweden concerning sewage sludge.

Germany agreed the Bavarian waste management plans with Austria.

Ireland has held consultation with relevant local authorities in Northern Ireland as required under the Article 5(g) of the Irish Waste Management (Planning) Regulations, 1997.

A number of Member States (**Austria**, **the Czech Republic**, **Denmark**, **Finland**, **Italy**, **the Netherlands** and **Spain**) reported that they had provided the Commission with details of measures taken under Article 7(3) to prevent movements of waste which are not in accordance with their waste management plans.

Other Member States have replied that there have been no cases in which it has been necessary for the competent authorities to take measures to prevent movements of waste which are not in accordance with their waste management plans.

Furthermore, in 2003 the European Topic Centre on Waste finalised non-binding guidelines on preparing waste management plans, which should prove a useful tool to improve and adjust the level of waste management planning in particular for new Member States.

3.2. Details on Waste Prevention and Waste Recovery – Article 3

According to Article 3 (1) of the Directive and the Community Waste Management Strategy Member States have to take measures to encourage waste prevention (reduction of waste generation and its harmfulness) and waste recovery (with the preference to re-use, recycling and energy recovery).

Most Member States (**Austria**, **Belgium**, **Czech Republic**, **Denmark**, **Finland**, **France**, **Germany**, **Greece**, **Hungary**, **Ireland**, **Italy**, **Netherlands**, **Portugal**, **Spain, Sweden and the UK**) confirmed that they had provided the Commission with details of measures intended to be taken pursuant to Article 3(1). Some Member States also submitted further accompanying information.

In **Belgium**, measures to encourage waste prevention have been presented with regard to Flemish region in the form of Orders of the Flemish Government on the establishment and organisation of prevention programmes, studies carried out and a marketing strategy with regard to increase consciousness-raising and chances that firms will take part in waste prevention. In the Brussels region, the 2nd waste prevention and management plan 1998-2002 addresses waste prevention across all its measures as well as through specific initiatives focusing on behaviour of citizens; it also includes quantitative targets. Various methods have been applied to quantify the results of measures taken.

In **Finland,** national legislation on waste contains provisions relating to waste prevention.

3.3. Self-sufficiency in waste disposal – Article 5

Pursuant to Article 5 (1) Member States have to take measures to establish an integrated and adequate network of disposal installations in order to enable the Community and the Member States to become self-sufficient in waste disposal. According to Article 4(3a) i) of Regulation (EEC) No. 259/93 Member States may ban the shipment of waste destined for disposal in another Member State.

Austria, **Belgium**, **Czech Republic**, **Denmark**, **Finland**, **France**, **Germany**, **Greece**, **Hungary**, **Ireland**, **Italy**, **Luxembourg**, **the Netherlands**, **Portugal** and **Slovak Republic** have informed the Commission that they have taken measures with a view to establish an integrated and adequate network of disposal installations pursuant to Article 5(1).

In **Belgium (Walloon region)**, **Czech Republic**, **Finland**, **Germany**, **Hungary**, **Ireland** and **the Netherlands** this is covered by the waste management plans, at least partly. In

Austria surveys are also carried out of all available treatment capacities and requirements at regular intervals throughout the entire territory of Austria (e.g. Federal Waste Management Plan 1998 and 2001).

The **Czech Republic** and the **Slovak Republic** have had discussions concerning possibilities of jointly using or constructing installations for the processing of waste in border areas. **Germany** has referred to the project group (EUDIN) whose members include in addition to Germany, Belgium, the Netherlands and Austria and which works on a data interface for cross border transfers of waste. As **Ireland** did not produce sufficient hazardous waste per year to justify the provision of high temperature incineration capacity within the State, the United Kingdom acceded to a request from the Irish Government that hazardous waste requiring high temperature incineration may be exported from Ireland to the UK for disposal on an indefinite basis. **Luxembourg** has exported waste to its neighbouring countries.

In **Austria**, only 63 000 tonnes of around 54 million tonnes of waste produced were exported for disposal. The degree of self-sufficiency in waste disposal is therefore almost 99% of the total waste produced in Austria.

Belgium (Brussels Region) has informed the Commission that the total quantity of waste exported increased by 30% as a result of the export of contaminated soil from the construction of the treatment plant 'Nord'. In 2003, a quantity of 225,000 tonnes was exported. The total waste production which was registered during 2002 was 2,203,017 tonnes.

In **Denmark**, the total waste production during 2002 was 13,105,000 tonnes. Of this 8,382,000 tonnes were recycled, 3,344,000 tonnes incinerated, 1,194,000 tonnes deposited and 22,000 tonnes given special treatment.

The **Czech Republic** is self-sufficient in waste disposal, except with regard to PCB-contaminated transformers.

In **Finland** the degree of self-sufficiency for disposal of municipal waste was 99,8-99,9% and for hazardous waste over 99,9%.

In **France** the degree of self-sufficiency was 99.56% in 2001 and 99.26% in 2002.

Germany has informed the Commission that it has sufficient capacity to recover and dispose of domestic and hazardous waste. The majority of *Länder* also work towards becoming self-sufficient in waste disposal.

Greece has replied that as regards the collection, temporary storage and transport of waste, 90% by weight of waste produced in Greece is managed adequately.

Italy has informed the Commission that its self-sufficiency is approaching 100%.

Luxembourg informed about the capacity of its disposal and treatment installations, as well as about planning for new installations. Its self-sufficiency for household waste is 100%, for hazardous waste around 14% and for inert waste around 93%.

Portugal informed that by the end of 2003 all the municipal solid waste systems in the continental territory were provided with infrastructures for the management of this type of waste.

Overall, most Member States reported that they had attained high degrees of self-sufficiency in terms of waste disposal of around 99%, which essentially restates the position of the previous implementation report for 2001-2003.

3.4. Details on waste generation and treatment - Article 7 (1)

In the questionnaire Member States were asked to provide data on the generation and treatment of domestic waste, hazardous waste, and other wastes. All countries but Luxembourg supplied data but in some cases not for all 3 years of the reporting period.[29]

An overview of the generation of domestic, hazardous and other waste is presented in Table 3.0 and Figure 3.0. The generation of domestic waste was on average 580 kg/person/year, which indicates a further increase since the period 1998-2000 (average 500 kg/person/year). The average generation of hazardous waste appears to be 120 kg/person/year, which also indicates an increase since 1998-2000 (90 kg/person/year). 'Other waste' represents the major part of the total waste generated within the EU Member States; its generation varies considerably, from 0 to 7 tons/person/year, which suggests that not all 'other waste' is reported by the Member States.

As regards **domestic/municipal waste**[30] Table 3.1 presents an overview of the reported data on the total amounts of domestic waste generated, together with information on how this waste was treated in the individual Member States, and Figure 3.1 illustrates the share of treatment methods as a percentage of total amounts generated.

The data reported indicate that, among EU-15, *recycling rates* of domestic waste vary widely from 8% to 56%. Seven Member States achieved a recycling rate of 30% or more (Austria, Belgium, Denmark, Finland, Germany, Netherlands and Sweden) whereas three other Member States only achieved recycling rates lower than 10% (Greece, Ireland, Portugal). The average recycling rate was 32% which is 6% higher than in the last reporting period. For the new EU Member States 1-9% of domestic waste was recycled.

Incineration with energy recovery varied from 0% (Greece, Ireland) to 59% (Denmark), resulting in an EU average of 20%, which is comparable to the rate for 1998-2000 (EU average of 21%). For the new EU Member States up to 7% of domestic waste was incinerated with energy recovery.

Incineration without energy recovery only accounted for less than 1% on an EU average basis in 2002. For the new EU Member States the rate was between 0 and 7%.

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29 Bearing in mind that the new Member States which acceded on 1 May 2004 were not formally obliged to report, and for comparison reasons with the previous Commission composite reports, the discussion of reported data in this section and the EU averages calculated in the relevant tables and figures focus on the EU-15 Member States.

30 Some Member States provided figures on household waste only while other reported data for municipal waste which may include commercial, industrial and institutional waste of a similar nature.

Landfilling remained the most common treatment method, with 8 Member States heavily depending on it (rates of 51-85%). At EU-15 level, the average was 44%, which indicates a further slight decrease since the previous period (46%). For the new EU Member States this method is overwhelmingly dominant accounting for 63-98% of the total amount of domestic waste.

As regards **hazardous waste,** Table 3.2 presents the reported data on the quantities of hazardous waste generated together with the different treatment methods, distinguishing between waste treated within and outside the Member States. Figure 3.2 presents the treatment and the exported amounts of hazardous waste as a percentage of total amounts generated.

The data received indicate a wide variation in recycling rates, from 6% to 43% with only two Member States (Austria, Netherlands) attaining rates higher than 30%. The average recycling rate of hazardous waste amongst the EU-15 Member States approximated 21%. The new Member States show relatively high recycling rates (from 14 to 41%). Disposal in landfills is the dominant method (26% in average); in Denmark, Finland and Sweden it accounts for 46-67%, while Austria does not landfill at all. Incineration of hazardous waste is relatively limited, with the exception of France (46% incinerated without energy recovery), and Austria and Denmark (29% and 23% respectively incinerated with energy recovery). Another 35% in average was reported as "other treatment".

The definition of **"other waste"** varies significantly among the Member States and different fractions of waste were reported under this category. These inconsistencies, and the insufficient data provided, do not allow drawing any valid conclusions as to the treatment of "other waste". However, Table 3.3 and Figure 3 provide a general picture indicating high rates of recycling (57% in average). This seems to apply to the new Member States too (recycling between 15-55%).

Existing EU waste legislation contains a significant number of binding targets that are to be reached in the coming years and which will reduce the environmental impact of waste. This includes measures for reducing greenhouse gas emissions from landfills under directive 1999/31/EC, and promoting high recycling rates as well as separate collection of packaging waste[31], electrical and electronic waste[32] and end-of-life vehicles[33]. Furthermore, the recently adopted Thematic Strategy on the prevention and recycling of waste[34] provides a comprehensive framework for establishing waste prevention policies and making Europe as a whole a recycling society.

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31 Directive 2004/12/EC of the European Parliament and of the Council amending Directive 94/62/EC on packaging and packaging waste, OJ L 47, 18.2.2004, p.26.

32 Directive 2002/96/EC of the European Parliament and of the Council on waste electrical and electronic equipment, OJ L 37, 13.02.2003, p. 24.

33 Directive 2000/53/EC of the European Parliament and of the Council on end-of-life vehicles, OJ L 269, 21.10.2000, p. 34.

34 COM(2005)666 final, 21.12.2005.

3.5. General rules to provide exemptions from the permit requirement – Article 11

Pursuant to Article 11 Member States may exempt establishments and undertakings carrying out their own waste disposal at the place of production or recovery operations from the permit requirement (Article 9 and 10).

The **Czech Republic, Ireland, Greece, Italy and the UK** have informed the Commission that they have applied the exemptions from the permitting requirements available pursuant to Article 11. **Ireland** submitted this information to the Commission by letter of 12 June 1998 together with the concordance table for the Directive **Greece** has informed the Commission that that it has adopted a possibility for the secretary-general of the region concerned to decide on exemptions. This would not comply with Article 11 of the Directive since this provision stipulates that the competent authority has to adopt a general rule for each type of activity laying down the types and quantities of waste and the conditions under which the activity in question may be exempted. The **Czech Republic, Italy** and **the UK** have not submitted any more specific information.

3.6. Record keeping – Article 14

Pursuant to Article 14 establishments and undertakings carrying out recovery and disposal operations have to keep records on waste and waste management. Producers might be included in the provisions. They have to make this information available at the request of the competent authorities.

A number of Member States (**Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Luxembourg, the Netherlands, Portugal**) have confirmed that establishments or undertakings referred to in Articles 9 and 10 of the Directive are required to keep records, pursuant to Article 14, in standard form and that producers also are required to comply with Article 14.

Most Member States appear to have implemented their record keeping obligations under Article 14. Some indicate that they have developed producer-related obligations in addition to those for producers of hazardous waste. The following more detailed examples can be given.

Austrian legislation provides that anyone who performs an activity which generates waste or who collects or treats waste must keep continuous records, separately for each calendar year, of the type, quantity, origin and whereabouts of such waste and provide such information to the authorities on request. The records must be kept for at least 7 years from the date of the last entry and presented to the authorities on request (§17 of AWG 2002, clarification of these obligations is provided in the Waste Control Order 2003, BGBl. II No 618/2003). In Austria §17 of the AWG 2002 also applies to waste producers.

Belgium legislation requires registers from producers of hazardous and specific waste as well as from those who collect or transport waste to a different region or treat waste. In Belgium those who collect or transport waste to a different region or treat waste have to make the information available.

In **Finland**, producers of hazardous waste and holders environmental permits are required to keep records.

Luxembourg legislation lists establishments and activities which are subject to the Minister's approval, as well as those dispensed by the Minister for this authorisation. The record keeping obligation has been extended to producers of hazardous waste.

Annex I

Council Directive 75/442 on waste

N 1)	Austria	Belgium			Denmark	Finland	France	Germany	Greece	Ireland 4)	Italy	Luxembourg	Netherlands	Portugal	Spain	Sweden	UK	Czech Republic	Hungary	Slovakia	Slovenia
		Fl	Brx	Wal																	
Number of authorities or institutions, 2)	N0=1 N2=9	N1=2 N2=5 N4=308	N2=1	N1=1 N2=5	N1=1 N3=13 N5=271	N1=1 N3=13 N5=444	N0=1 N2=22 N3=100	N0=1 N1=16 N2=40 N3=441	N0=1 N2=13 N3=54 N5=1033	N2=1 N4=34	N1=5 N2=21 N3=103	N0=2	N0=1 N2=12 N4=489	N2=10 N4=308	N0=1 N2=19 N3=54 N5=8109	N2=4 N3=21 N4=290	N0=1 N1=1 N2=12 N3=20 N5=3145	N0=2 N1=1 N3=8 N4=79	N0=5 N1=5 N3=202	N0=1 N3=14 N4=206	N0=2
Waste management plans, 3)	N0	N1	N2	N3	N1 N5	N1 N3	N0 N2 N3	N1 N2	N0 N2 N3 N5	N2 N4	N2	N0	N0	N1 N4	N0 N2 N3 N5	N4	N0 N2 N3 N5	N0 N1 N3 N4	N0 N1 N3	N1 N3	N0
Permits for disposal operations, 3)	N2	N1 N2 N4	N2	?	N3	N3 N5	N0 N2 N3	N2 N3	N0 N3	N2 N4	N3	N0	N0 N2 N4	N1 N2 N4	N2 N3 N5	N2 N3	N1 N2	N0 N4	N0 N1	N3	N0
Permits for recovery operations, 3)	N2	N1 N2 N4	N2	N3	N3 N5	N3 N5	N2 N3	N2 N3	N0 N3	N2 N4	N3	N0	N0 N2 N4	N1 N2 N4	N2 N3 N5	N2 N3	N1 N2	N0 N4	N0 N1	N3	N0
Registrations of exemptions from requirements of Article 9 and 10, 3)	N2	N1	-	N3	N3	N3		N2 N3	N0 N2	N2 N4	N2	N0	N0 N2 N4	N1				N0	N0 N1	N3	N0
Registrations of establishments or undertaken pursuant to Article 12, 3)	N2	N1	N2	?	N5	N3	N2 N3	N3	N0		N1	N0	N0 N2	N1	N2		N1 N2	N0	N0 N1	N4	N0
Comments			6)																		5)

Table 1. Number of competent authorities in each of the NUTS levels designated pursuant to Article 6 and the competence in relation to the directives (Questionnaire, Paragraph I, Question 2).

Notes:

1) N is a type of authority and a shortening for NUTS: Nomenclature of territorial units for statistics (Eurostat).
2) The number of authorities is given in short; for example N2=5 stands for 5 authorities/institutions at NUTS-level 2.
3) Information in the table refers to competent authorities by NUTS-level, for example N3 stands for authorities/institutions at NUTS-level 3.

4) Ireland has not reported for the period 2001-2003.
5) The Waste Management Plans are adopted by the Slovenian Government, the remainder are issued by the Ministry for the Environment, Spatial Planning and Energy and the Slovenian Environment Agency.
6) The registration of establishments or undertakings pursuant to article 12 is not subject to legal transposition in Brussels law. If these establishments or undertakings manage hazardous waste, they are subject to authorisation.

Council Directive 75/442/EEC

Waste Management plans

Country/ Authority	Adoption/ publication	Start of application or last update	End of application	Domestic Waste (yes/no)	Hazardous Waste (yes/no)	Others (specify)	Area covered	Comments
Austria								
BMLFUW	01-Jul-1998	01-Jul-2001	30-Jun-2006	YES	YES	Household, hazardous and other waste, in accordance with AWG 2002.	Nationwide	
Belgium – Flanders								
OVAM (1)	08-Jun-1997	01-Jan-1997	31-Dec-2003	YES	NO	All	Vl Gewest	
9 regional plans for OVAM (2 to 10)	Varies	Varies	Varies	Varies	Varies	Varies	Varies	
Belgium – Brussels								
IBGE	27-Nov-2003	27-Nov-2003	At the adoption of the next plan	YES	YES	Varies	Bruxelles region	
Belgium – Wallonia								
PWD-Horizon 2010 Gouv. Wallon	15-Jan-1998 29-Apr-1998	-	-	YES	YES	Varies	Wallon region	
Plan CET Gouv. Wallon	01-Apr-1999 13-Jul-1999	-	-	YES	YES	Varies	Wallon region	
Denmark								
Miljøstyrelsen	Sep-2003	2003	2008	Yes	Yes	All	National	
Finland								
Government	02-Jul-1998	14-Aug-2002	31-Dec-2005	YES	YES		Nationwide excluding Åland Islands	
Regional authorities	01-Jan-1996	01-Jan-1996	31-Dec-2005	YES	YES		13 RECs	
France								

Country/ Authority	Adoption/ publication	Start of application or last update	End of application	Domestic Waste (yes/no)	Hazardous Waste (yes/no)	Others (specify)	Area covered	Comments
100 regional plans	Varies	Varies	Varies	Yes	Yes	Varies	Regions	
Germany								
13 regional plans	Varies	Varies	Varies	Yes	Yes	Varies	Regions	
Greece								
Ministry of the Environment	22-Dec-03	Dec-2003	Operational	Yes	No	Non-hazardous industrial waste, sewage sludge, end-of-life vehicles, tyres, construction and demolition waste, electrical and electronic appliances, agricultural waste and agricultural discards	National	
Ministry of the Environment	16-Dec-2002	Dec-2002	Operational	Yes	Yes	Yes	National	
Ministry of the Environment	6-Dec-2001	Aug-2001	Operational	Yes	Oils, batteries and accumulators	End-of -life vehicles, tyres, electrical and electronic appliances	National	
Ministry of the Environment	17-Nov-1997	Nov-1997	Operational	Yes	No	Sewage sludge	National	
11 regional plans	Varies	Varies	Operational	Yes	Varies		Regional	
10 prefectural plans	Varies	Varies	Operational	Yes	No	No	Whole Prefecture	
Ireland								
EPA	05-Jul-2001	05-Jul-2001	04-Jul-2006	NO	YES		Nationwide	
10 regional plans	Varies	Varies	Varies	YES	NO	Commercial/Industrial		
Italy								
16 regional plans	Varies	Varies	N/A	YES	YES	Special waste	Regions	The situation in the remaining regions of Italy is the same as in 1999-2000.
Luxembourg								
Admin de l'environnement	15-Dec-2000	15-Dec-2000	15-Dec-2005	YES	YES	Industrial, commercial, inert, health	Nationwide	
Netherlands								

Country/ Authority	Adoption/ publication	Start of application or last update	End of application	Domestic Waste (yes/no)	Hazardous Waste (yes/no)	Others (specify)	Area covered	Comments
Landelijk afvalbeheerplan	03-Mar-2003	18-May-2004	2006	YES	YES	all	Nationwide	
Portugal								
PERSU	1997	1997	2005	Yes	No	No	Continent	
PERH	1999	1999	2005	No	Yes	Yes, non-hazardous hospital waste	Nationwide	
PERRAM	1999	1999	2016	Yes	Yes	Yes, non-hazardous hospital waste, slaughter wastes and other special waste flows	Madeira	
PNAPRI	01-Jan-2000	01-Jan-2001	01-Jan-2015	No	Yes	Yes, non-hazardous industrial waste	Nationwide	
PESGRI	1999	1999/2001	2015	No	Yes	Yes, non-hazardous industrial waste	Nationwide	
PERHA	2003	2003	2007	No	Yes	Yes, non-hazardous hospital waste	Azores	
ERB	2003	2003	2016	Yes	No	Yes, Biodegradable Municipal Waste	Nationwide	
Spain								
Ministry for the Environment	09-Apr-2001/ 18-Apr-2001	01-Jan-2001	31-Dec-2006		Yes	PCBs/ PCTs	Member State	
Ministry for the Environment	14-Jun-2001/ 12-Jun-2001	01-Jan-2001	31-Dec-2006			Construction and demolition waste	Member State	
Ministry for the Environment	14-06-2001/ 12-07-2001	01-Jan-2001	31-Dec-2006	Yes		Sewage sludge	Member State	
Ministry for the Environment	25-09-2002/ 16-10-2001	01-Jan-2001	31-Dec-2006			End of life vehicles	Member State	
Ministry for the Environment	08-10-2001/ 30-1S0-2002	01-Jan-2001	31-Dec-2006			Used tyres	Member State	
15 regional plans	Varies	Varies	Varies	Varies	Varies	Varies	Varies	
Sweden								
	02-Jan-2000	02-jan-2000		NO	NO			Requirements for local Waste Management Plans since 1991 cover all waste. National plan under preparation.
UK								
Welsh Assembly Government	01-Jun-2002	01-Jun-2002	01-Jun-2007	Yes	Yes	All controlled wastes.	Wales	Strategy due for revision in 2007

Country/ Authority	Adoption/ publication	Start of application or last update	End of application	Domestic Waste (yes/no)	Hazardous Waste (yes/no)	Others (specify)	Area covered	Comments
Gov. of Gibraltar	01-Mar-2000	01-Mar-2004	1-Mar-2009	YES	YES	All controlled wastes	Gibraltar	Waste management plan due for review 2005.
Northern Ireland Assembly	01-Mar-2000	01-Mar-2000	1-Mar-2020	YES	YES	All controlled wastes	N. Ireland	Review underway. Update expected Spring 2006.
Scottish Environmental Protection Agency	09-Dec-1999	01-Feb-2003	9-Dec-2020	YES	YES	All controlled wastes	Scotland	
DEFRA	01-May-2000	01-May-2000	1-May-2020	YES	YES	All controlled wastes	England	Waste Strategy 2000 was published by DETR, now administered by DEFRA. Review underway. Update expected 2006.
Hungary								
National Waste Management Plan	02-Dec-2002	01-Jan-2003	2008	YES	YES	Domestic, hazardous and other waste	Nationwide	The content of the management plans are defined in the Decree No. 126/2003. (VIII. 15.) on detailed requirements of management plans.
Regional waste management plans	10-Sep-2003	10-Sep-2003	2008	YES	YES	Domestic, hazardous and other waste	NUTS2	
Local waste management plans	03-Aug-2004	03-Aug-2004	2008	YES	YES	Domestic, hazardous and other waste	NUTS5	
Individual waste management plan	15-Feb-2004	15-Ffeb-2004	2008	YES	YES	Domestic, hazardous and other waste	company	
Slovakia								
Ministry of the Environment	19-Feb-2002	01-Jan-2002	2005	YES	YES		Nationwide	
Region office	01-Jul-2002	01-Jan-2002	2005	YES	YES		region	
District office	01-Aug-2002	01-Jan-2002	2005	YES	YES		district	
Slovenia								
MOPE	27-Feb-2002	27-Feb-2002	Ongoing, until end 2006	YES	YES		Nationwide	Title – Operational programme for the management of waste oils for the period 2003-2006
MOPE	27-Feb-2002	27-Feb-2002	Ongoing, until end 2006	NO	YES		Nationwide	Title –Operational programme for the disposal of polychlorinated biphenyls and

Country/ Authority	Adoption/ publication	Start of application or last update	End of application	Domestic Waste (yes/no)	Hazardous Waste (yes/no)	Others (specify)	Area covered	Comments
								polychlorinated terphenyls (PCB/PCT) for the period 2003-2007
MOPE	22-Mar-2002	22-Mar-2002	Ongoing, until end 2007	YES	YES		Nationwide	Title – Operational programme for the management of packaging and packaging waste for the period 2002-2007
Vlada RS	11-Aug-1996	11-Aug-1996	Ongoing, until end 2004	YES	YES		Nationwide	Title – Strategic guidelines for the Republic of Slovenia for the management of "other" waste: building waste, waste from agriculture and forestry, waste from industry and energy production
MOPE	10/4/2002	10/4/2003	Ongoing, until end 2007	YES	YES		Nationwide	Title – Operational programme for the management of waste batteries and accumulators for the period 2003-2006
Czech Republic								
Min. Env	06/2003	2003	2010	Yes	Yes	No hazardous waste	100% of territory of Czech Republic	
Region	2004-2005	2004-2005	2010	Yes	Yes	No hazardous waste	100% of territory of Czech Republic	In the Czech Republic, a Waste Management Plan is developed for all 14 regions; in some of them development is still ongoing.
Municinpality	2005-2006	2005-2006	Max. to 2011	Yes	yes	No hazardous waste	100% of territory of Czech Republic	

Table 2. Overview of waste management plans in Member States.

Council Directive 75/442 on waste – Total

2001-2003

Total waste (tonnes/person/year)	Austria	Belgium	Denmark	Finland 1)	France	Germany	Greece	Ireland	Italy	Luxembourg	Netherlands	Portugal	Spain	Sweden	U.K.	EU-15
Year	2002	2002	2002	2002	2002	2002	2002	2002	2002		2002	2002	2002	2002	2002	2002
Domestic waste	0,41	0,49	0,58	0,19	0,77	0,64	0,44	0,39	0,52		0,54	0,45	0,50	0,47	0,52	0,58
Hazardous waste	0,05	0,17	0,06	0,26	0,05	0,24	0,03	0,06	0,12		0,11	0,02	0,00	0,07	0,08	0,12
Other waste types	6,05	3,40	1,78	3,13		3,98	2,35	3,38	1,49		3,05	1,24		7,35	5,07	2,71
Total	6,52	4,07	2,43	3,59	0,82	4,86	2,82	3,84	2,12		3,71	1,71	0,50	7,89	5,67	3,41

Total waste (tonnes/person/year)	Hungary (2000)	Czech Republic	Slovakia	Slovenia
Year	2000	2002	2002	2002
Domestic waste	0,46	0,45	0,26	0,37
Hazardous waste	0,17	0,24	0,27	0,05
Other waste types	2,47	3,48	2,28	1,88
Total	3,10	4,17	2,81	2,29

Table 3.0. Waste generation per person per year for all types of waste

Note:

1. Finland's waste data exclude Åland Islands.

Data not provided

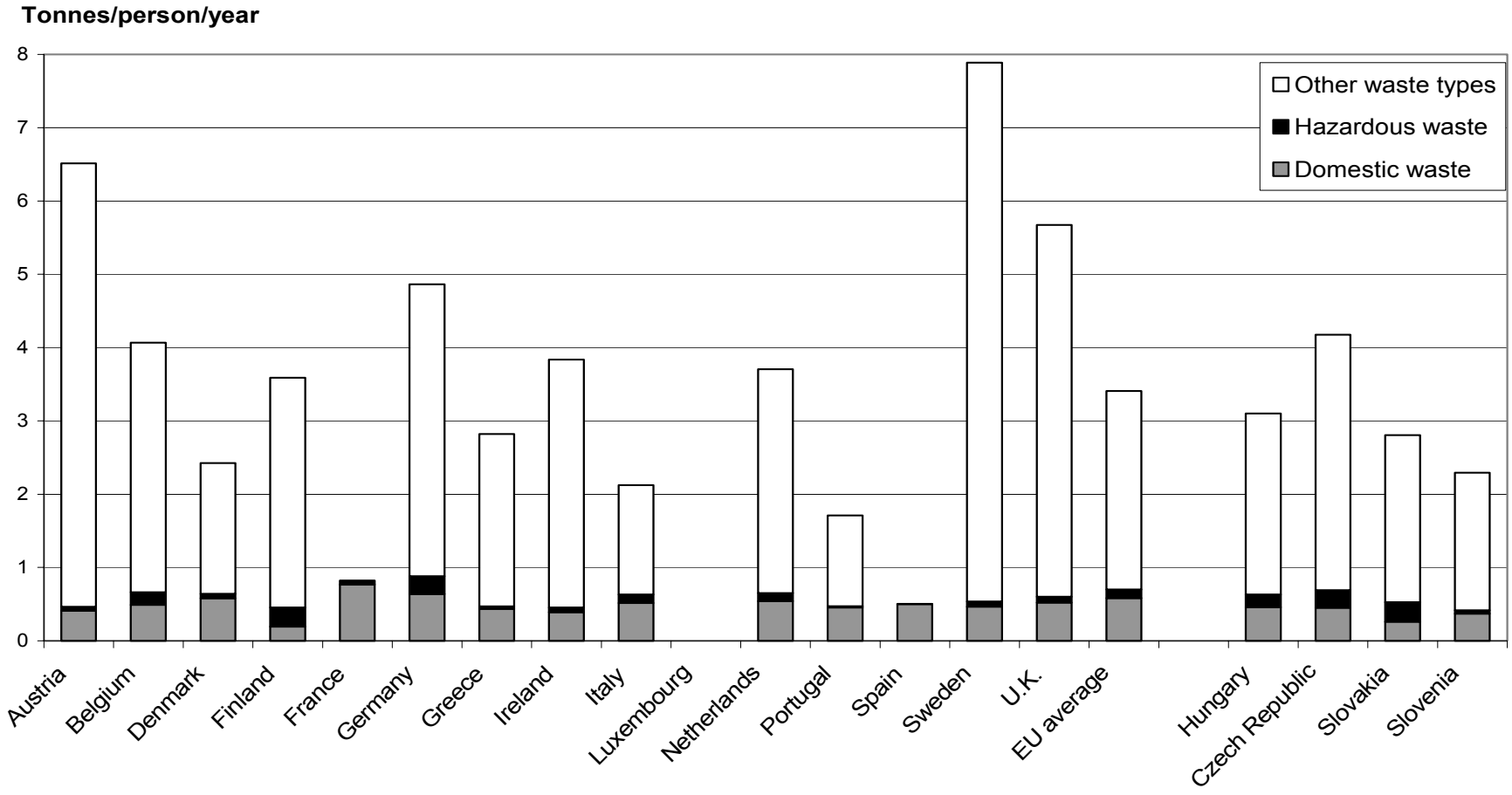
Tonnes/person/year
8
7
6
5
4
3
2
1
0
Other waste types
Hazardous waste
Domestic waste
Austria
Belgium
Denmark
Finland
France
Germany
Greece
Ireland
Italy
Luxembourg
Netherlands
Portugal
Spain
Sweden
U.K.
EU average
Hungary
Czech Republic
Slovakia
Slovenia

Figure 3.0. Waste generation per person per year for all types of waste (source: table 3.0)

Council Directive 75/442 on waste – Domestic waste

Domestic waste (household waste)	Austria	Belgium	Denmark	Finland	France	Germany	Greece	Ireland	Italy	Luxem bourg	Netherlands	Portugal	Spain	Sweden	UK	Czech Republic	Hungary	Slovakia	Slovenia
Year	2002	2002	2002	2002	2002	2002	2002	2002	2002		2002	2002	2002	2002	2002	2002	2002	2002	2002
Total (1000 ton/year)	3309	5068	3121	1000	45682	52772	4640	1528	29788		8716	4618	20466	4153	30909	4615	4646	1397	731
Recycled	1172	2063	937	296	8876	29590	3755)	133	3992		4029	370	5606	1295	4221	220	404	82	7
Incinerated with energy recovery	545	1082	1816	99	11804	11826	0	0	2472		3624	944	1213	1675	2349	94	288	91	5
Incinerated	0	134	0	<1	779	0	0	0	89		0	0	14	4	6	315	0	65	0
Landfill	817	877	180	605	23682	11266	2380	1294	17694		1002	3276	12078	825	24199	2922	3954	1154	713
Other	7751)	911	77	0	540	89	18546)	102	5541		61	28	15543)	354	134	625	0	5	74)
Comments					2)		7)		2)										

Table 3.1. Treatment and handling of **domestic waste** in 2002 (Questionnaire, Paragraph II, Question 4).

Data not provided

Notes:

1. The total of 3 309 000 t reported represents household and similar waste, included in a total of 4 914 000 t of municipal waste treated as follows: Recycled 1 222 000 t, Incineration with energy recovery 545.000 t, Incineration without energy recovery 0, Landfill 878.000 t, Other treatment 2.269.000 t. Other treatment includes composting and biomechanical treatment and other treatment.
2. Municipal waste
3. Other = Selective collection of paper, glass packaging and other
4. Other disposal methods: 1 667 t; other treatment methods: 4 905 t (procedures R6 to R13)
5. Recycled within Member State
6. Disposal at uncontrolled waste tips; 32 000 t composted
7. Type of household waste not available

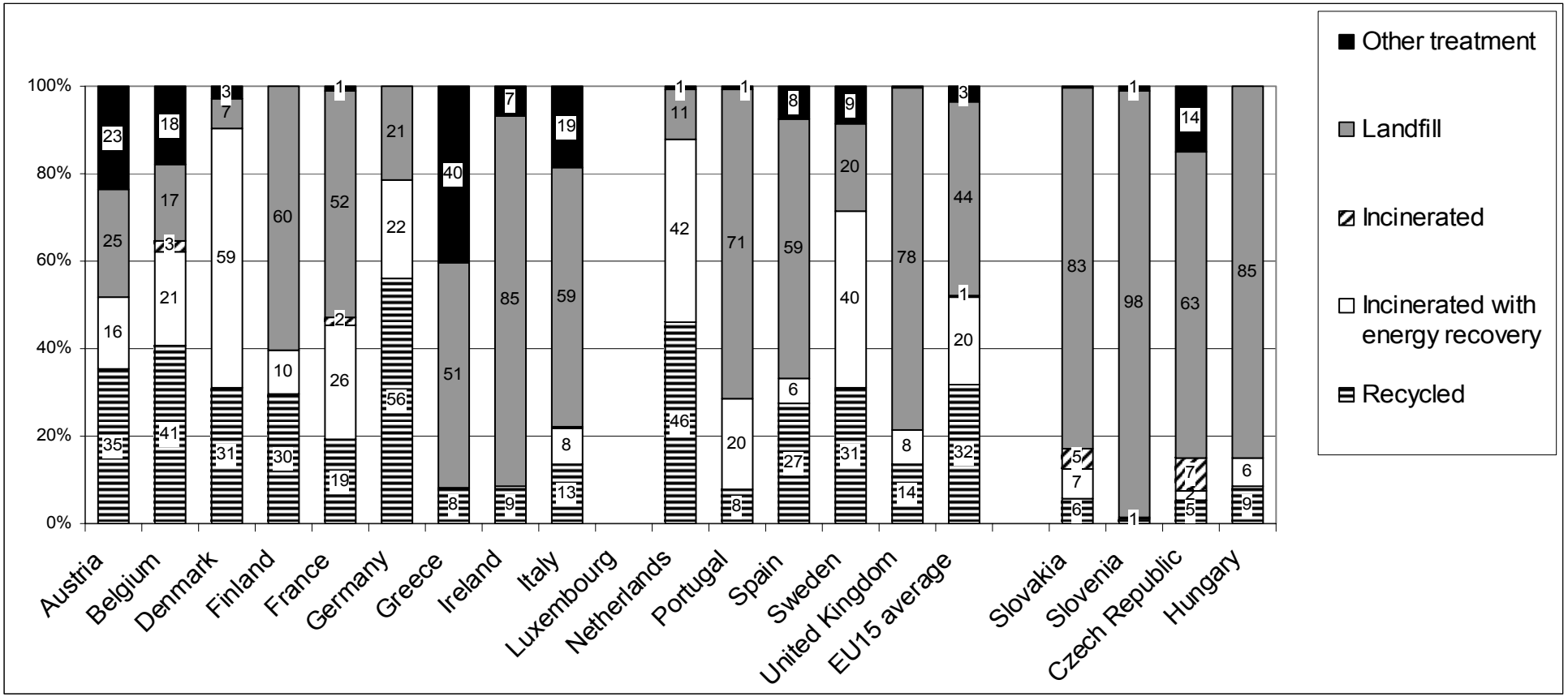

Figure 3.1. Percentage of treatment and disposal types for **domestic waste** in 2002 (source: Table 3.1).

Council Directive 75/442 on waste – Hazardous waste

Hazardous waste	Austria	Belgium	Denmark	Finland	France	Germany	Greece	Ireland	Italy	Luxem-bourg	Netherlands	Portugal	Spain	Sweden	UK
Year	2002	2002	2002	2002	2001	2002	2002	2001	2002		2002	2002	2002	2002	2003
Waste treated within Member State															
Total (tonnes/year)	307500	1566745	333347	1312100	3341500	19636000	352717	216360	6705400		1465000	198127		571509	4772315
Recycled	185000	521694	63890	81700	220000	4759000	53465	77425	1261900		637000	54635		171288	920214
Incinerated with energy recovery	122500	47302	75844	118000	0	2172000	1885	12684	118300		143000	13640		12228	120528
Incinerated	0	111924	0	77000	1700000	0		21491	493000		0	5499		60410	89408
Landfill	0 2)	475398	174753	911000	1101500	5545000	0	33349	626100		246000	14032		298870	1800910
Other	0	410426	18860	124400	320000	7160000	297367 8)	71411	4206100		440000	110320		28713	1841255
Waste treated outside Member State															
Total (tonnes/year)	119265	232216		54321	355742	224000		275309			345000		140790	80740	
Recycled	100000	155418		51215	212449	160000		206502					97530	46379	
Incinerated with energy recovery	265	0		3000	56436	46000		20402					0	34361	
Incinerated	5000	17622		5	53129	18000		42974					41479	0	
Landfill	5000	1169		0	3308	1000		1547					300	0	
Other	9000	58007		101	30420	1000		3884					1481	0	
Comments	3)	1)	5)	6)											

Hazardous waste	Hungary	Czech Republic	Slovakia	Slovenia
Year	2000	2002	2002	2002
Waste treated within Member State				
Total (tonnes/year)	1769701	2424524	1441094	75895
Recycled	530900	349919	214892	36602
Incinerated with energy recovery	53100	38773	15568	4221
Incinerated	35400	38278	60813	12529
Landfill	929100	119379	93133	11343
Other	221201	6415417)	1056688	11200
Waste treated outside Member State				
Total (tonnes/year)	4848			12630
Recycled	4372			780
Incinerated with energy recovery	0			64
Incinerated	476			11270
Landfill	0			0
Other	0			516
Comments				

Table 3.2. Treatment and handling of **hazardous waste** (Questionnaire, Paragraph II, Question 4).

Data not provided

Notes:
1. Data on hazardous waste treated outside Belgium only regards Flanders
2. The quantities of waste stored in landfills have been sorted and are not therefore hazardous.
3. Outside the Member State: The breakdown of the total amount into the various processes was estimated.
4. Sum of incineration with and without energy recovery
5. Includes waste from primary and secondary sources.

6. Outside the Member State: The fraction concerns wastes with any of the characteristics listed in Annex III of the Basel Convention. Other disposal method (101 t) refers to D12.
7. Other disposal methods: 7 962; other treatment methods: 3 238 (procedures R6 to R13)
8. Includes the total quantity of waste oils (55050) that have been destined to other disposal operations and the total quantity of hazardous waste that have been temporarily stored (242317)

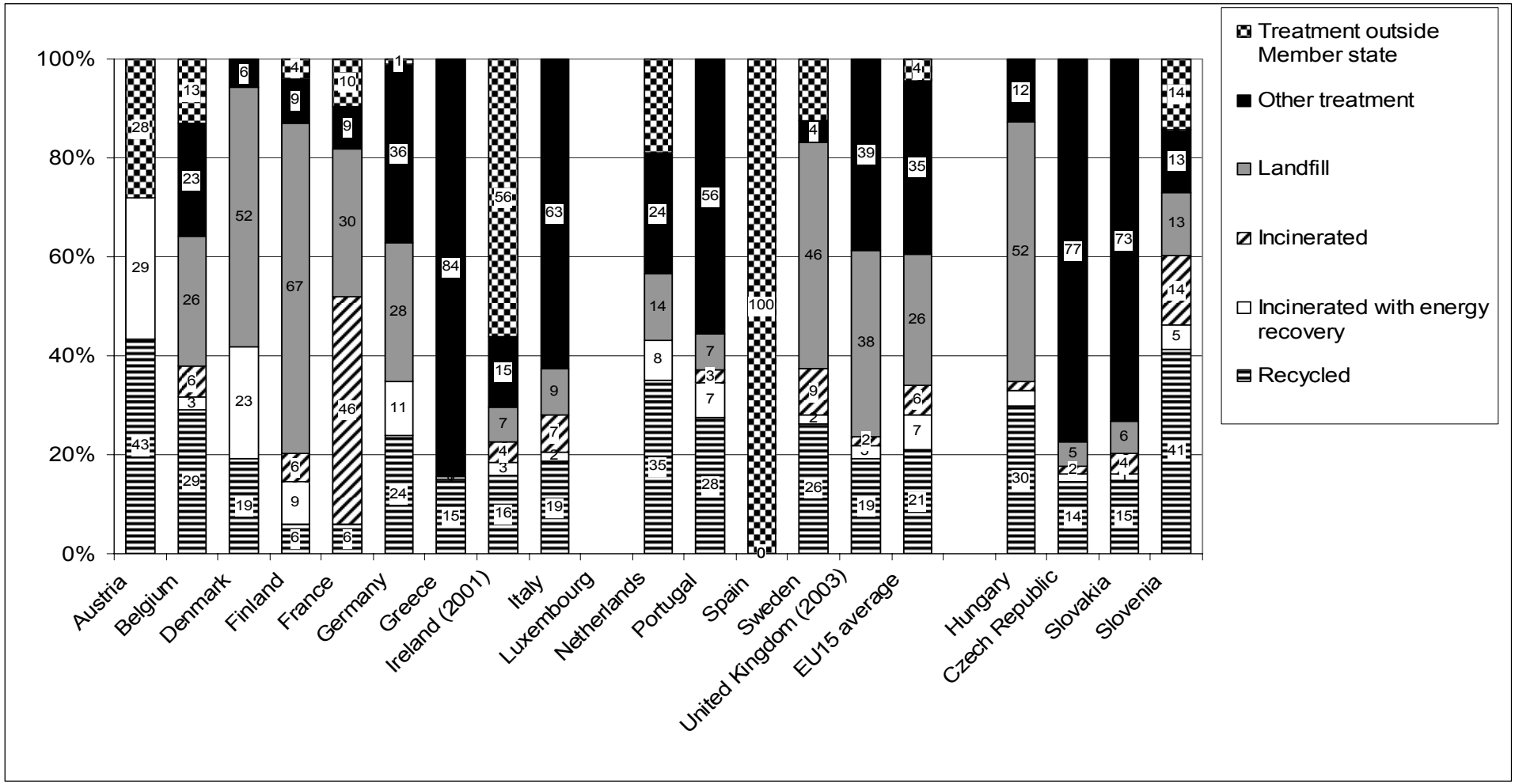

Figure 3.2. Percentage of treatment and disposal types for **hazardous waste** in 2002 (source: Table 3.2).

Council Directive 75/442 on waste – Other waste

Other waste (1000 tonnes/year)	Austria	Belgium	Denmark	Finland	France	Germany	Greece	Ireland (2001)	Italy	Luxembourg	Netherlands	Portugal	Spain	Sweden	UK
Year	2002	2002	2002	2002		2002	2002	2001	2002		2002	2002		2002	2002
Total	48700	35153	9866	16294		328491	25000	13262	86073		49299	12586		65567	300653
Recycled	38400	20353	7388	4161		218241	0	4159	40776		38344	4295		2906	88789
Incinerated with energy recovery	2900	1177	1492	5159		6125	0	0	2217		4311	928		6297	3424
Incinerated	0	143	0	1		0	0	0	343		0	39		31	0
Landfill	6400	4930	972	6585		97059	0	1987	19456		2629	2573		55517	66453
Other	1000	8204	14	388		7065	0	7079	23281		4015	4751		816	141993
Comments		1)												2)	

Other waste (1000 tonnes/year)	Czech Republic	Hungary	Slovakia	Slovenia
Year	2002	2000	2002	2002
Total	35544	27200	12252	3686
Recycled	5326	8265	6739	536
Incinerated with energy recovery	362	0	251	313
Incinerated	363	0	297	56
Landfill	7612	16000	3200	927
Other	15125	2935	1764	1853
Comments		3)		4)

Table 3.3. Treatment and handling of **other waste**. It differs from one Member State to another as to which types of waste this category comprises but it could include solid municipal waste, municipal sewage waste, industrial waste, energy and water supply, mining waste, agricultural waste, construction waste. (Questionnaire, Paragraph II, Question 4).

Data not provided

Notes:

1. The waste fraction is "total non hazardous waste from enterprises", this fraction overlaps with other fractions containing non hazardous waste. “Incinerated with energy recovery” is the sum of incineration with and without energy recovery. Most of the incinerators recover energy; Recycling is 11691507,67 tonnes from which 3847503,00 tonnes are used as secondary raw material; Other treatment means pretreatment and temporary storage.
2. Mining waste: 54.4 million t, placed in landfills.
3. Data estimated
4. Other disposal methods: 189 982 t; other treatment methods: 1 662 979 t (procedures R6 to R13)

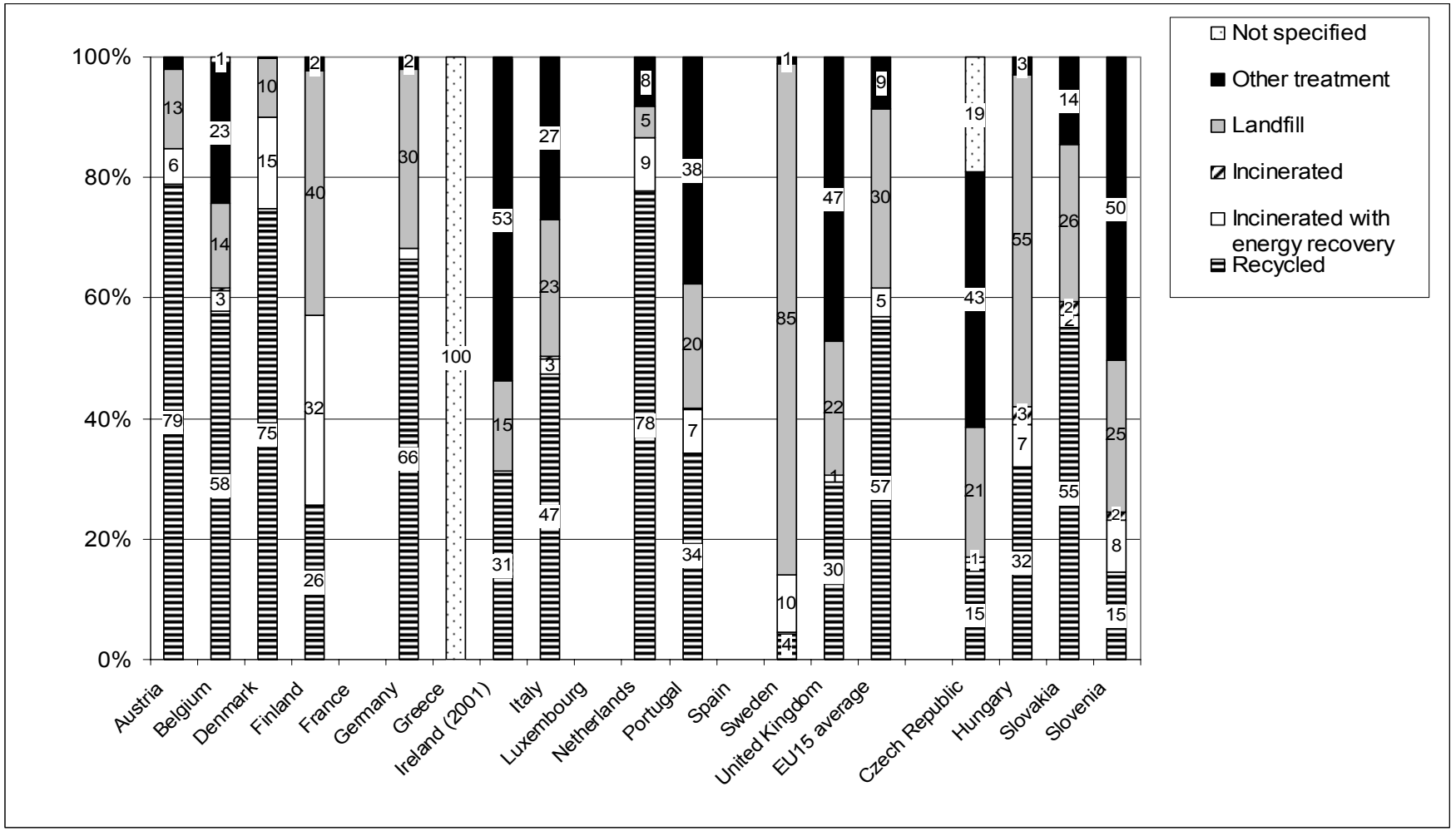

Figure 3.3. Percentage of treatment and disposal types for **other waste** in 2002 (source: Table 3.3).

III. DIRECTIVE 91/689/EEC ON HAZARDOUS WASTE

4. INTRODUCTION

In addition to Directive 75/442/EEC[35], which constitutes the legal framework for all wastes, Directive 91/689/EEC[36] contains stricter management and monitoring instruments for hazardous waste. Directive 91/689/EEC replaced Directive 78/319/EEC on toxic and hazardous waste.

The main provisions of Directive 91/689/EEC to ensure environmentally sound management of hazardous waste are:

– definition of hazardous waste (Article 1), further developed by the list of hazardous waste established by Council Decision 94/904/EC37, replaced by Commission Decision 2000/532/EC38 as amended.

– the prohibition to mix hazardous waste with other hazardous or non-hazardous waste (Article 2)

– specific permit requirements for establishments and undertakings dealing with hazardous waste (Article 3)

– periodic inspections and requirement to keep records for the producer of hazardous waste (Article 4)

– appropriate packaging and labelling of hazardous waste during collection, transport and temporary storage (Article 5)

– waste management plans for hazardous waste (Article 6)

Domestic hazardous waste is excluded from the provisions of this Directive.

The following report is based on a questionnaire adopted by Commission Decision 97/622/EC[39] of 27 May 1997.

5. INCORPORATION INTO NATIONAL LAW

All reporting Member States confirmed that they have provided the Commission with details of the current laws and regulations in force to incorporate Directive 91/689/EEC

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35 See report on Directive 75/442/EEC on waste
36 OJ L 377, 31.12.1991, p. 20
37 OJ L 356, 31.12.1994, p. 14
38 OJ L 226, 06.09.2000, p. 3.
39 OJ L 256, 19.09.1997, p. 13

on hazardous waste and the Waste List (Decision 2000/532/EC[40] as amended) into national legislation.

6. IMPLEMENTATION OF THE DIRECTIVE

6.1. National consideration of "hazardous waste" – Article 1(4)

According to Article 1(4) second indent hazardous waste means in addition to the hazardous waste list any other waste considered by a Member State to display any of the properties listed in Annex III such as flammable, corrosive, oxidising, harmful etc. These cases shall be notified to the Commission.

Austria as well as the Walloon region of **Belgium, Czech Republic, Denmark, Finland, Germany, Sweden and the UK** notified some more wastes as hazardous waste. The other Member States did not re-classify any waste as displaying hazardous properties.

6.2. Hazardous waste generated in households – Article 1(5)

According to Article 1 (5) hazardous waste generated in households is exempted from the provisions of this Directive. The questionnaire asks whether the Member State distinguishes domestic hazardous waste from non-domestic hazardous waste[41].

The **Austrian** waste management act[42] defines hazardous waste which is typically produced in private households as problematic material. These types of waste are classified as problematic materials for such time as they remain in the custody of the said waste producers. Local authorities are obliged to arrange a separate collection of problematic materials as necessary, and at least twice a year.

As regards **Belgium**, the Brussels region provides for separate collection of hazardous household waste in the so-called *coins verts* including equipped pick-ups. In the Walloon Region no measures to distinguish domestic hazardous waste from non-domestic hazardous waste are taken. In the Flemish region such measures are included in the Flemish regulations on the prevention and management of waste (Vlarea).

In the **Czech Republic** the rights and obligations of municipalities managing municipal solid hazardous waste are specified in section 17 of Act No. 185/2001. The classification and categorisation of these types of waste are done according to Regulation No 381/2001.

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40 Council Decision 2000/532/EC replacing Decision 94/3/EC establishing a list of wastes pursuant to Article 1(a) of Council Directive 75/442/EEC on waste and Council Decision 94/904/EC establishing a list of hazardous waste pursuant to Article 1(4) of Council Directive 917689/EEC on hazardous waste.

41 As the questionnaire does not specifically ask for more detailed information, some of the replies to this question are not clear in stating what rules apply to hazardous household waste.

42 § 2 (4) Z4 of AWG 2002 (Abfallwirtschaftsgesetz) 2002, BGBl. I No 102/2002).

Domestic hazardous wastes are included in the scope of **Finland's** waste legislation. However, derogations have been granted from certain requirements. Households are exempted from the duty to keep record on hazardous wastes generated.[43].

In all Länder of **Germany,** domestic hazardous waste is generally collected separately by public-law bodies, using mobile or stationary collection systems or a combination of the two. The legislation makes the following distinctions: domestic hazardous waste is exempt from the provisions of the Records Order; the Waste Storage Order prohibits the storage of domestic hazardous waste at domestic refuse disposal facilities; the Hazardous Waste Technical Guidelines and the Landfill Order apply.

In **Ireland** exist “Bring" facilities for the acceptance of certain domestic hazardous wastes. Some local authorities operate a "Chemcar" System where householders can bring domestic hazardous waste to a specially equipped vehicle. However, there is not yet separate collection from households of the hazardous component of domestic waste.

In **Luxembourg**, hazardous waste from households is included under legislation on hazardous waste.

In **the Netherlands** domestic waste is not as such regarded as hazardous waste. However, households are encouraged to separately submit waste included on the Small Chemical Waste list. Most of the substances appearing on this list are hazardous waste and are managed as such after collection.

In **Portugal** the selective collection is conducted at national level, targeting specific hazardous urban streams and conveying them to adequate final destinations, e.g. batteries and accumulators and other streams (waste from electrical and electronic equipment – WEEE), responsibility for whose collection lies with the municipal authorities, which then convey them to treatment. In the particular case of some “historical waste”, such as batteries collected using this circuit, the Waste Institute (INR), in the absence of treatment solutions at national level, has borne the cost of sending them to a treatment unit abroad.

Following the *Plano Estratégico dos Resíduos Sólidos Urbanos* (PERSU – Municipal Solid Waste Strategic Plan), the management of some hazardous solid waste from households is addressed by the specific acts. Following on from the PERSU, the Action Plan for Municipal Solid Waste 2000-2006 (*Plano de Acção para os Resíduos Sólidos Urbanos 2000-2006*) was drawn up to implement the policies introduced in PERSU and in the specific legislation published. This Action Plan includes the selective collection of small amounts of hazardous or potentially hazardous waste from among municipal solid waste (MSW), so as to diminish the polluting load carried to landfills.

To this end, management of the streams in question was ensured by licensing a managing entity for batteries and accumulators in October 2002 and another for medicines and medicine packaging in February 2000. At the end of 2003, a managing entity for end-of-

43 For information on other derogations granted for household hazardous wastes, see the report for the period 1995-1997.

life vehicles was in the final phase of licensing. Additionally, the creation of managing entities was under consideration for waste oils, WEEE and plant protection product packaging waste.

Also **Slovenia** answered the question in the affirmative. It is specified in the Order on the management of separately collected fractions in the public service of urban waste management.[44]

The **Spanish** waste management plans establish separate pathways for collecting domestic hazardous waste, although all disposal site managers do come under one category.

Sweden replied that when hazardous waste forms part of the domestic waste the Ordinance on Hazardous Waste is not applicable. Each municipality has the power to decide that hazardous waste from households shall be collected separately from other household waste. Such separately collected fractions are hazardous waste.

The **UK** answered that in England, Scotland, Wales and Northern Ireland no such distinction was made during the reporting period. New Regulations coming into force in 2005 will distinguish domestic from non-domestic hazardous waste in England, Wales and NI. New Regulations in Scotland did so in 2004. In Gibraltar such a distinction was made (see Public Health (Amendment) Ordinance 2002).

Austria, Belgium (Brussels and Flemish regions), Czech Republic, Finland, Germany, Ireland, Luxembourg, the Netherlands, Portugal, Slovenia, Spain and Sweden have adopted measures to distinguish domestic hazardous waste from non-domestic hazardous waste. Essentially these measures aim at the separate collection of certain hazardous wastes components contained in the household waste.

6.3. Records and identification of the discharge of hazardous waste – Article 2(1)

According to Article 2 (1) on every site where discharge of hazardous waste takes place waste has to be recorded and identified.

In all reporting Member States recording and identification takes place where hazardous waste is discharged.

In **Austria**, presumed to § 18(3) of the waste management act 2002, anyone who collects or treats hazardous waste must notify the Provincial Governor of the type, quantity, origin and whereabouts of such waste (recording in the form of a continuous collection of identification forms; identification form system). This ensures that all hazardous waste is registered and identified from the first delivery to the final treatment. The dumping of hazardous waste is moreover not permitted in Austria (§5 Z 10 of Austrian Dumping Order).

[44] see Official Gazette of the Republic of Slovenia No 21/01; link to SL text: http://www.gov.si/mop/zakonodaja/zakoni/okolje/varstvo/odpadki/frakcije.pdf

The Brussels Region of **Belgium** indicated that the there no discharge of waste takes place in the Region. The Walloon Region answer referred to Article 24, 25 and 26 of the Ordinance of the Walloon Government of 27 February 2003, which lays down the technical sector conditions for the operation of discharge centres. The Flemish Region answer referred to the Order of the Flemish Government of 1 June 1995 (amended during the period in question by subsequent orders) laying down general and sectoral provisions for establishments for the reception and recording of waste; the Order also contains the terms for acceptance of waste in a landfill.

The **Czech Republic** requires producers of waste, operators managing waste, operating waste facility for collection and storage, facility for recovery and disposal of waste and all facilities that are not designed for waste management (recovery) under section 14 (2) Act on Waste to keep operational records (inventory) of waste's types and operational methods of waste management.

Denmark answered that according to Order no 619 of 27th June 2000 on Waste, undertakings treating hazardous waste shall keep records of the waste type (waste list code).

France replied that, according to the ministerial order of 30 December 2002, the prefectural order authorising the operation of a hazardous waste landfill sets out the acceptable waste and their quantity, provides for controls on the waste to be carried out by the operator (preliminary acceptance procedure, control upon arrival to the site) and for keeping a register of acceptance and refusal of waste.

Finland referred to the information provided in the previous implementation reports 1995-1997 and 1998-2000.

In **Germany** the registration and identification requirements for the storage of hazardous waste are set out in the Records Order. In addition the Waste Technical Guidelines require the operators of waste disposal facilities to keep a log book. The Landfill Order requires the operators of landfill tips to do the same. These log books must contain all relevant data including the record of the waste accepted.

In **Greece** a list has been drawn up of industries which generate hazardous waste. This list also identifies sources of potential hazardous waste. Full definitions and categorisations of waste are under development.

Ireland- specified that section 41(2)(ix) of the Waste Management Act, 1996 requires the recording and identification and deposit of hazardous waste at a waste disposal facility.

Italy replied that at national level, the measures specified by Article 2(1) of Directive 91/689/EEC have been transposed by Article 11 of Legislative Decree 36/2003, which governs landfill acceptance procedures.

In **Luxembourg** legislation on hazardous waste of 11/12/1996 incorporates the provisions of Article 2(1).

In the **Netherlands** obligatory identification has been laid down in Article 10(39) of the Environment Management Act. The disposing party must provide the waste recipient with a description of the nature, properties and composition of the waste.

Under Article 10(40) of the Environment Management Act, parties receiving waste, including landfill sites, must report the receipt of waste to the competent authority. This notification is registered. The manner of registration is specified in the acceptance and registration provisions of the licence.

Portugal responded that Article 16 (waste registration) of Decree-Law 239/97 of 9 September 1997 states that persons who carry out a waste management operation must keep an updated register of the quantity and type of waste collected, stored, transported, processed, recycled or disposed of, the origin and destination of the waste, and the operation carried out. - Order 335/97 of 16 May 1997 states that the producer or holder must ensure that each consignment of waste is accompanied by the relevant records. The accompanying records contain detailed information on the waste to be transported and are completed by the producer or holder, transporter and consignee, each of whom must keep one copy of this document for a period of five years. Portugal also informed of a register procedure under study for the collection/transport of end-of-life vehicles; a register procedure under preparation for waste oils; a register system for landfill operations. Every licensed storage infrastructure must keep a record of the quantities and types of waste handled. Furthermore, there is only one landfill for hazardous industrial waste in operation in Portugal (at Sines) with its own regulations on identifying and recording the waste for disposal.

Slovakia quoted provisions from the Act on Waste No. 223/2001:

- § 19 (1) g – a waste holder shall be obliged to keep and retain records of the waste types and quantities handled, and of their recovery and disposal.

- § 20 (2) a – the hazardous waste consigners and the hazardous waste consignees shall be obliged to keep and maintain record of hazardous wastes shipped.

- § 21 (1) f – an operator of a waste recovery or waste disposal installation shall be obliged to keep and retain records of quantities, types and origin of waste taken over for disposal or recovery and of the means of their handling, if it is installation for PCB disposal also containing of PCBs in waste, and the position of hazardous waste in a landfill. -In Decree No. 283/2001,

- § 20 (2) – hazardous wastes and storage areas where hazardous waste are stored must be marked by a hazardous waste identification card, a specimen of which is given in this Decree.

Slovenia referred to Article 19 of the Rules on the management of waste.[45]

[45] See OG of the RS Nos 84/98, 45/00, 20/01, 13/03; link to SL text: http://www.gov.si/mop/zakonodaja/zakoni/okolje/varstvo/odpadki/ravnanje_odpadki.pdf.

Spain answered that the necessary measures have been taken in accordance with Law 10/98 on waste and Royal Decree 833/1988, already notified to the Commission. Under the terms laid down in the Law and Royal Decree, all disposal sites for hazardous waste require authorisation.

The Royal Decree imposes an obligation to keep records (Article 37) and to present an annual report on activities (Article 38), based on the model in Annex IV to the same Royal Decree.

Sweden detailed that these requirements are dealt with in connection with the procedure of issuing permits for the landfilling activity.

The **UK referred** to the Special Waste Regulations 1996 for England, Scotland & Wales. In Northern Ireland exists the Regulation 16 and Regulation 15 of the Special Waste Regulations NI 1998. In Gibraltar there is the Public Health (Amendment) Ordinance 2002.

All reporting Member States stated that the requirements of Article 2(1) have been met. However the answer of Greece presents the measures taken to register waste producer while the question is asking for the recording and identification at the disposal site. Moreover it is admitted that the full definitions and categorisations are still under development.

6.4. Mixing of hazardous waste – Article 2(2) – (4)

According to Article 2(2) to (4) establishment and undertaking which dispose of, recover, collect or transport hazardous waste shall not mix different hazardous waste and hazardous waste with non hazardous waste. Exemptions may only be permitted where the conditions laid down in Article 4 of Directive 75/442/EEC are complied with and in particular for the purpose of improving safety during disposal or recovery. Already mixed waste has to be separated where technically and economically feasible and necessary for safety reasons (human health and environment)

In **Austria** there is a ban on the mixing of all waste under certain conditions (in accordance with Article 2 (3) of the Directive). The obligation to separate waste is laid down in § 73(3) of Waste Management Act 2002.

In the **Czech Republic** diluting or mixing waste for the purpose of compliance with criteria for its acceptance to dump and mixing hazardous waste with other hazardous or other waste is forbidden according to section 12 (5) of the Waste Act. If hazardous waste has already been mixed with other hazardous or other waste, waste must be sorted provided such sorting is technically or economically practicable and if required for ensuring the protection of environment and human health according to section 12 (6) of the Waste Act.

Denmark refers to previously provided information.

Finland points to the reports for the periods 1995-1997 and 1998-2000.

France special industrial waste, as set out in the decree of 18 April 2002, may not be placed in storage facilities that take other categories of waste. In addition, Annex II of the Decision of 9 September 1997 on the subject of existing landfills and of new household wastes and similar wastes storage facilities forbids the placing of hazardous waste and special industrial wastes in the household wastes and similar waste storages with the exception of bound asbestos wastes which may be accepted in specific cells.

For co-incineration, if the installation treats jointly hazardous and non-hazardous waste, the provisions concerning incineration of hazardous waste apply. However, the provisions relating to the acceptance conditions of non-hazardous waste still apply for non-hazardous waste. When the operator of an installation for incineration of non-hazardous waste intends to modify the operation so that it involves incineration or co-incineration of hazardous waste, such modification requires a new application for a permit.

In **Germany** rules are set out in §5(2) sentence 4 and §11(2) of the KrW/-AbfG. Corresponding rules are set out in the Waste Oil Order, in the PCB Waste Order, the Solvents Order and the Scrap Wood Order.

In **Greece** there is a hazardous waste treatment plant for converting hazardous waste into either secondary fuel or extra raw material for the cement industry. This unit accepts the following types of hazardous waste from all over Greece: organic sludge, organic liquids, water/waste oil mixtures, solvents, dust from aluminium slag, certain categories of laboratory waste, clean and/or contaminated packaging materials (paper, glass, plastic).

Other waste is temporarily stored in the place where it is generated (once the relevant licence has been granted by the competent national authorities), sent for final disposal at licensed facilities in other EU Member States (France, Germany, Finland, etc.) or taken away for recovery or recycling. In all three cases, the State runs a continuous monitoring procedure to provide full protection for public health and the environment. The conditions for managing hazardous waste do not allow it to be mixed with other waste (hazardous or not).

Hungary responded with regard to Article 2(2) that the mixing of hazardous waste with other hazardous waste or with other waste, substances or materials is prohibited, if the sole purpose of mixing is to dilute the contaminated components.

Concerning Article 2(3) the mixing of hazardous waste with other hazardous waste or with other waste, substances or materials for treatment purposes may be permitted only where all of the following conditions are complied with:

- a) mixing results in improved efficiency in terms of recovery or disposal as opposed to treatment of the waste in itself;

- b) as a consequence of mixing hazards to the environment must not be increased in comparison to the original state;

- c) mixing does not result in any risk to man and other living organisms, to water, air, soil or the fauna and flora;

- d) mixing does not result in any nuisance through noise or odours;

– e) the environment is not polluted during or as a consequence of mixing operations.

Dilution may be performed without authorization in the event of environmental or public health emergency, if it serves to reduce the extent of danger. Hazardous waste must not be mixed with other waste or material without a permit from the environmental protection authority.

With regards to Article 2(4) the producer or holder of the waste shall be responsible for collecting waste separately, according to the further treatment. Collection of waste within a plant, if it is carried out in a way excluding environmental hazards, may be continued without a permit issued by environmental protection authorities. Collection shall mean the organised collecting and sorting of waste for the purpose of transport and subsequent further treatment.

In **Ireland** Section 37 of the Waste Management (Licensing) Regulations, 2000 provides for the EPA to attach to any waste licence that it may grant such conditions, as are in the opinion of the Agency, that are necessary to give effect to the provision of Articles 2(2) to 2(4) and 4(3). Similarly, in accordance with Article 18(1) of the Waste Management (Permit) Regulations, 1998, local authorities are required to attach similar conditions to any waste permits that it may grant.

In accordance with Article 22 of the Waste Management (Hazardous Waste) Regulations, 1998, a producer of hazardous waste must ensure, that during the temporary storage of such waste at its place of production hazardous waste of one category must not be mixed with hazardous waste of any other category or with non-hazardous waste unless such mixture is approved in writing by the local authority in whose functional area the waste is produced. Article 5 of the Waste Management (Movement of Hazardous Waste) Regulations, 1998 provides a similar provision for a consignor of hazardous waste. This requirement does not apply where a local authority in whose functional area the said consignment originates approves in writing the mixture of wastes in a consignment.

In **Italy** Article 9(1) of Legislative Decree No 22/1997 lays down a "prohibition on mixing different categories of hazardous waste, as specified in Annex G (which reproduces in full Annex 1 to Directive 91/689/EEC) and on mixing hazardous waste with non-hazardous waste." By way of exemption from this prohibition, Article 9(2) of the Decree stipulates that hazardous waste may be mixed together or with other waste, substances or materials on condition that authorisation is granted by the regional authorities (Article 28 of Legislative Decree No 22/1997) and provided that no danger is posed to human health or the environment (Article 2(2) of Legislative Decree 22/1997). Article 9(3) of Legislative Decree 22/1997 stipulates that anyone who violates the mixing prohibition laid down in Article 9(1) is required, at his own expense, and where technically and economically feasible, to separate the mixed waste in order to comply with the conditions laid down in Article 2(2).

In **Luxembourg** these provisions are incorporated in legislation on hazardous waste of 11/12/1996.

In the **Netherlands** the prohibition on mixing hazardous waste with other hazardous waste or with non-hazardous waste is provided for in the Regulation on separating waste and keeping it separated.

Portugal replied that the specific legislation on waste streams such as waste oils, sludges, PCBs, PCTs and batteries presupposes separate management of such wastes. Beyond this, the licensing procedure for waste treatment undertakings requires separate management of the wastes as they enter the installations. In practice, the necessary measures to ensure that establishments and undertakings which manage hazardous waste do not mix different categories of waste are taken mainly at the collection and transport stages. Consequently, when the wastes arrive at the destination, they have already been separated and pre-processed, as required for the relevant category. Although transport of waste is governed by Order 335/97 of 16 May 1997, if the wastes to be transported meet the criteria for classification as hazardous waste set out in Portugal's national Regulation on the carriage of dangerous goods by road, as approved by Joint Order 977/87 of 31 December 1987 (fully revised by Order 1196-C/97 of 24 November 1997), the producer, holder or transporter is required to comply with the abovementioned regulation, particularly the requirement to treat the waste separately. In the specific case of hospital waste, the legislation in force and the strategic plan for hospital waste (PERH) very clearly promote sorting of the various categories of hospital waste. In accordance with Circular 242/96 of 13 August 1996, hospital waste is subdivided into four groups.

Slovakia indicated that pursuant to Act on Waste No. 223/2001, § 40 (1) it is prohibited to dilute and mix individual types of hazardous wastes or hazardous wastes with non-hazardous, with the aim of decreasing the concentration of the harmful elements present.

According to § 40 (2) mixing of individual types of hazardous wastes or mixing of hazardous wastes with non-hazardous may only be possible if necessary to enhance safety during the waste recovery or disposal and if compliant with consent awarded under § 7 (1) j consent for accumulating waste by the waste holder without any previous sorting, where – with a view to the following way of its recovery or disposal – sorting or separated accumulation is not possible or efficient).

§ 40 (3) provides "where waste mixing was effected contradictory to paragraphs 1 and 2, the respective district authority may decide about an obligatory separation of hazardous wastes in cases technically and economically viable and if necessary for the protection of human health and the environment".

Slovenia referred to Article 12 of the Rules on the management of waste (OG of the RS Nos 84/98, 45/00, 20/01 and 13/03).

Spain replied that Article 12(2) of Law 10/98 on waste, prohibits mixing waste under the conditions specified in Articles 2(2) to 2(4) and, depending on the consequences, classifies mixing as a serious or very serious infringement (Article 34 of the Law). Under Article 4(2) of the same Law the relevant regional authorities (NUTS 2) are responsible for supervision, inspection and sanctions.

In **Sweden** these requirements are included in the Swedish Ordinance on Waste (SFS 2001:1063).

The **UK** answer referred for UK-England, Scotland & Wales to Regulation 16 of the Special Waste Regulations 1996 and for Northern Ireland to Regulation 15 of the Special Waste Regulations NI 1998 Gibraltar – Public Health (Amendment) Ordinance 2002.

- All reporting Member States specified that the necessary measures pursuant to Article 2(2) – (4) have been taken. The level of detail in the reply differs: Some Member States only quote the reference to the national legal provision, while others state or explain the provision.

6.5. General national rules replacing permit requirements for recovery operations – Article 3(2)

According to Article 3(2) establishment and undertaking, which recover hazardous waste may be exempted from the permit requirement when the Member State adopts certain specific rules and when the protection of human health and the environment is ensured. These establishments and undertakings have to be registered with the competent authorities.

In **Italy** exemptions provided for in Article 3(2) of Directive 91/689/EEC have been adopted via Ministerial Decree 161/2002 on the rules implementing Articles 31 and 33 of Legislative Decree No 22 of 5 February 1997, which identify hazardous waste qualifying for simplified procedures. They were agreed by Commission Decision 2002/909/EC[46].

In the **UK** (England, Scotland & Wales) there are 8 extant exemptions which have been provided under Article 11 of the Framework Directive. Most of the exemptions were made before 27 June 1995 when the hazardous Waste Directive had to be implemented. UK authorities were not, therefore, required to notify these exemptions to the Commission under Article 3(4). However all of the exemptions made before 27 June 1995 were notified to the Commission under Article 11(3) of the Waste Framework Directive (Directive 75/442/EEC as amended by Directive 91/151/EEC). The UK accepts that in the case of the exemptions made before 27 June 1995, the general rules that apply should be reviewed and, where necessary, revised to ensure compliance with Article 3. Proposed revisions have been notified to the Commission in 2005.

6.6. Inspections of the producers of hazardous waste – Article 4(1)

According to Article 4 (1) periodic inspections are required in addition to establishment and undertaking for the producer of hazardous waste.

In **Austria** pursuant to § 75(1) AWG 2002, producers of hazardous waste must be inspected regularly and appropriately by the Provincial Governor. The frequency of the inspections is determined on the basis of, in particular, the type and quantity of waste. Moreover priority areas are coordinated between the State and the provinces.

[46] OJ L 315, 19.11.2002, p. 16

As regards **Belgium**, the Walloon region reported again that the producers of hazardous waste are inspected in the context of a general control on the implementation of environmental legislation for classified establishments, usually once a year. They are also obliged to declare semester to the Walloon waste office the quantities, nature and characteristics of hazardous waste that they produce as well as the procedure that generated the waste, the place where the waste will be placed, the date at which the wastes are transferred, the identity of the licensed transporter, the method and the site of the recovery or disposal of the waste or the identity of the licensed collector to which the wastes have been transferred.

In the Flemish and Brussels regions these establishments are inspected periodically, the frequency of these inspections depending on the priority given to the dossier in question. In Brussels special attention is given to the flux of asbestos waste, the transformers containing PCB, the garages, the body-shops and the sector of dry-cleaning.

The **Czech** Environmental Inspection controls (according to section 76 of the Act on waste) the compliance by legal persons, persons authorised to do business and municipalities with the provisions of the legal regulations and the decisions of the Ministry Environment and other administrative bodies in the waste management industry, as well as the compliance with the specified procedures of hazardous waste attribute evaluation. The Inspection may stop the validity of the certificate on hazardous waste attribute elimination issued by a licensed person or withdraw such certificate under Section 9, par. 3 and 4.

The number of inspections is determined in a plan, which is prepared by the Inspection each year in cooperation with the Ministry.

In **Denmark** the inspections of the producers of hazardous waste are carried out as part of the general municipal inspections.

Finland referred to the answer provided for the reports for periods 1995-1997 and 1998-2000.

In **France** periodic inspections are carried out in connection with each delivery of hazardous waste to an elimination installation (follow-up statement). The control minimum is once per year by the inspectors of the classified installations. Declarations of the production and of the elimination of hazardous waste are to be elaborated quarterly or annually.

In **Germany** pursuant to § 40 of the Recycling and Waste Managements Act (KrW-/AbfG) for producers of hazardous waste are subject to monitoring by the competent authority. Monitoring is also required pursuant to § 52 of the BImSchG (Federal Emission Control Act). In practice the frequency of checks is different in the individual Länder and orients at the "problem situation", i.e. depends on the type of facility and the need for monitoring. It ranges from a maximum of twice a year to a minimum of every five years.

In **Greece,** depending on the types of waste, the competent authorities which grant the hazardous waste preliminary storage permits carry out periodic inspections of the

temporary storage sites. The frequency of the inspections varies according to the terms laid down for the storage.

In **Hungary** the frequency depends on the annual inspection plans of Regional Environmental Inspectorates and number of announcement of inhabitants.

Ireland responded that the frequency of inspections is determined by individual competent authorities having regard to the nature of the facilities and the waste(s) concerned (see Section 15(1) (b) of the Waste Management Act, 1996).

In **Italy** the frequency is determined on the basis of case-by-case assessment by the competent authorities.

Luxembourg referred to its previous reports and to actions put in place since 1991 for awareness raising and control of enterprises.

In the **Netherlands,** in general, inspection is the responsibility of the Enforcement department of the competent authorities (provincial and in some cases local authorities) who for this purpose have to compile a supervision plan. The Frequency depends on the evaluated risk, the nature and location of the plant, the nature of the hazardous waste, etc. The aim is to have inspections carried out at least once a year.

In **Portugal** the Ministry for the Cities, Land Planning and Environment has various departments responsible for inspections relating to waste, notably the Waste Institute (INR), the Inspectorate-General for the Environment (IGA), the Institute for the Environment (IA), and the Coordination Commissions for Regional Development (CCDR). There are also other bodies responsible for inspections or for authorising waste management operations plus the police authorities. In particular, the National Republican Guard's Nature and Environmental Protection Branch (SEPNA) has been receiving special environmental training with a view to basing its action on more solid, well founded knowledge of this subject. Inspections are carried out regularly with no set intervals, although, on average, the leading producers of hazardous wastes are inspected once a year. Portugal also informed of the criteria applying to inspections carried out by the above-mentioned authorities, namely in the context of special waste flows that include hazardous waste.

Slovakia referred to the Act on Waste No. 223/2001, §73(1), which states that supervision for compliant with consent awarded under § 7 (inter alia handling with hazardous waste including its shipment) or authorisation under § 8 to 14 is performed at least once in four years.

In **Slovenia** inspections are carried out in accordance with the annual inspection plan.

In **Spain** each regional authority (NUTS 2) is responsible for deciding how often inspections should be carried out, according to their own needs. In any case, inspections must always be carried out before renewing permits, which are usually valid for 5 years.

According to the **Swedish** Environmental Code the authorities responsible for inspections shall carry out plans for inspections on a yearly basis. These authorities shall also keep records over the activities that require inspections and regularly evaluate the results from the inspections.

The **UK** reported that inspections take place on a regular basis.

- All reporting Member States affirmed that appropriate periodic inspections are carried out by the competent authorities. The frequency varies in most countries and depends amongst other criteria on the type and quantity of waste and the type of installation. Inspection plans have been elaborated in the Czech Republic, Hungary, the Netherlands, Slovenia and Sweden.

6.7. Records on Waste – Article 4(2)

According to Article 4(2) producers of hazardous waste have to keep records on the details of hazardous waste (in addition to Article 14 of Directive 75/442/EEC). Further, establishments and undertakings, which transport hazardous waste, have to keep records. On request they have to make this information available to the competent authorities.

In **Austria** pursuant to § 17 of the AWG 2002, anyone who performs an activity which generates waste or who collects or treats waste must keep continuous records, separately for each calendar year, of the type, quantity, origin and whereabouts of such waste (waste oils) and provide such information to the authorities on request. The records must be kept for at least 7 years from the date of the last entry and presented to the authorities on request. Further clarification of these obligations is given in the Waste Control Order 2003, BGBL.II No 618/2003. There is an identification form system for hazardous waste, under which the holder of hazardous waste or waste oils must identify, in particular, the type, quantity, origin and whereabouts of hazardous waste or waste oils by means of identification forms made out on a standard form and continuous records based on such information forms. This also applies to transport undertakings which have to enter and confirm the date and their own particulars (name, address) on the identification form.

In the **Flemish Region** of **Belgium** the standard forms set out in the Ministerial Order of 19 November 1990 containing detailed rules concerning the waste report form to be used for the compulsory annual report have been replaced by the report forms in Article 5.1.5.2 of VLAREA (amended in 2001). The **Walloon Region** referred to the Executive Decree of the Walloon Region, in which specific information to be kept by producers, collectors, waste gathering points, pre-treatment, recovery and disposal installations is laid down. In the **Brussels Region** the requirements are integrated in Article 1 of the decree of 30 January 1997 concerning the waste register. The register may not be declared by the dangerous waste producer, but it must be kept for 3 years and shown to the administration following a simple request.

In the **Czech Republic** waste producers are obligated to keep operating records of waste and the waste management methods, announce waste reports and furnish to the respective administrative office further information within the scope specified by the Act on waste. These records must be archived over a period of time specified by the Act on waste or Regulation No. 383/2001 Coll., on details of waste management (Annex No. 20). Legal entities/natural persons authorised to do business who are engaged in waste transport, shall be obliged to keep records of hazardous waste transport, report hazardous waste transports within the scope specified by the Act on waste or Regulation No. 383/2001 Coll. (Annex No. 26).

According to the **Danish** Order no 619 of 27th June 2000 on Waste, section 50 and 53, the enterprises and public and private institutions producing hazardous waste, except for explosive waste, shall report such waste to the local council. The report shall include information on the classification of the waste (waste list code), the quantity, packaging, composition and type of waste. Furthermore, the enterprises collecting and transporting hazardous waste as part of their business shall maintain a register of the amount and classification of hazardous waste transported (waste list code), the producer of the waste and the delivery site, cf. the Order on Waste, section 14, subsection 1. The information and documentation shall be held for five years, cf. the Order on Waste, section 14, subsection 2.

According to section 15 to 17 enterprises treating hazardous waste shall register and report to the Danish Environmental Protection Agency with data on the type, fraction, origin, and quantity of waste, including recyclable materials which are recycled, incinerated for energy production or disposed of. For hazardous waste, the classification of waste should also be reported (waste list code). The notification and reporting are made according to Appendices 7 - 9 of Order no 619 of 27th June.

Finland referred to the reports for periods 1995-1997 and 1998-2000.

France reported that there is no standard form. The register shall, when required retrace the operations carried out in connection with elimination of the waste.

In **Germany** the producers of hazardous waste referred to in Article 4(2) are obliged to introduce and keep a log book pursuant to § 29 of the Records Order. Log books have to be kept for three years after the date of the last entry or the last document. The log book contains certain completed forms from Annex 1 to the Records Order the use of which is compulsory.

In **Greece** the hazardous waste register which the producers and undertakings referred to in Article 4 (2) are required to keep includes, in addition to the dates of production, delivery and 3 reception, information about quantity, chemical composition, pH, physical and chemical characteristics, origin and the method of packaging, transport and storage. The registers are preserved for at least ten years. Undertakings dealing with hazardous waste transport are required to keep registers for at least two years.

Hungary replied that the pertinent provisions are laid down in the Government Decree No 164/2003 (VI. 15.). The producer shall prepare a material balance on his activity in the course of which hazardous waste is generated. The holder of the hazardous waste shall keep strict records and issue supporting documents on the fate (generation, collection, transportation, management, transfer and acceptance) of the hazardous waste and shall forward data on it to the environmental protection authorities. The producer, owner (hereinafter jointly producer), and handler of waste, except for the transporter, shall keep up-to-date recording about the amount and composition by sorts of waste produced in course of his/her activity or entered into his/her possession as well as received from others and handled by him/her or passed to others.

Ireland responded that in accordance with the Part VI of the Waste Management (Hazardous Waste Regulations, 1998 (S.I. No. 163 of 1998) a producer of hazardous waste is obliged to keep records of the quantity, nature & and origin of the waste

produced, where relevant any treatment of such waste carried out by or on behalf of the producer and the quantity, nature, destination, frequency of collection and mode of transport of hazardous waste which is transferred to another person. The records must be made available for inspection by the EPA or a local authority and must be preserved for a minimum of three years.

Italy referred to answer 6(a) of the questionnaire on the application of Directive 75/442/EEC on waste.

In the **Netherlands** producers of hazardous waste must register the nature and composition of the waste submitted. They must also provide the recipient of the waste with information on the nature and the composition of the waste. In general, undertakings may conduct the administration in a manner that is appropriate for them. However, standard forms are in use for notification of hazardous waste by collectors and recipients.

The various parties involved in the waste processing sector have to keep a register with information on hazardous waste. This requirement corresponds partly to the obligatory registration under the Waste Framework Directive (75/442/EEC). In the Netherlands, obligatory registration is provided for in Article 8(14) of the Environment Management Act. Under this Article, undertakings must notify and register delivery and receipt of hazardous waste. There may also be other requirements laid down in the environment licence. The data have to be kept for five years. Forms covering waste transport operations are also obligatory (Article 10(44) of the Environment Management Act).

Article 17(1) of the **Portuguese** Decree-Law 239/97 places an obligation on producers of waste, with the exception of waste generated as a result of waste management operations, to send a register of the waste which they produce to the competent authorities each year, on the terms set out in the specific legislation adopted specially for this purpose:

– Order 178/97 of 11 March 1997 approving the model registration form for hospital waste;

– Order 792/98 of 22 September 1998 approving the registration form for industrial waste; Order 768/88 of 30 November 1988 approving the registration form for urban waste. There are also registers for special waste streams, based on the terms laid down in the specific legislation on each stream.

– Decree-Law 153/2003 of 11 July 2003 establishing, in Article 22, that the producers of waste oils must keep quarterly updated records of the quantities and characteristics of the waste oils generated, the process that originated this type of waste and the corresponding designation.

– Decree-Law 277/99 of 23 July 1999 stipulates that holders of equipment containing PCBs must send a register, based on the model in the Decree-Law, with a view to compiling and continuously updating an inventory.

– Order 1081/95 of 1 September 1995 approves the registration forms for retailers, producers and importers of batteries and accumulators. This Order was subsequently revoked by Decree-Law 62/2001 of 19 February 2001 and replaced by Order 572/2001 of 6 June 2001. In this context the licensed entity for the integrated management of this waste flow is required to send specific information to the Waste Institute (INR).

– Legislation for end-of-life vehicles (Decree-Law 196/2003 of 23 August 2003), waste from electrical and electronic equipment (Decree-Law 20/2002 of 30 January 2002) and landfills (Decree-Law 152/2002 of 23 May 2002), also establishes specific requirements regarding record keeping on hazardous waste.

– The mandatory registers of waste producers are based on the European Waste List. In addition to the abovementioned registration forms, there is also the other type of register mentioned in answer 5(b) concerning the measures pursuant to Article 2(1) of the Hazardous Waste Directive, i.e. the accompanying records containing detailed information on the waste to be transported and completed by the producer/holder, transporter and consignee, each of whom must keep one copy of this document for a period of five years.

In the **Slovakian** Act on Waste No. 223/2001, the following is laid down:

– § 19 (1) g – a waste holder is obliged to keep and retain records of the waste types and quantities handled, and of their recovery and disposal.

– § 20 (2) a – the hazardous waste consigners and the hazardous waste consignees shall be obliged to keep and maintain record of hazardous wastes shipped.

– § 21 (1) f – an operator of a waste recovery or waste disposal installation is obliged to keep and retain records of quantities, types and origin of waste taken over for disposal or recovery and of the means of their handling, if it is installation for PCB disposal also containing of PCBs in waste, and the position of hazardous waste in a landfill.

– In addition, § 12 of Decree No. 283/2001 stipulates record keeping obligations for waste shipments.

In **Slovenia** the pertinent provisions are laid down in Articles 22 and 32 of the Rules on the management of waste (OG of the RS Nos 84/98, 45/00, 20/01 and 13/03).

Spain replied that Articles 16 and 17 of Royal Decree 833/89 impose the obligation to keep records and specify what information the records should contain.

Requirements on keeping records are included in the **Swedish** Ordinance on waste.

In the **UK** consignors of hazardous waste & those transporting hazardous waste are required to keep records by virtue of regulation 15 of the Special Waste Regulations 1996 and regulation 14 of the SWR NI. This requirement is to be extended to producers in England, Wales and Northern Ireland when new hazardous waste regulations come into force in 2005. Special Waste Amendment (Scotland) Regulations 2004 extended the mixing ban in Scotland.

Most of the countries set out the implementing provisions in detail. In the United Kingdom the requirements for hazardous waste producers were not yet fully implemented during the reporting period, but this has happened in 2005. The Flemish Region of Belgium, Germany and Ireland did not mention that there are record keeping requirements of waste transporters. Furthermore, in the Flemish Region of Belgium, Denmark and Portugal (extracts of) the recorded information must be sent regularly to the competent authorities.

6.8. Measures to ensure proper packaging and labelling of hazardous waste – Article 5

According to Article 5 (1) waste has to be properly packaged and labelled in the course of collection, transport and temporary storage in accordance with the international and Community standards in force.

Austria stated that the corresponding packaging and labelling provisions in Austria are laid down and made compulsory by § 4 of the Transport of Dangerous Goods Law (GGBG, BGBl.I No 145/1998 as amended by BGBl.I No 86/2002).

In **Belgium,** the **Brussels Region** specified that the provisions of Article 5(1) are integrated in the Executive Ordinance of Brussels Capital of 19.9.1991 modified on 16.9.1999 as well as in the ordinance granting consent to operators of hazardous waste.

The **Flemish** Region referred back to previous reports where the national legislation was presented. In the **Walloon Region** the companies that carry our transport, collection, pre-treatment, recovery or disposal operations relation to hazardous waste must be licensed. The individual licensing decisions must contain the following information:

The mode of transport, and where relevant, the type of packaging must be such that all forms of danger and all contamination from the transport operation must be eliminated without derogating from the legal dispositions relative to the transport of hazardous waste.

Each packaging of the waste is closed and conditioned in order to prevent all loss of content. It is permanently marked in a way that permits the identification without doubt of the nature and the composition of the waste, as well as the dangers that it represents.

The labelling must be in conformity with the dispositions of the international conventions relative to the transport of hazardous waste, readable and permanent. In no event, may inscriptions from previous uses remain on the packaging.

The collection or the transport of waste containing asbestos fibres or dust may not lead to the loss of liquid possibly containing asbestos fibres.

In the **Czech Republic** the packaging and labelling hazardous waste are laid down in section 13 of the Act on waste. Waste producer and authorized person managing hazardous waste are obliged to ensure that hazardous waste is labelled according to section 13 (2).

Denmark referred again to its letter of 18 July 1996 to the Commission, in which it confirmed that Article 5(1) had been transposed by § 54 of bekendtgørelse no 581 of 24 June 1996.

Finland also referred to the reports for periods 1995-1997.

France replied that the Decree of November 6, 1997 concerning elimination of hospital waste with infection risks and the like and anatomic pieces prescribes, by modifying the Code concerning public health, in Clause R44-4 that hospital waste is collected in single-use packing material. It shall be possible to close this packing temporarily before dispatch, and the packing materials are placed in big containers. The packaging, marking, labelling, and transport of the hospital waste and the like are bound by the rules made in relation to the Law of February 5, 1942 concerning transport of hazardous materials and Clause 8-1 of the Law of July 15, 1975 concerning elimination of waste and recovery of materials. Complementary prescriptions will be defined jointly by the ministers in charge of health, environment and agriculture, upon notification from the Superior Council of Public Hygiene of France. The conditions of storage of hospital waste and the like will be defined by joint Order of the ministers in charge of Health and Environment, thereupon upon notification from the Superior Council of Public Hygiene of France.

The **German** requirements pursuant to Article 5 (1) are set out in the Dangerous Goods Transport Order.

In **Greece** hazardous waste is managed (collection, transport, preliminary storage) on the basis of a permit granted by the competent authority for the specific purpose and subject to terms which are determined according to the type, quantity and physical and chemical characteristics of the waste.

In **Hungary** acts, governmental decrees or, in case of municipal waste, local governmental decrees may oblige the producer/holder of waste to collect the waste separated by kind, to package and label the separated waste according to its composition and forward the pre-processed waste to the economic organisation or waste operator responsible for gathering. Carriage of waste falling within the scope of specific other legislation shall be accomplished in compliance with the provisions of this Decree and of specific other legislation on the transportation of dangerous goods. The regulations for the domestic transportation of hazardous waste are contained in Schedule No. 2. Carriers of hazardous waste shall be liable to ensure that the shipment is delivered to its destination in the quantity, packaging and composition as received, in compliance with the data and instructions indicated in the shipping documents.

Ireland replied that in accordance with Article 22 of the Waste Management (Hazardous Waste) Regulations, 1998, a producer of hazardous waste must ensure, that during the temporary storage of such waste at its place of production, all containers or other packaging used for storage are labelled in accordance with Community and other standards which are in force in relation to such labelling. This requirement does not apply where a local authority in whose functional area the waste is produced approves in writing the mixture of such wastes. Article 5(1)(b) of the Waste Management (Movement of Hazardous Waste) Regulations, 1998 provides that a consignor of hazardous waste, shall not transfer hazardous waste to another person unless all containers or other packaging to be used for the movement of the waste are labelled in accordance with

Community and other standards which are in force in relation to such labelling. This requirement does not apply where a local authority in whose functional area the said consignment originates approves in writing the mixture of wastes in a consignment.

Article 15(3) of the **Italian** Legislative Decree 22/1997 stipulates that during collection and transport, hazardous waste must be packaged and labelled in accordance with current regulations.

In the **Netherlands** for the transport of hazardous waste, covering a wide range of waste, are subject to provisions laid down pursuant to the Hazardous Waste (Transport) Act. For hazardous waste not covered by [the definition of] hazardous substances, the rules on transport form part of the legislation on road transport. For storage of hazardous waste, a licence must be obtained pursuant to the Environment Management Act which includes provisions relating to safety under the terms of the guidelines of the Disaster Prevention Commission (CPR) and on the prevention of leakage to the soil and groundwater.

In **Portugal** Order 335/97 of 16 May 1997 laying down the rules governing the transport of waste on Portuguese territory, as referred to above, imposes an obligation to transport wastes under environmentally appropriate conditions in order to avoid dispersal and spills, complying with the following specific requirements to this end:

– Liquid and semi-liquid wastes must be packed in watertight packaging, filled to not more than 98% of capacity; solid wastes may be either packaged or transported in bulk in a closed or open-top vehicle, with the load duly covered;

– All items in a consignment must be properly stowed on the vehicle and secured to avoid collisions between them or against the walls of the vehicle;

– Should any spill occur during loading, the journey or unloading, the contaminated area must be cleaned immediately, using absorbent products in the case of liquid and semi-liquid wastes.

The model accompanying records published in the same Order include a field, to be completed by the transporter, concerning the packaging conditions for the waste. If the waste to be transported meets the criteria for classification as hazardous waste set out in Portugal's national regulation on the carriage of dangerous goods by road, the packaging and labelling procedures must meet the requirements laid down in the same regulation. Temporary storage of wastes is subject to prior authorisation in accordance with Order 961/98. The packing, packaging and labelling aspects must be assessed during the authorisation procedure. Without prejudice to the foregoing, the relevant legislation includes provisions for selected waste streams, taking account of their specific nature: In the case of hospital waste, the packaging must meet the requirements of Circular 242/96 of 13 August 1996. In the specific case of PCBs, rules have been adopted laying down the conditions for storage of wastes of this type plus safety and labelling conditions. Order 1028/92 lays down rules on safety and identification for the transport of waste oils.

According to §40(4) of the **Slovakian** Act on Waste No. 223/2001 during the collection, shipment and warehousing, hazardous waste must be packed in a suitable package and duly labelled under a special regulation.

Slovenia replied that Articles 14 and 15 of the Rules on the management of waste (OG of the RS Nos 84/98, 45/00, 20/01 and 13/03) are the implementing measures with regard to Article 5(1) of the Hazardous Waste Directive.

Spain referred to Articles 13 and 14 of the Royal Decree 833/89.

In **Sweden** the packaging and labelling should be carried out in accordance to the Rules on Transport of Dangerous Goods.

In the **UK** packaging and labelling requirements are transposed in legislation on the carriage of dangerous goods. In Gibraltar Article 5(1) is not applicable.

The Member State replies specify the national legislation implementing Article 5(1), and a few provide details on the substance of those provisions. The responses of the Czech Republic, France (only hospital waste), Greece, Ireland, Italy, the Netherlands, Slovakia, Sweden and the United Kingdom only refer to the packaging and labelling of hazardous waste.

6.9. Waste management plans and waste statistics – Article 6

According to Article 6 the competent authorities shall draw up, either separately or together with the general waste management plan, plans for the management of hazardous waste.

In **Austria** these plans were drawn up pursuant to the General Waste Management Plan (Federal Waste Management Plan 2001).

The waste management plan of the **Czech Republic** was approved in Government Regulation of June 4, 2003 No. 197/2003 Coll. It came into force on July 1, 2003. It comprises all types of waste e.g. hazardous waste, PCBs, waste oil, batteries, accumulators, wastewater treatment plant sludge, end-of-life vehicles, construction and demolition waste, biodegradable waste, tyres etc. The implementation of the Government Regulation is done with help of special plans/implementation programme. Regional Waste Management Plans in different proposal/final versions are free for public on the internet regional websites.

For **Belgium**, the **Brussels Region** stated that the prescriptions on hazardous waste are part of the general waste policy which is laid down in the prevention and management plan which covers the period 2003 – 2007, in particular chapter 5 on the take-back obligations on certain wastes, chapter 6 on chemical household wastes and in chapter 7 on hazardous non household wastes generated n dispersed quantities. The **Flemish Region** referred to the previous reports. In the **Walloon Region** the effective application of Article 6 can be found in the Walloon waste plan horizon 2010.

Denmark refers to the answer provided for the corresponding question on implementation of directive 75/442/EEC on waste as last amended by Directive

91/692/COM. Thereafter the two national waste management plans "Waste 21", covering the period from 1998-2004, and "Waste Strategy 2005-2008" also include hazardous wastes.

Finland referred back to the reports for the periods 1995-1997.

France: La planification générale se fait au niveau départemental alors que les plans de gestion de déchets dangereux sont établis au niveau régional.

In **Germany** during the reporting period 2001 – 2003, 2 (of 16) Länder drew up new independent waste management plans for hazardous waste.

In **Greece** the management plans for hazardous waste have been drawn up in the framework of the waste management plans referred to in Article 7 of Directive 75/442/EEC and are included in Joint Ministerial Decision 14312/1302/2000 (Gov. Journal 723/B/2000, 9-6-2000). The design of the management is currently being completed with regard to the pre-selection of suitable sites for the creation of centres for the preliminary storage, treatment, utilisation and final disposal of hazardous waste.

Hungary stated that the general waste management plans have been drawn up in the framework of Art. 7 Dir. 75/442, and they include hazardous waste plans. Hazardous waste related management duties shall be enforced within the framework of general waste management plans. The waste management plans of communities shall feature the selective collection and management of hazardous components of household waste (special collection sites, waste gathering centres etc.).

The **Irish** National Hazardous Waste Management Plan has been published by the Environmental Protection Agency on 5 July 2001 (subsequent to the period of this review). The National Hazardous Waste Management Plan (NHWMP) is separate to the Non-Hazardous Waste Management Plans being made by local authorities for the purposes of article 7 of Directive 75/442/EEC. The 1996 Waste Management Act provided for public consultation and input in relation to the draft National Hazardous Waste Management Plan (NHWMP), and publication of the plan once it was formally adopted.

In **Italy** and **Luxembourg** the management plans for hazardous waste form part of the general waste management plans referred to in Article 7 of Directive 75/442/EEC.

In the **Netherlands** the National Waste Management Plan (LAP) has been compiled under the general waste management plan as referred to in Article 7 of Directive 75/442/EEC. Accordingly, the LAP covers the management of all waste, except for radioactive waste, dredging sludge, surplus manure, destruction waste and municipal waste water. The plan entered into force on 3 March 2003.

Portugal replied that plans have been drawn up in the framework of the general waste management plans provided for in Article 7 of Directive 75/442/EEC. These plans are described in greater detail, namely in the reports for 1998-2000 and 2001-2003 on the transposition and implementation of Directive 75/442/EEC of 15 July 1975 on waste, as amended by Directive 91/156/EEC.

The **Slovak Republic** indicated that so far a national Waste Management Programme (WMP) has been drawn up for the overall area of Slovak Republic only and, following this step, WMPs for regions and districts will be elaborated. The WMP of the Slovak Republic is in force until 2005 and applies to hazardous wastes too. From the beginning of 2003 a project ”Hazardous Waste Management in Slovakia” is running and its main output will be a WMP for hazardous waste, to be attached to the national WMP or serve for its updating.

Slovenia referred to the corresponding question concerning the implementation of the Waste Directive 75/442/EEC.

Spain stated that up to the end of the period covered by this report, national plans have been drawn up independently, for each type of waste. Some regional authorities (NUTS 2) have integrated or general plans. The revised national plan for hazardous waste is in the process of being approved.

Sweden answered that the waste management plans have been drawn up according to Directive 75/44/EEC.

In **UK** hazardous waste is covered by the framework of the general waste management plans referred to in Article 7 of Directive 75/442/EEC.

In most Member States hazardous waste is included in the general waste management plans. Slovakia and Spain reported that their hazardous waste management plans are being drawn up or updated.

6.10. Temporary derogation from this Directive – Article 7

According to Article 7, in cases of emergency or grave danger, Member States shall take all necessary steps including temporary derogation from this Directive to ensure that hazardous waste is dealt with so that it will constitute a threat to the population or the environment. The Commission has to be informed thereof.

None of the Member States applied Article 7.

IV. DIRECTIVE 75/439/EEC ON THE DISPOSAL OF WASTE OILS

7. INTRODUCTION

Directive 75/439/EEC[47] *on the disposal of waste oils,* amended by Directive 87/101/EEC[48] is designed to create a harmonised system for the collection, treatment, storage and disposal of waste oils, such as lubricant oils for vehicles and engines. The Directive also aims to protect the environment against the harmful effects of such operations. Waste oils are hazardous because they are carcinogenic. Untreated waste oils that are found in rivers, lakes and streams can threaten aquatic life, while soil contamination results from untreated oils being left on the ground.

In particular, the main provisions of Directive 75/439/EEC are:

– definition of waste oils: any mineral-based lubrication or industrial oils which have become unfit for the use for which they were originally intended, and in particular used combustion engine oils and gearbox oils, and also mineral lubricating oils, oils for turbines and hydraulic oils (Article 1);

– definition of regeneration: any process whereby base oils can be produced by refining waste oils, in particular by removing the contaminants, oxidation products and additives contained therein (Article 1);

– definition of disposal which, unlike the definition of disposal in Directive 75/442/EEC, includes both recovery and disposal

– the obligation to ensure that waste oils are collected and disposed of without causing any avoidable damage to man and the environment (Article 2)

– the obligation to give the priority to the regeneration of waste oils upon other disposal option, when economic, organisational or technical constraint so allow (Article 3);

– if the constraint mentioned above prevent the regeneration of waste oils, the next option to consider is their combustion (Article 3);

– the prohibition of discharges of waste oils to surface water, groundwater, drainage systems or coastal waters or into the soil, and the prohibition of processing of waste oils that may result in air pollution exceeding prescribed levels (Article 4);

– the collection of waste oils must be ensured and controlled. Waste oil collectors have to be registered (Article 5).

– Undertakings regenerating or incinerating waste oils must have a permit (Article 6)

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47 OJ L 194, 24.07.1975, p. 31

48 OJ L [42], 22.12.1986, p. 43

– Undertakings regenerating waste oils do not cause avoidable damage to the environment and are subject to periodic inspections (Article 7);

– The establishment of emission limit values for the incineration of waste oils (Article 8);

– The prohibition to use waste oils containing more than 50 ppm of PCBs (Polychlorinated biphenyl) as fuel (Article 8)

– Record keeping obligation for establishments producing, collecting and disposing of waste oils (Article 11)

– Obligations of periodical inspections for undertakings regenerating or incinerating waste oils (Article 13)

– Possibility of granting indemnities to a collection or disposal option (Article 14)

This report is based on the replies to the questionnaire established by Commission decision 94/741/EC[49] for the period 2001-2003. All 15 States being Members of the European Union during the reporting period answered the questionnaire. In addition among the 10 Countries which became Members of the Union in 2004 Czech, Hungary, Slovenia and Slovakia voluntarily answered the implementation questionnaire.

8. INCORPORATION INTO NATIONAL LAW

8.1. National law

All reporting Member States have provided the Commission with the laws and regulations in force concerning the disposal of waste oils.

However within the reporting period the European Court of Justice has condemned Austria[50], Portugal[51], Sweden[52], and United Kingdom[53] for not giving priority to the processing of waste oils by regeneration pursuant to Article 3(1) of the Directive. Further eight cases on this requirement have been launched by the European Commission and are at a pre-litigation stage. Furthermore the Court has declared that Portugal has failed to fulfil its obligations under Articles 6(2), 8(2)(a), 13 and 17 of the Directive[54].

8.2. Provisions regarding the regeneration of waste oils – Article 7

According to Article 7 Member States shall take the necessary measures to ensure that the operation of the regeneration plant does not cause avoidable damage to the environment (Article 7 (a)). In addition Member States shall ensure that base oils derived

[49] L 296, 17.11.1994, p. 42
[50] Case C-15/03
[51] Case C-92/03
[52] Case C-201/03
[53] Case C-424/02
[54] Case C-392/99

from regeneration do not constitute a hazardous waste and do not contain PCB/PCT in concentration beyond the limits of 50 part per million (ppm) (Article 7 (b) .

The Czech Republic, Ireland, the Netherlands and Portugal stated that no measures with regard to Article 7(a) were taken, as there are no regeneration plants in their territories. The other reporting Member States replied that such measures have been taken. **Slovenia** has not communicated such measures and specified that currently there is no regeneration plant in Slovenia.

8.3. More stringent national measures - Article 16

Pursuant to Article 16 Member States may take more stringent measures than those provided in the Directive for the purpose of environmental protection.

Denmark, Greece, Ireland, Portugal, Slovakia, Spain and United Kingdom stated that they had not adopted more stringent measures than those in the Directive.

As regards **Belgium,** the Walloon Region had already announced in the previous report that more stringent measures were taken with regard to Article 4 on the prohibitions of discharges. These measures render more specific and precise the obligations for the management of waste oils. The Flemish Region has also more stringent measures: acceptance criteria for waste oil as fuel.

In **Finland** it is not allowed to incinerate waste oils in a boiler or other plant with a fuel capacity effect of 5 megawatts or less (see also point 3.7 – Article 8).

Also **Hungary** referred to more stringent national legislation on Waste Incineration and furthermore to obligations on recording and data supply.

The Netherlands, as in the previous period, has also taken more stringent measures in particular pertaining to the incineration of waste oils. Indeed, according to Dutch legislation waste oil may not be incinerated in a waste incineration plant or centrifugal drum oven. Furthermore there are requirements with regard to halogenated hydrocarbon and PCB content of waste oils used as fuel when used as fuel or for fuel production. Indeed, these limit values apply to all fuels. As a result, waste oils cannot be used as fuel (other than waste) through simple processing.

Slovenia pointed out that the use of waste oils as fuel is to be implemented for new equipment from 2001 and for existing equipment from 30 June 2003 in accordance with the national legislative measures transposing Directive 2000/76/EC on the incineration of waste.

Austria, the Flemish Region of Belgium, the Czech Republic, France, Germany, Hungary, Luxembourg and Sweden stated that more stringent measures had been adopted but did not specify details of their nature.

9. IMPLEMENTATION OF THE DIRECTIVE

9.1. Waste oils management – Articles 2 and 3

Pursuant to Article 2 Member States shall take the necessary measures to ensure that waste oils are managed without causing any avoidable damage to man and the environment. According to Article 3 first priority shall be given to regeneration, second priority to combustion and last priority to safe destruction (treatment) and disposal. (As regards constraints see question 2).

All reporting Member States replied that the necessary measures had been taken to ensure that waste oils were collected and disposed of without causing any avoidable damage to the environment.

The annex presents data on the waste oils fluxes in the Member States. As the questionnaire does not provide detailed instructions for the used terms, Member States have applied their own interpretations which may differ. In addition, the figures were accompanied by numerous explanations. Therefore it must be born in mind that a comparison of the figures across individual Member States is difficult, while conclusions on the EU level are considered as relatively accurate.

Many Member States encountered particular difficulties to accurately determine the amount of generated waste oils. Some estimated the generated amount as greater than the collected amount while other assumed them as equal; some MS were not able to provide a reply to this question. For the latter the Commission has taken the average "conversion factor" of 50% to calculate the amount of waste oil generated from the quantity of fresh oils put on the market[55]. If in this case the generated quantities would have been smaller than the reported collected quantity, the generated quantity has been assumed equal with the collected quantities.

Table 1 of the Annex presents the amount of oil put on the market, waste oils generated, waste oils collected, waste oils incinerated and waste oils tipped as indicated by Member States in absolute figures. In 2003 a total amount of 2,454 Million tonnes of waste oils were generated in EU-15 and 1,996 Million tonnes were collected; the collection rate (ratio of the total waste oils collected to the quantity generated) was 81%, which means that almost 20% of waste oils may be inappropriately handled. In 2003 0,881 million tonnes were regenerated in the EU-15 and 0,928 million tonnes were combusted; this accounts for 44% and 46% respectively of the collected quantity. Amounts greater than 10.000 tonnes were regenerated in France, Germany, Greece, Hungary, Italy, Luxembourg, the Netherlands and Spain.

Figure 1 shows the quantities related to the number of inhabitants. The marketed/sold oils range between 6 kg/capita (Ireland) and 17,0 kg/capita (Sweden). The wide range

[55] This approach already has been used for the implementation report 1998-2000. In literature it can be found that approximately 50% of the oils put on the market will become waste oils. The rest is lost during the use, by combustion in the engines, by spillage or left in the containers. Nevertheless the exact share of oils becoming a waste depends on the type of oil and application (for instance the older the vehicles the more oils they consume and burn and hence less quantity would become waste oils).

suggests that amongst other explaining factors the reported oil categories may differ between the Member States. Accordingly the waste oils generated per capita show a significant variation, while the ratio of both parameters rather converges (56% in EU 15).

Figure 2 presents the share of different disposal operations in 2003 related to the total waste oils generated in 2003. Regeneration accounts for 36% in average in EU-15, with the highest shares in Luxembourg (100%), Netherlands (88%) and Italy (79%). Combustion accounts for 38% in average in EU-15, and the highest shares were in Belgium (99%) and Austria (90%). Among the reporting new Member States, in Hungary regeneration accounted for 73% and combustion in Slovenia 97%. It is to be noted that some Member States have included in the regenerated waste oils quantities they use as fuel after treatment (for instance, the Netherlands).

Figure 3 illustrates the trend of waste oils quantities in the EU-15. Between 1995 and 2003 the total oil marketed/sold fell from 5,0 Million tonnes to 4,4 Million tonnes (decrease by 11%), while the generated and collected waste oils remained almost stable.

Figure 4 shows the breakdown of treated waste oils. Over the period 1995-2003 the ratio of regenerated and combusted waste oils merely shows a small variation.

9.2. Constraints regarding the regeneration and combustion of waste oils – Article 3

According to Article 3 (1) and (2) Member States shall give the first priority to the regeneration of waste oils and second priority to the combustion of waste oils under environmentally acceptable conditions where technical, economic and organisational constraints so allow. Where the constraints do not allow regeneration or combustion, Member States shall take the necessary measures to ensure the safe destruction or controlled storage of waste oils (Article 3 (3)).

Austria, the **Flemish and Brussels Region of Belgium, France, Germany, Greece, Hungary, Italy, Luxembourg** and **Slovakia** did not indicate any constraints not allowing giving priority to the processing of waste oils by regeneration. The other reporting Member States answered that such constraints would exist, mainly arising from economic aspects such as the low amount of waste oils produced, the possibility of low cost combustion in other Member States and the saturation of the base oils market.

The **Walloon Region of Belgium** mentioned that an environmental agreement between the three Regions and those responsible for the marketing of oils is under negotiation. It aims for harmonised objectives for Belgium. This agreement provides for an elevated level of priority for waste oils regeneration. The **Czech Republic** stressed the fact that there is as yet no regeneration unit in the Czech Republic for processing waste oils for re-use.

Denmark specified that until May 2001, a private waste oil reprocessing plant collected the waste oil for fuel as fuel oil.

Finland referred in its answer to the information provided for the infringement case 2000/2243 opened by the European Commission. According to the submitted letters the constraints result from the small amount of waste oils produced, the low price of

regenerated oils, the low demand for regenerated oils and the difficulty to prevent the export of waste oils for the purpose of other recovery operations than regeneration.

Ireland answered that in 1998, a Strategy Study Report was prepared by environmental consultants to assist the EPA in the preparation of the National Hazardous Waste Management Plan (NHWMP). The report specifically examined the option of establishing a central treatment unit for the regeneration of all waste oil arisings, using fractional distillation technology in combination with chemical treatment such as dehalogenation and/or catalytic hydrogenation. The consultants concluded that a facility of this nature would require a minimum feedstock of 50,000 tonnes per annum for economic viability. This feedstock threshold is greater than the total usage of lubricating oils in Ireland (c. 45,000 tonnes per annum) and considerably exceeds total estimated arisings of waste oils. Requisite investment costs were considered to be in the region of IR£10-15 million, and the consultants pointed out that optimum utilisation of such a facility would require current processing activities to cease. The Report did not recommend this option and favoured the expansion of then existing processing facilities to deal with higher waste oil inputs and deliver an improved environmental performance. Accordingly, no proposals are made in the NHWMP for the promotion of regeneration of waste oil in preference to its reprocessing for use as a fuel. With a view to widening its product base and lessening its reliance on a very limited number of outlets for its current fuel production, Atlas Oils has examined in depth the possibility of developing regeneration capacity in Ireland and has concluded that it is not commercially feasible. It concurs with the findings of the Strategy Study referred to above regarding the minimum viable feedstock threshold of 50,000 tonnes per annum. In these circumstances there are substantive technical and economic constraints to the regeneration of waste oils in Ireland, and there are no evident practicable steps which could be expected to overcome these constraints.

In **the Netherlands** it was government policy in the early 1980s to regenerate waste oils into base oils at a central processing unit (CBE). However, because of restrictions of an economic nature, no such processing was ever carried out. In 1986, attempts were made to set up a CBE for waste oils in consultation with producers of lubricating oil mainly in order to produce high quality fuel (marine diesel oil). A particular company was granted a licence for this purpose. Despite promises of a government subsidy, the CBE unit was never set up.

There is an open market for all forms of recovery. A part of the waste oils is currently transported abroad for regeneration (processing into base oil). This operation is rendered difficult because waste oil collectors use (cheaper) marketing channels abroad, with the waste oil being used primarily as fuel.

In the country, waste oils are processed through centrifugation followed by incineration with fuel as the main application. The residual oil is exported for recovery, i.e. for regeneration or main use as fuel.

Although the **Portuguese** Decree-Law 153/2003 of 11 July 2003 gives priority to the regeneration of waste oils, a number of conditions have none the less to be met before a regeneration facility can be set up, in particular regarding the quantities of waste oils collected being of sufficient quality to permit their treatment by such means.

Spain specified that there is a lack of industrial regeneration installations, although the number of these types of installations is gradually increasing.

Sweden pointed out a lack of industrial regeneration installations, although the number of these types of installations is gradually increasing.

The **UK** responded that **t**he main barrier to regeneration in the UK is economic, since there is a strong market for recovered fuel oil (RFO), processed from waste oil, in the UK. RFO is in great demand both as a heat regulator in coal-fired power stations and as fuel in road stone plants and has lead to substantial imports of waste oil from other Member States. The implementation of the Waste Incineration Directive may alter this situation from late 2005.

Only **Denmark** indicated constraints affecting the feasibility of the combustion of waste oils. Since July 2002, collections of waste oil have been financed there by Mineraloliebranchen. In May 2001 the abovementioned private plant was extended to include a regeneration facility. Between 2001 and 2003, the production of base oil was limited due to technical problems. In 2003 around 40% of the collected waste oil was reprocessed into base oil. The target of at least 75% reprocessing into base oil is expected to be reached in 2005.

9.3. Public information and promotional campaigns – Article 5

According to Article 5(1) Member States shall carry out public information and promotional campaigns to ensure that waste oils are stored appropriately and collected as far as possible.

A majority of reporting countries has carried out public information and promotional campaigns.

The **Austrian** Waste Management Act contains special provisions on the sale of motor oils to end users to ensure that the final consumer is properly informed and that motor oils are handled properly (both as a product and as waste oil). Information is also available at Federal and Länder level (e.g. on the authorities' websites and in leaflets) and information is actively distributed (e.g. in press statements). The duties of those collecting and treating waste oils are summarised in an information leaflet which has been distributed and published on the Internet.

The **Brussels Region of Belgium** indicated that information brochures dedicated for garages have been produced and that regional activities exist.

The **Czech Republic** indicated that information provided by the last vendor to the consumer, must at least include the name, address and telephone numbers of the take-back site, its opening hours and a reminder that take-back is free of charge.

In **Finland** waste management companies arrange regional hazardous waste collecting campaigns once or twice a year. Information and guidance about hazardous waste is given in these occasions. Some examples of national campaigns and other public information by the Ekokem Oy Ab (the national hazardous waste treatment facility) in 2001-2003:

– campaigns for municipalities to promote the collection of lubricating oils

– exhibitions

– brochure of used lubricating oils

– brochure of hazardous wastes in households

– in professional papers there were numerous articles about sorting oils

– information on the internet on management of hazardous waste, including waste oils

– Ekokem organizes training occasions and lectures, in which the employees of companies, municipalities etc. can participate. Used lubricating oils are one of the discussed subjects in the training occasions.

– During 2001-2003 special emphasis has been put on education on management of oily wastes from ships. Brochures and information packages on planning of waste management systems in harbours have been provided to operators.

In **France** the Environment and Energy Agency (ADEME), a public establishment under the responsibility of the Environment Ministry, carries out permanent information and awareness raising actions relating to the collection of waste oils and aimed at the motor trade. With regard to consumers, a free phone number (0800.38.39 40) is placed at the disposal of the public in order to inform them about the collection points for waste oils. At the request of the waste oil treatment professionals, a national communication campaign, implemented by the ADEME, was started in 2003 and has continued until 2005. Its objective is to improve the collection rate and the quality of collected oils (preventing the mixing of oils with other products or waste: PCBs, water, etc). The targets concerned are the general public, the motor trade, mechanics and the construction sector. In view of the specific characteristics of each target, different communication actions are proposed. For households, this campaign envisages the setting up:

– of an interactive automatic telephone response service with information on collection points;

– of an information mechanism, via service stations (an information kit in 1,500 sale points);

– of awareness raising information panels on the containers located in the recycling centres. For the professionals, this campaign includes: an information game, training session and publicity campaigns via the professional press, etc.

– 30,000 copies of a folder containing information on domestic hazardous waste, accompanied by a sticker, was distributed in 2000.

The **German** Closed Substance Cycle and Waste Management Act (Kreislaufwirtschafts- und Abfallgesetz) of 27 September 1994 obliges the statutory bodies responsible for waste management, and private-sector organisations, to provide information and advice on the possibilities for avoiding, recovering and disposing of waste. The competent authorities in each federal state inform the public of progress in waste avoidance and

recovery and of the arrangements for waste disposal. Furthermore, the environmental authorities of each federal state and municipality inform the public through press releases and the regular distribution of information leaflets about the environmentally sound disposal of waste oil, the obligation for sellers to take back used engine oil and gearbox oil free of charge, and waste oil collection points.

In **Greece** the technical specifications for the management of waste oils, and also public information and awareness programmes concerning the correct method of management, are currently being drawn up.

Ireland specified that a green Garage Guide was produced by the Society of the Irish Motor Industry in October 1999.

Italy answered that companies putting oils or lubricating substances onto the market are obliged to set aside a suitable advertising spot on the packaging to raise consumer awareness of the need for proper collection and disposal of waste oil. The mandatory Waste Oil Consortium also tries to raise public awareness through advertising campaigns on television and radio, in newspapers and at fairs, exhibitions and conferences.

Luxembourg referred to the information included in the report from 1995. The action SDK (Superdreckskëscht) for individuals is named 'SDK fir Biirger', and SDK for the commercial sector is named 'SDK fir Betriiber'. The collection is carried out by the action as well as by third parties approved for collection of waste oil. The action 'SDK fir Betriiber' principally concerns craftsman enterprises. The first line of activities which has been allowed into this system was that of the garage keepers, whose activities produce waste oil. The weak progress of the quantities of waste oil principally results from the fact that approximately two thirds of the garage keepers connected to the system have become members before January 1, 1994. Another reason is that this action is more and more directed towards the Council of the enterprises, collection of oil being taken care of by various approved transporters. The different activities of the Superdreckskëscht benefit regularly from publicity and awareness raising activities using different media: television and radio commercials, information, folder booklets distributed to all households, teaching actions, participation in local events, Internet site, etc.

In the **Netherlands** a number of campaigns have been conducted for households with regard to the separate collection of small chemical waste (which includes domestic waste oil) at municipal and national level.

In **Portugal**, training and awareness-raising schemes have been organised, notably in the form of:

– a helpdesk (via telephone, e-mail or post) to clarify questions from various sectors of society (industry, students, private individuals) on the widest variety of issues relating to waste, including the waste oils stream;

– participation in the many activities organised in Portugal on waste (training courses, seminars, conferences and other events);

– participation, in response to requests from the widest variety of media, to raise awareness of waste issues and, in particular, of waste oils, amongst the general public.

In the **Slovak Republic** the Recycling Fund has been set up as a non-state special purpose fund to pool financial means in order to support collection, recovery and processing of wastes. One of the sectors of the Recycling Fund is Waste Oils Sector. The Recycling Fund through its press department organizes propagation and releases information for the public about its activities every month. It is done by broadcasting, while each broadcast is focused on propagation of one particular sector of the Recycling Fund. In the journal WASTES there is also a special rubric focusing on activities of the Recycling Fund.

Spain explained that at national level, public information and promotional campaigns are carried out by TV, radio and newspapers. The same campaigns exist at regional level, as well as the production and distribution of leaflets and other publications. Specific campaigns are also being carried out with cooperation from the relevant sectors and their associations.

Sweden conducts local campaigns for collection of hazardous waste from households.

In the **UK** the Oil Care Campaign is part of an initiative to reduce oil pollution. The campaign aims to raise awareness of the problems of oil pollution and how it can be prevented through careful handling and storage, and through increased recovery and recycling. The campaign promotes the following initiatives:

– The Oil Bank Helpline (toll free) assists the public to find the location of their nearest oil recycling bank. The line is currently offering advice to about 150 callers each month and is advertised through leaflets, by advertisements in car maintenance manuals for domestic use, and on the majority of cans of oil.

– The Emergency Hotline (toll free), helps the public to report pollution incidents.

– The Oil Care Code is a simple guide for domestic and commercial users to prevent oil pollution.

On the other hand, **Denmark, Slovenia,** the **Walloon Region of Belgium** and **Hungary** did not provide any information. The **Walloon Region of Belgium** responded that it did not carry out any specific campaign as regards waste oil in order to make the public sensitive. This kind of stabilisation has taken place by more general campaigns directed towards the general public and giving information about which dispositions to be taken, especially concerning household waste with a view to protection of the environment. The campaigns have been carried out during "green weeks" (general advice and information about the general handling of household waste), by various publicity spots, publication and signs and information established by the local authorities towards their citizens.

Hungary referred to general national provisions for public consultation, training, and awareness-raising, that apply to waste management. Relevant measures are also contained in the regional waste management plans.

9.4. Details on undertakings collecting waste oils

In Question 4, Member States were asked to submit details on undertakings collecting waste oils.

All reporting Member States except **Greece,** which didn't answer to this question, stated that a permitting system is established for undertakings collecting waste oils. Details are provided in table 2 of the annex.

9.5. Allocation of waste oils to any of the types of processing – Article 5(3)

According to Article 5 (3) Member States may decide to allocate the waste oils to any of the types of processing (regeneration and combustion).

Austria, **Belgium**, the **Czech Republic, Hungary, Ireland, the Netherlands, Portugal, Slovenia** and the **United Kingdom** replied that waste oils had not been allocated to any particular processing pursuant to Article 5.

Denmark specified that by law and supplemented by a planning policy at least 75% of the waste oil collected must be reprocessed into base oils.

Finland has already stated in its previous 1995-1997 report that in addition to the Finnish Council of State Decision 101/1997 (setting down the hierarchy of regeneration, energy recovery and safe disposal for waste oils), the Ekokem Oy Ab (national hazardous waste treatment facility) recommends that waste oils should be allocated into a) black engine oils, b) lubricating oils like hydraulic oils and gear oils, which do not contain PCBs, c) lubricating oils containing water, d) vegetable oils and e) other oils wastes e.g. PCB containing oils, fuel wastes and bilge oils. For waste oils listed in a) to d) first priority is given to regeneration and second to energy recovery. Waste oils listed in e) should be disposed of safely. In practice, business establishments send once a year annual summaries of bookkeeping to the supervising authority. The obligation to do so is normally based in the permits. Inspections of the waste oil management facilities are planned at least once every three years.

France stated that the types of treatment are in accordance with Article 3 of the Directive, either regeneration or combustion with the energy recovery.

Germany specified that the existing legislation entered into force in 2002. It gives the regeneration of waste oil into base oil precedence over other waste disposal methods as long as there are no technical, scientific or organisational constraints to this. The competent authority responsible for the waste producer under waste legislation must monitor compliance with this rule of precedence. It can use copies of the waste disposal certificates and statements of compliance from the waste legislation certification procedure, and make individual arrangements.

Greece explained that the treatment / regeneration of waste oils in Greece are carried out mainly by the sulphuric acid method, mostly at small, old, plants. There is also one large plant at which regeneration is carried out by the catalytic hydrogenation method. In addition, waste oils are treated following options other than regeneration. The waste oil regeneration plants must have been granted a permit specifically for the purpose by the competent services (of the Ministry for the Environment, Regional Planning and Public Works / Ministry of Development). The permits provide for regular and impromptu checks at the plants to verify compliance with the terms laid down. The checks are carried out by the competent local (prefectural) authorities and by the ministries, which share competence.

Italy answered that Regeneration is the priority treatment method for waste oils. Should any technical, economic or organisational constraints prevent regeneration, then combustion is the next preferred method. Should the nature of the collected waste oil rule out these two options, then safe destruction, storage or permanent deposit methods are used. Sampling and testing is used to check on the suitability o different treatment possibilities.

Luxembourg replied that the different provisions had been established by waste legislation adopted in 1994, which also applies to waste oils. Waste recovery is given precedence over waste disposal. Material recovery is given precedence over energy recovery. Each enterprise which introduces requesting for authorisation within the legislative frame of scheduled establishments is required to introduce a plan for prevention and internal waste management. The principal measures for the applicable controls are as follows: A control on the waste destination in general and in particular is carried out on the level of environmental administration in the course of the control of the plans for prevention and waste management. As Luxembourg does neither have any regeneration plant nor an energy recovery plant for waste oils; all waste oils are exported. Their destination is controlled through the notification mechanisms of Regulation 259/93 on the shipments of waste.

Slovakia pointed out that the Ministry of Environment within the scope of granting authorization executes local controlling in firms, establishments which are asking for authorization.

Spain indicated that waste oils have been allocated to regeneration, recycling and energy recovery.

In **Sweden** the Swedish environmental protection agency is the competent authority according to Regulation No. 259/93 on waste transports and the amounts sent for regeneration are reported to the Swedish EPA. Localization and provisions on necessary precautionary measures are laid down in the permit. Operator self monitoring, the duty to keep a record on waste management, the environmental report and the authority supervision are the tools for making the activities operated in away acceptable to health and to the environment.

9.6. Details on undertakings which handle (in the questionnaire: "dispose of") waste oils

According to Article 6 undertakings which handle (regenerate, burn, dispose of) waste oils must obtain a permit. In question 6 Member States were asked to submit details on undertakings, which handle waste oils only, and those, which handle waste oils and other wastes.

Member States were also asked to indicate how the competent authority satisfied itself that all appropriate environmental and health protection measures have been taken. The answers confirm that MS dispose of an authorisation system for undertakings which handle waste oils and inspections to check the compliance with the conditions laid down in the permits take place.

Austria replied that this was ensured by means of inspections by experts during the approval procedure. Also the authorities have to carry out regular inspections. Undertakings are regularly checked to ensure that they continue to meet the conditions for approval.

Belgium, as concerns the **Flemish Region**, informed that this is ensured through the application for an environmental permit. The competent authority is able to check whether all appropriate measures have been taken to protect health and environment. If necessary, inspections are carried out on the spot, as well as the imposition of environmental conditions in the permit from Vlarem II. Furthermore environmental inspections are carried out by the department of the Environment, Nature-, Land- and Water Management Division (AMINAL). The **Walloon Region** has put in place an authorisation system (see supra) through which the competent authority imposes strict operating conditions, determined on a case by case basis. A control of these conditions is undertaken by the environmental police division.

The **Czech Republic** replied that pursuant to Section 14 of the Waste Act, the competent regional authority is to give its consent for the disposal of waste oils and lay down conditions governing their processing.

Denmark just pointed out that this is guaranteed through conditions for and verification of compliance.

Finland reported that undertakings which regenerate waste oils or use them as fuel shall have an environmental permit for their operation in accordance with the Environmental Protection Act (86/2000) and Decree (169/2000). The principles of permit consideration and preconditions for granting a permit as well as requirements for necessary regulations to be included in the permits are laid down in Chapter 7 of the Environmental Protection Act. These include, inter alia, the requirement that the permit regulations concerning the prevention and limitation of emissions shall be based on the best available technology.

In **France** the companies that store or treat waste oils are subject to authorisation by the prefect. To be able to carry out their activity, these companies have to be approved by the prefect of the department concerned. Checks that these companies are in conformity with the regulations are required by legislation. They are carried out regularly by the inspectors of classified facilities, based in the regional services for industry, research and environment (DRIRE, placed under the authority of the prefect). In the event of non-compliance by the permit holder, approval can be suspended or withdrawn by the prefect.

Germany indicated that plants in which waste oil is regenerated or used as fuel are subject to a licensing procedure pursuant to Article 10, in conjunction with Article 5, of the Federal Emission Protection Act. Details of the licensing procedure are set out in the 9th Order for the implementation of the Federal Emission Protection Act (9. BImSchG). The licensing procedure includes an examination of the state-of-the-art measures taken to avoid harmful effects on humans, animals, plants, soil, water, air, and cultural and other objects. The existence of plans to avoid, recover and dispose of waste is also examined. When operational, the plant must comply with the limit values set out in the Technical Guidelines for the Prevention of Air Pollution or the 17th Order for the implementation of the Federal Emission Protection Act.

In **Greece** the waste oil regeneration plants must have been granted a permit specifically for the purpose by the competent services (of the Ministry for the Environment, Regional Planning and Public Works / Ministry of Development). The permits provide for regular and impromptu checks at the plants to verify compliance with the terms laid down. The checks are carried out by the competent local (prefecture authorities).

In **Hungary t**he environmental protection authority's permission is required for the treatment of hazardous waste. In waste management issues, unless otherwise provided for in an Act or governmental decree, the inspectorate for environmental protection shall exercise the jurisdiction of the authority of first instance. The environmental protection authority, in order to ensure compliance with legal provisions, shall oblige the clients a) to fulfil the duties laid down in legal rules or ordinances issued by authorities, where it finds that provisions are violated or duties neglected; b) to suspend or stop activities that are hazardous or harmful to the environment or cause environmental pollution, and to restore the former state; c) in case of environmental pollution, to take measures that reduce or stop pollution and exclude any environmental damage. The environmental protection authority shall restrict, suspend or prohibit any activities bound to an official permit but carried out in a manner deviating from the permit or without a permit, and any waste management activities harmful or seriously hazardous to the environment. The ruling shall be declared as enforced with immediate effect, regardless of legal remedy."

Ireland answered that the undertakings in question are subject to waste licensing by the EPA under Part V of the Waste Management Act, 1996. There is a stringent licensing procedure in accordance with section 40 of the 1996 Act and the Waste Management (Licensing) Regulations, 1997, as amended in 1998 and replaced by the Waste Management (Licensing) Regulations 2000.

Italy specified that the authority which issues the waste oil disposal permit is authorised to carry out inspections, tests and sampling within the company's facilities or plant, particularly in relation to compliance with the conditions of the permit.

Luxembourg replied that the obligation to have an authorisation for a plant dealing with the disposal of waste oils is required by: - the law of 17 June 1994 concerning waste prevention and waste management (Article 10); - the Grand-Ducal regulation of 30 November 1989 relating to waste oils (Article 6) - the law of 10 June 1999 concerning listed establishments. These authorisations make it possible to lay down the technical and organisational conditions which are necessary.

In **the Netherlands**: licences are granted and checked by the province. Conditions are laid down in the licences for protection of health and the environment. The licence holder is checked by the provincial authorities of the province where the establishment is located.

Portugal informed that the following appropriate controls have been introduced:

– Operations for the storage (other than on the premises where the waste oils are produced), treatment and recovery of waste oils are subject to prior authorisation under Decree-Law 239/97 of 9 September 1997 and Order 961/98 of 10 November 1998, without prejudice to legislation regarding licensing,

environmental impact assessment and environmental permits, where applicable (Article 15 of Decree-Law 153/2003);

– in-house recovery of waste oils requires specific authorisation from the Waste Institute (Article 15 of Decree-Law 153/2003);

– prior authorisation and specific authorisation are granted only where all the necessary health and environmental protection measures have been adopted;

– waste oils may only be collected/transported by operators with a registration number allocated by the Waste Institute, which will only be granted where the means involved are shown to be adequate, in particular with regard to health and environmental protection (Article 16 of Decree-Law 153/2003);

– producers of waste oils must keep a register, to be updated quarterly, containing information on the quantities and types of waste oils produced, the process from which they originate and their intended destination. This register must be made available to the competent authorities on request (Article 22 of Decree-Law 153/2003);

– in order to ensure proper coordination between the various parties involved in the life-cycle of oils, Decree-Law 153/2003 of 11 July 2003 provides for the setting-up of an integrated waste-oil management system;

– anyone carrying out any waste management operation is under an obligation to keep an up-to-date register (Article 16 of Decree-Law 239/97) indicating the quantity and type of waste collected, stored, transported, treated, recovered or disposed of; the origin and destination of the waste; the type of operation carried out. Persons under this obligation must keep the register available for inspection, on request, by the competent inspection authorities for five years after the update;

– under the general obligation concerning safety and risk prevention, an industrial permit is required for pre-treatment of waste oils for combustion;

– operators involved in the recovery of waste oils for energy in plants with a thermal input of 3 MW or more, based on their lower calorific value (LCV), must meet the emission limit values laid down in Annex II to Order 240/92 of 25 March 1992 without prejudice to other applicable legislation (Article 20 of Decree-Law 153/2003);

– waste oils recovered for energy in plants with a thermal input of less than 3 MW, based on their lower calorific value (LCV), must meet the technical specifications laid down in Article 2 of Joint Order DGE/DGQA, published on 18 May 1993, without prejudice to other applicable legislation (Article 20 of Decree-Law 153/2003);

– regular inspections are carried out by the following branches of the Ministry of the Environment and Regional Planning: Inspectorate-General for the Environment, Waste Institute and Regional Coordination and Development Committees. Other licensing and police authorities also carry out inspections.

Slovakia replied that the Ministry of Environment within the scope of granting authorization executes local controlling in firms, establishments which are asking for

authorization. In case of installation, which capacity is more than 10 tons/day, such installation is required to obtain IPPC permit for waste oils handling."

In **Slovenia** a system has been established for the issue of permits for the treatment and disposal of waste oil. Article 27 of the Rules on the management of waste (Official Gazette of the Republic of Slovenia No 84/1998, 45/2000, 20/2001, 13/2003, 41/2004) specifies that, for the treatment and disposal of waste, it is necessary to obtain a permit from the Ministry of the Environment, Spatial Planning and Energy. The waste treatment or disposal company may obtain a permit only if they comply with the conditions set out in Article 29 of the Rules on the management of waste. The conditions are as follows:

– they must be an enterprise or independent contractor registered to perform depositing, incineration and other forms of disposal of solid waste, waste recycling and treatment, production from secondary raw materials or treatment of individual waste in accordance with regulations on the classification of activities;

– they must have available the necessary waste processing or disposal facilities and equipment for which the relevant permit is issued, and said permit must show that environmental protection requirements have been met;

– they must intend to perform waste treatment in accordance with waste treatment procedures (R code) or waste disposal in accordance with the waste disposal procedures (D code).

Permits are issued for four years. After that, a new permit must be obtained. The Rules on the management of waste (Article 8) specify that the collection, storage, transfer, processing and disposal of waste must be carried out in such a way that human health is not endangered and without the use of procedures and methods which might cause the following:

– an excessive burden on water, air, soil;

– an excessive burden in terms of noise or odour;

– substantial deterioration of the habitat of flora and fauna;

– harmful effects on areas protected under regulations on protection of the natural environment and on protection of cultural heritage.

Spain conveyed that as the competent authority, the regional authorities (NUTS level 2) take the measures laid down in Article 8 of the Order of 28 February 1989 governing the management of waste oils, as notified to the Commission.

Sweden replied that location and conditions relating to requisite precautionary measures are decided in the permit dossiers. Self-regulation, reporting obligation, environmental reports and inspection by the authorities are intended to ensure that the activities are conducted with due regard to health and the environment.

The **United Kingdom** explained that all plants for combustion of waste oil are prescribed under Pollution Prevention and Control Act 1999 and can only operate after an application for a permit has been made and determined. All authorities must contain

conditions to secure and appropriate level of control. For the larger combustion processes this is by specification of the reclaimed fuel oil. In Northern Ireland the appropriate legislation is the Industrial Pollution and Control Order (NI) 1997.

9.7. Limit values set for combustion – Article 8

According to Article 8 (1) Member States shall ensure that the emission values for combustion plants with a thermal input of more than 3 MW (Annex) are being observed. Member States may at any time set more stringent limit values or set limit values for other substances and parameters.

Belgium, Czech, Denmark, Finland, Germany, Greece, Hungary, Italy, Portugal, Sweden and the **UK** have reported their limit values and they are all in range with or below the limit values set in the Council Directive. **Austria, Belgium, Denmark, Finland, Germany, Hungary, Portugal** and the **UK** also set limit values for combustion plants with a thermal input of less than 3 MW. In **Sweden** stricter limit values may also be included in permits and waste oils must not be used as fuel in plants smaller than 10 MW.

Ireland pointed out that Article 8(3) of the Directive provides that observance of the emission limit values specified may alternatively be ensured by means of an appropriate system of control of concentrations of pollutants in waste oils. At present in Ireland, reported waste oil is primarily reprocessed for use as a fuel. Atlas Environmental Ireland Limited is the main waste oils processor in the country. Condition 5.3.4 of their Waste licence states that reprocessed oil may only be sent off-site for reuse if it meets the quality criteria set out in the license. These limits are set with the Waste Oils Directive in mind. The combustion of a reprocessed fuel oil which satisfies these limits will not, given proper conditions for combustion, exceed the emission limit values specified in the Directive. The agency has not regulated the combustion activities themselves and has therefore not set limits for the combustion of waste oils. However, by specifying the quality standard for the oil that is combusted, the Agency has set a surrogate standard for reprocessed oil quality which is intended to ensure that the combustion of waste oils will not result in the contravention of the emission limit values set out in the Annex to the Directive.

9.8. Indemnities for undertakings which collect and dispose of waste oils – Article 14

According to Article 14 as a reciprocal concession for the obligation imposed on them by Member States, indemnities may be granted to collection and/or disposal undertakings for the service rendered.

Austria, Belgium, Czech Republic, Greece, Hungary, Ireland, Luxembourg, the Netherlands, Portugal, Slovakia, Slovenia, Sweden and the **UK** do neither grant indemnities to undertakings which collect waste oils nor to those disposing them of.

Since July 2000, in **Denmark** the collection of waste oils has been financed by Mieraloliebranchen.

In **Finland** indemnities may be granted to undertakings to waste oils collectors and disposal companies. They amount to an estimated average amount of about 1,5-2,5 million euros/year. The indemnities are paid on account of real costs, excluding e.g. sales revenues of pre-treated oil. Due to exceptionally high sales revenues of pre-treated oil, the indemnities paid in 2002 were only € 0,9 million. Pursuant to Waste Oil Charge Act 894/1986 producers and importers of lubricating oils are obliged to pay the waste oil charge, which is 4,2 cents per kilogram (Section 4). The waste oil charge shall be paid on lubricating oils and greases classified under Customs Tariff items 2710 00 81 - 2710 00 98, 3403 19 10 -3403 19 99 and 3403 99 10 - 3403 99 90. The waste oil charge shall also be paid on transformer and circuit breaker oils, cutting, and cleansing and mould release oils and hydraulic oils included in the items referred above (Section 2). Funds accruing from the waste oil charge may be used for covering expenses arising from waste oil and its collection, transport, storage and treatment including regeneration. They may also be used to cover the expenses if on-land oil pollution and combating thereof (Waste Oil Charge Act 894/1986, Section 7). Detailed provisions on the use of funds are laid down in the Government Decision 1191/1997. The indemnities are granted by the Ministry of the Environment.

In **France** the share of the collection costs of oils that are allocated to producers: industry, mechanics, recycling centers, etc, is not covered by the price paid for the waste oils taken to the treatment centers by the collectors (the removal of waste oils from the producers is, moreover, often free). In addition, in accordance with the "polluter pays" principle, contained in Directive 75/439/EEC, the manufacturers, importers, etc, of base oils were subjected, from 1979 to 1998 included, to special charges (decree n° 94-753 of 31 August 1994 creating special base oil charges benefiting the Environment and Energy Agency, repealed). Since 1 January 1999, manufacturers, importers, etc, of lubricants, oils and lubricating preparations which generate waste oils through their use have been subjected to the general tax on polluting activities (TGAP). ADEME receives a budgetary appropriation, which enables it in particular to remunerate the collectors approved for the collection of black oils. To set the level of this remuneration, ADEME carries out a regular economic audit of the activity of the collection companies and of treatment of waste oils. The table below presents the average basis for compensation for the approved collection of waste oils. No indemnities are granted to undertakings which dispose of waste oils.

	Average compensation base per tonne of waste oils	
	€ HT/tonne	€ including all taxes/tonne + margin of 5%
2001	**69,33**	**72,79**
2002	**70,67**	**74,20**
2003	**72,50**	**76,12**

In **Germany**, at the same time as the Order on Waste Oils was amended, a Support Guideline entered into force in 2001 providing for subsidies to be paid, during the period up to 2007, to undertakings which regenerate base oil from waste oil. This was to cover their losses for the previous year, and was limited to €25 per tonne of regenerated waste oil. The support would be digressive according to the quantities of oil regenerated in a given plant. The full amount of €25 would be paid for a maximum of 3 000 tonnes per plant in 2001, and in subsequent years this amount would be reduced by €2.50 each year.

In **Hungary** exists in the product charge system a so called financial "contribution", based on recovery (including energy recovery). If a company collects and recycles a certain amount of waste oil, after doing it, receives the predetermined amount of financial support.

Italy responded that a contribution upon the release to the market of €53 per tonne is to be paid. Regenerators are granted a reduction of excise duty; for the waste oils combustion there exist incentives for energy recovery.

Spain specified that indemnities of up to €42.08 per tonne (2003) are granted for collection, transportation, storage, analysis and/or pre-treatment. This is funded from the general State budget by way of a yearly call for proposals. The call for proposals covers all management activities. The Orders on the management of waste oils earmarked the following amounts: € 10 163 000 in 2001, € 9 950 000 in 2002 and € 10 035 000 in 2003. This includes indemnities of up to €66.12 per tonne granted for regeneration activities (2003).

The other Member States indicated that no indemnities are granted to undertakings that collect or dispose of waste oils.

Annex II

Tonnes/year	Austria			Belgium			Denmark			Finland		
Year	2001	2002	2003	2001	2002	2003	2001	2002	2003	2001	2002	2003
Total oil marketed/sold where available	89,800	75,400	80,500	70,880	66,800	66,800	62,315	64,546	59,963	87,200	88,800	86,300
Total waste oils generated, of which:	36,400	34,100	33,300	55,322	63,613	63,613	34,418	32,273	29,982	43,600	44,400	43,150
Quantity collected	36,400	34,100	33,300	55,322	63,613	63,613	41,388	40,827	40,000	35,400	36,900	38,300
Quantity regenerated	2658	2988	4300	500	500	500	1,697	4,005	7,487	3,500	2,500	2,600
Quantity combusted	35,500	38,700	37,100	52,078	60,432	60,432	12,562	10,988	9,350	31,900	34,400	19,600
Quantity tipped (including permanent storage)	0	0	0	0	0	0	0	0	0	0	0	0
Comment	AT					BE	DK					FI

Table 1. Treatment and handling of oil (tonne/year), (Questionnaire, Paragraph II, Question 1 c), continues,

Tonnes/year	France			Germany			Greece			Ireland		
Year	2001	2002	2003	2001	2002	2003	2001	2002	2003	2001	2002	2003
Total oil marketed/sold where available	686,489	675,016	635,359	1,058,000	1,077,000	1,067,000	140,000	140,000	140,000	32,675	19,598	23,514
Total waste oils generated, of which:	419,583	414,160	391,074	753,000	763,000	739,000	85,000	85,000	85,000	16,338	9,799	11,757
Quantity collected	333,660	328,925	330,848	453,000	463,000	445,000	26,330	29,965	35,435	14,638	14,856	16,983
Quantity regenerated	133,535	124,589	148,916	309,000	293,000	331,000	24,830	29,965	35,435	0	0	0
Quantity combusted	195,143	198,945	176,792	144,000	170,000	114,000	1,500	0	0	14,326	16,184	15,738
Quantity tipped (including permanent storage)	0	0	0	0	0	0	0	0	0	0	0	0
Comment	FR			DE						IE		

Table 1 (continued). Treatment and handling of oil (tonne/year), (Questionnaire, Paragraph II, Question 1 c) , continues,

Tonne/year	**Italy**			**Luxembourg**			**Netherlands**			**Portugal**		
Year	2001	2002	2003	2001	2002	2003	2001	2002	2003	2001	2002	2003
Total oil marketed/sold where available	603,000	586,000	573,000	12,602	27,324	26,000	132,000	131,000	122,000	100,600	106,600	90,843
Total waste oils generated, of which:	211,530	208,450	220,440	6301	13,662	13,000	91,000	90,000	83,000	58,143	52,234	48,507
Quantity collected	192,300	189,500	200,400	6301	13,662	13,000	84,000	83,000	77,000	58,143	52,234	48,507
Quantity regenerated	175,955	174,719	174,148	6301	13,662	13,000	79,000	79,000	73,000	0	0	0
Quantity combusted	15,576	14,402	25,450	0	0	0	4,000	4,000	4,000	58,143	52,234	48,507
Quantity tipped (including permanent storage)	769	379	802	0	0	0	0	0	0	0	0	0
Comment				LU			NL			PT	PT	PT 48,507= Estimate

Table 1 (continued). Treatment and handling of oil (tonne/year), (Questionnaire, Paragraph II, Question 1 c), continues,

Tonne/year	Spain			Sweden			UK			EU15 total		
Year	2001	2002	2003	2001	2002	2003	2001	2002	2003	**2001**	**2002**	**2003**
Total oil marketed/sold where available	508,300	511,000	514,400	159,000	158,000	152,000	633.748	633.173	745.532	4,376,609	4,360,257	4,383,211
Total waste oils generated, of which:	203,320	204,400	205,760	79,500	79,000	76,000	359.361	348.245	410.043	2,488,372	2,474,609	2,453,626
Quantity collected	187,714	215,665	214,799	84,400	85,500	84,000	305.627	296.008	348.536	1,920,491	1,953,442	1,995,636
Quantity regenerated	49,824	71,505	85,141	318	642	5,500	0	0	0	787,118	797,075	881,027
Quantity combusted	212,890	224,160	239,658	57,700	62,100	52,300	344.270	319.135	361.569	1,181,939	1,208,403	927,804
Quantity tipped (including permanent storage)	0	0	0	0	17	0	0	0	0	769	396	802
Comment	ES			SE			UK					

Table 1 (continued). Treatment and handling of oil (tonne/year), (Questionnaire, Paragraph II, Question 1 c) continues,

Tonne/year	Czech republic			Hungary			Slovakia			Slovenia		
Year	2001	2002	2003	2001	2002	2003	2001	2002	2003	2001	2002	2003
Total oil marketed/sold where available	81,139	86,808		87,000			70,555	0	68,465	21,600	21,600	21,600
Total waste oils generated, of which:	49,195	39,144		40,362			33,999	11,877	16,975	2,575	3,073	3,678
Quantity collected	49,195	39,144		33,419			0	0	0	3168	4,404	4,076
Quantity regenerated	24,239	18,610		29,561			3,786	4,159	5,622	0	0	0
Quantity combusted	9,045	7,038		3,858			12,003	5,108	5,151	2,784	3,560	3,578
Quantity tipped (including permanent storage)	13,056	1,629		6,943			103	19	106	0	0	0
Comment				HU				SK				

Table 1 (continued). Treatment and handling of oil (tonne/year), (Questionnaire, Paragraph II, Question 1 c).

Legend to the comments:

AT: The amount of waste oils combusted exceeds the amount generated and collected, because

- waste oils generated may be collected under waste codes which are not specifying them as waste oils, while after their treatment they are classified as waste oils (e.g. emulsions).
- there are temporal delays between collection and combustion caused by waste oils storages
- the amounts also include imported waste oils.

BE: No data reported by Belgium, estimation by the European Commission

DK:

- The amount of generated waste oils is assumed as 50% of the marketed/sold oil amount.
- For 2003 no data on waste collection was reported by Denmark, estimation by the European Commission

FI: For 2003 an additional amount of 15.920 tonnes was impossible to specify precisely under the categories 'regenerated' or 'combusted'

FR:

- Since 2001 a larger coefficient for the ratio of generated waste oils to oils put on the market has been used. It takes into account the lower volatility of oils and the reduction of losses during the use.
- The difference between the collected and treated amounts is explained by the share of water in the collected oil, which is decanted during the treatment.
- The apparent low quantity of regenerated waste oils in 2002 is due to the works in the regeneration ECOHUILE factory.

DE:

- The quantities of waste oil were estimated based on return rates from mineral oil statistics. For example, of the 1 067 000 tonnes of lubricant which were sold in Germany during 2003, 739 000 tonnes were theoretically collectable as waste oil. Lubricants which are incorporated into other products, such as white oil in medical, cosmetic or technical products and loss lubricants such as anti-baking agent, corrosion inhibitor and grease are theoretically not collectable as waste oil. The quantity of waste oil actually collected is less than the theoretically not collectable as waste oil. The quantity o waste oil actually collected is than the theoretically collectable quantity, because technically unavoidable losses occur. 'The greatest loss occurs through the co-combustion of lubricants with the fuel in engines. Minimal losses of hydraulic oils with every hydraulic lifting action are also technically unavoidable. Further losses occur through the vaporisation and condensation of cooling lubricants in metalworking, through traces of lubricants remaining in decommissioning and disposal of machines, vehicles and machine tolls, and trough the adhesion of processing oils to component surfaces. The actually collectable fraction of waste oil was collected under the procedure for waste oils collection and sent for regular waste management, with priority being given to recycling.
- The quantity processed equals the quantity materially recycled.

IE:

- The fact that the collected quantity exceeds the waste oils generated may be explained by different volume-gravity calculations and double counts.
- The fact that the quantity collected exceeds the quantity combusted may be explained amongst others by the amounts which were sent to Northern Ireland. They are included in the collected quantities but are missing in the combusted amounts.

LU:

- The amount of generated waste oils is assumed as 50% of the amount of marketed/sold oil.
- For 2003 no data was reported by Luxembourg, estimation by the European Commission

NL: Possible explanations, why the waste oils amount generated does not equal the amount collected:

- The amount of the oil generated is based on the amount of oil, which has been put on the market, assuming that all the new oil replaces an equal amount of waste oil.
- The amount on generated oil is further based on assumptions of percentages of consumption of the machinery and motors etc. and is estimation and therefore not an exact figure.

- Some types of waste oil. e.g. oil emulsions, oil containing cleaning rags or oil in absorbent, have been collected (together) with other oily waste streams and are therefore not included in the presented quantities of collected waste oils.
- A part of the waste oil that is bought in the Netherlands might be handed over and collected in other countries than the Netherlands. For instance in shipping (inland and seagoing) lubricants that are sold in Rotterdam will partly be disposed of in other countries.
- The life span of lubricants in cars is extended over the years, amongst others because of the introduction of lasting synthetic oils. This also contributes to a decrease in collected oils from 91 kton in 2001 till 83 kton in 2003.
- Source for marketed and sold oils: Netherlands Statistics Office (CBS); total waste oils generated: Estimate based on the oil balance 1997, lubricating and system oil, of TAW Milieu.B.V.; quantity collected: Based on data from the national waste Reporting Centre. Assumptions have been made with regard to the percentage of oil in waste; quantity regenerated includes use as fuel after treatment (R1); quantity combusted refers to incineration on land (D10).
- The quantities for 2003 are an estimate based on figures for 2002 and years before.

PT: The amount of total waste oils generated is equal to the collected amounts.

ES:

- Spain supposes that the quantity of waste oil produced is less than 44% of the total amount of oil marketed and is closer to 40%.
- To calculate the total amount of oil collected, the amount of subsidised oil was taken as a basis and then added to the amount of non-subsidised oil collected. The waste oil collected can contain small quantities of oil resulting from PCB decontamination, imported end of life vehicles, etc. For this reason, slightly more oil can be collected than is generated if, as in Spain's case, the collection rate for oil on the Spanish market is almost 100%. The oil collected under MARPOL was not included.

SE:

- A number of factors may have lead to the high amount of marketed/sold oil per capita: Relatively large Swedish automotive industry delivering factory filled vehicles to different markets; delivering of factory filled transformers; Sweden is industrialised with both heavy basic industries like forest, pulp and paper, mineral and manufacturing industry; large, sparsely populated areas, generating much transport work; large fraction of old and comparatively large private cars; a old climate requiring frequent exchange of motor oils.
- The quantity collected exceeds the waste oil generated and the quantity combusted and regenerated. This is explained by the composition of collected waste oils, which varies a great deal from used motor oils containing a few per cent of water to used cutting liquids containing 95% of water.
- The treated amounts are reported including for instance oil sludge landfilled.
- UK: Combusted figures includes imported refuse derived fuel oils (RFO)
- HU: 6943 tonnes stem from intermediate storage at the site of generation.

SK:

- The ratio between ‘total waste oils generated’ and ‘total oil marketed/sold is low due to the fact that the majority of waste oil generators burns waste oils in their facilities or sell them as “secondary fuels”.
- There is no legal obligation for waste holders to report separately the amounts of collected waste oils.
- The sum of generated waste oils is calculated from reports of waste oil generators, while the sums of waste oils regeneration, combustion and tipping are calculated from reports of waste operators.

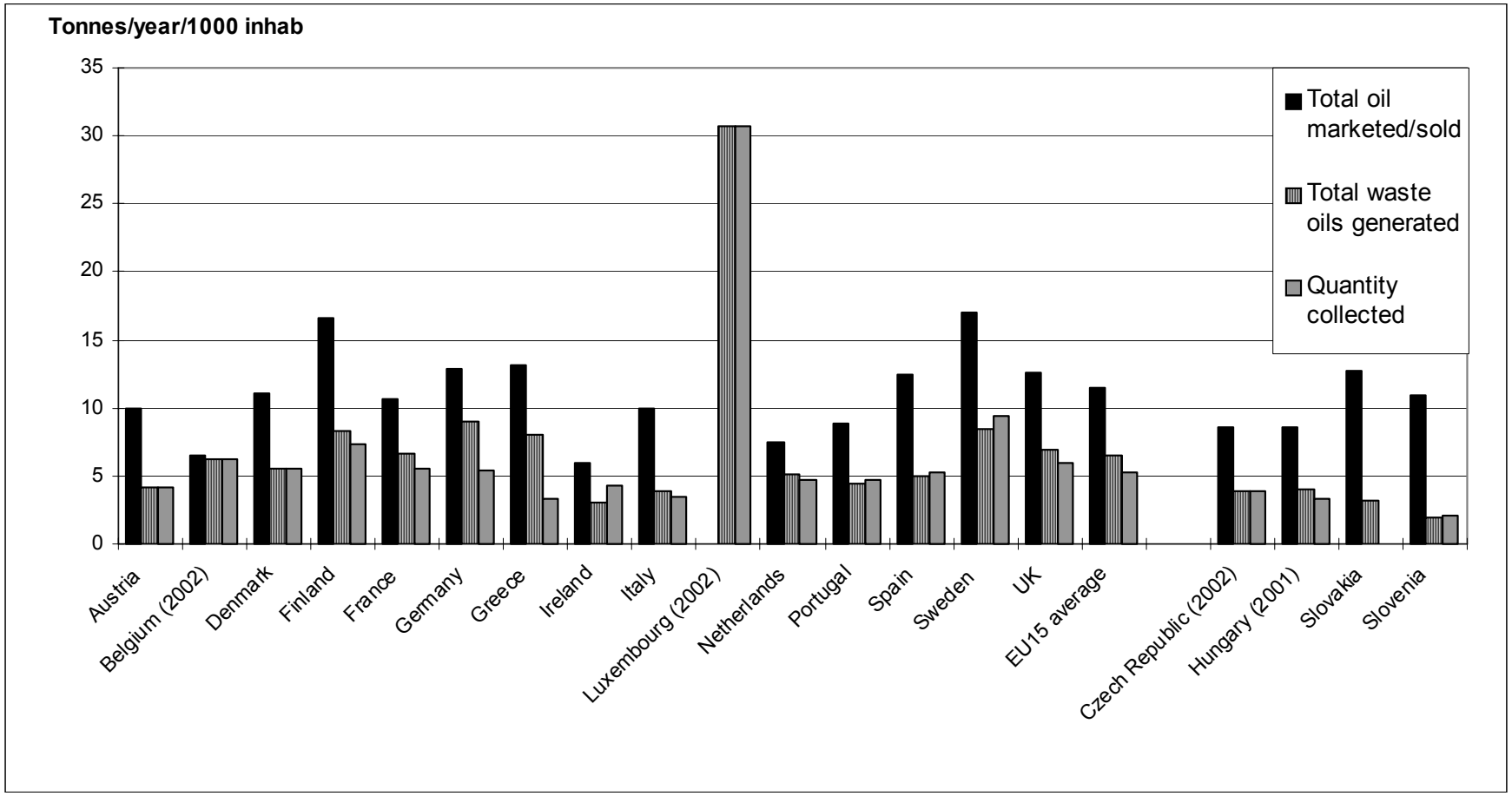

Figure 1. Quantities of oils marketed and waste oils generated and collected in 2003 per inhabitant

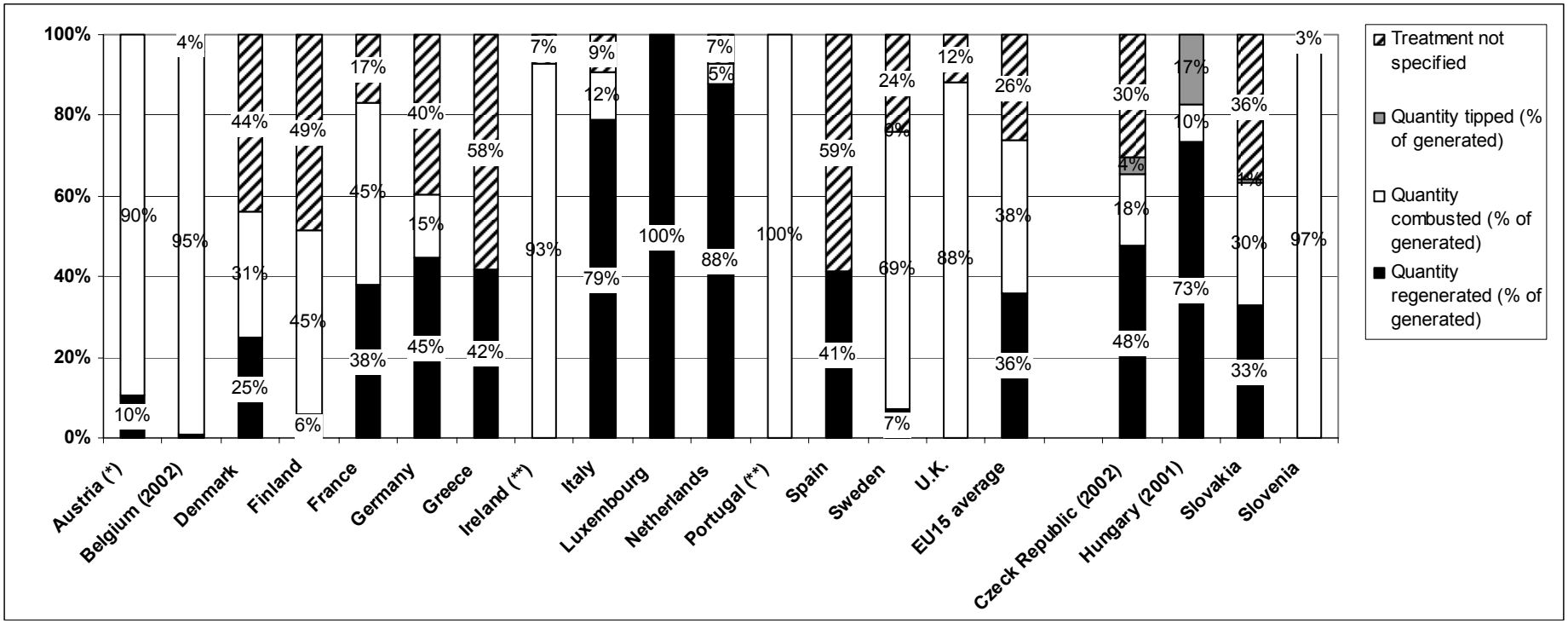

Figure 2. Treatment of waste oils by country, 2003

* % of sum of the three treatment categories. The reported figures exceed the amount of total generated waste oils.

** % of total collected waste oils

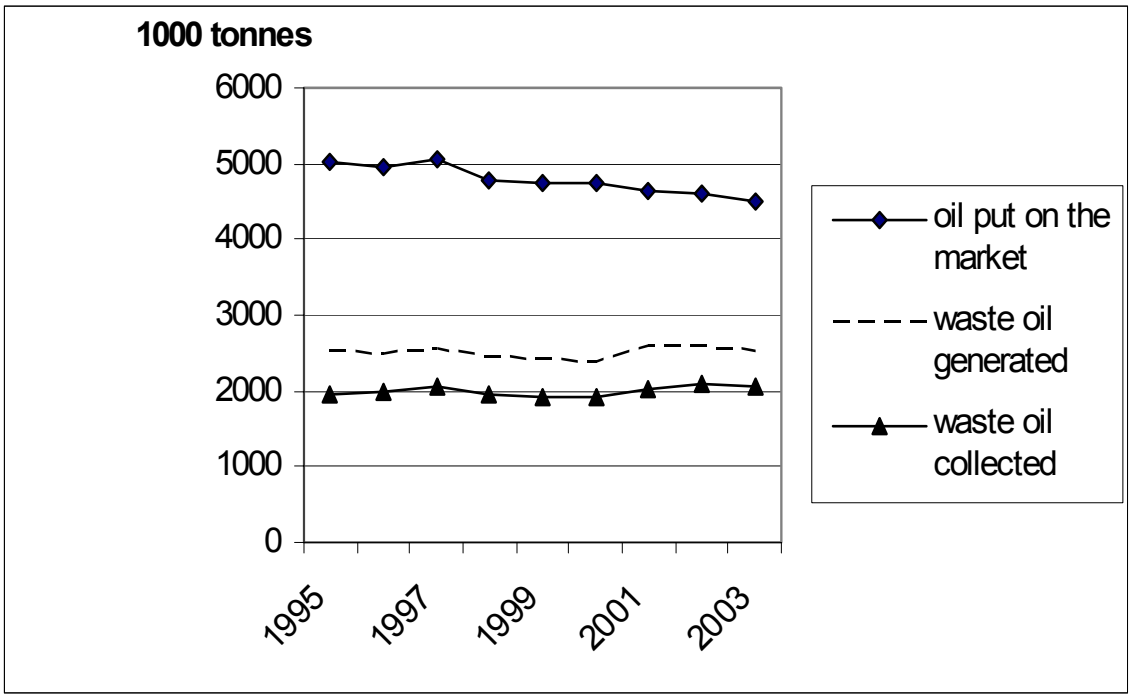

Figure 3. Oils put on the market, waste oils generation and collection over the period 1995 to 2003 in the EU15

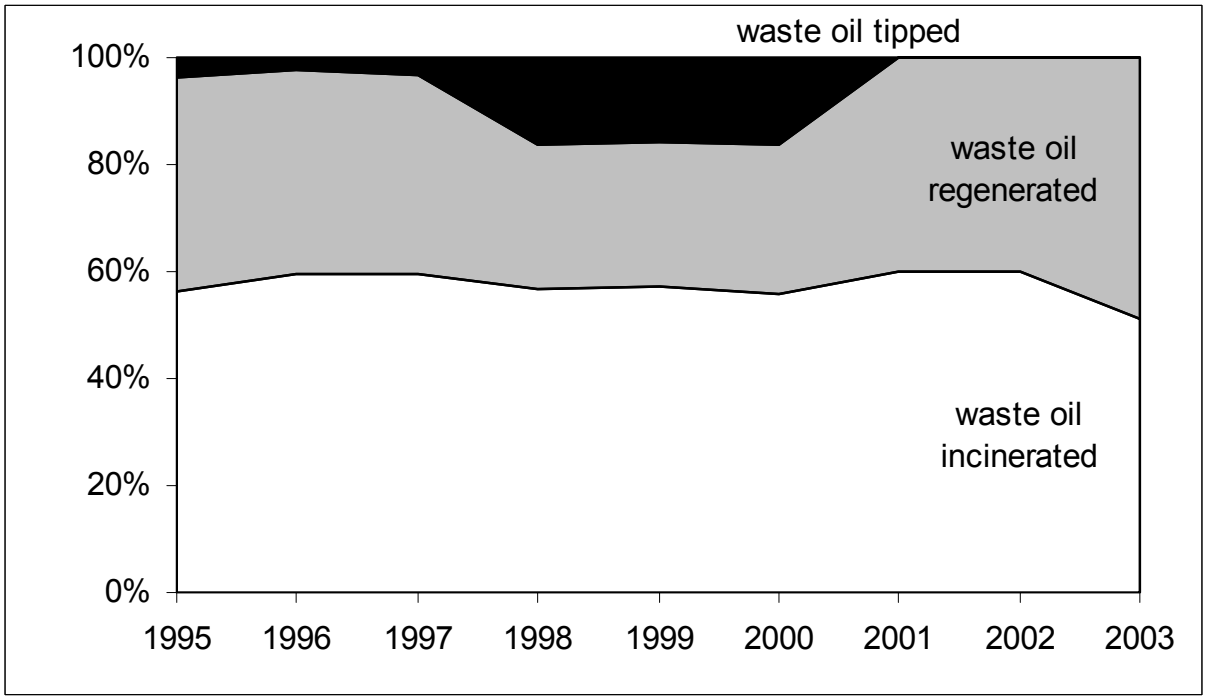

Figure 4. Waste oils treatment over the period 1995 to 2003 in the EU15

2001-2003

Member state	AT	BE	DK	FI	FR	DE	EL	IE	IT	LU	NL	PT	ES	SE	UK	CZ	HU	SK	SL
Number of authorities	N2=9	N1=4	N5=271	N3=13	N3=100	N1=5 N2=18 N3=165		N3=10	N2=21	N0=1	N0=1	N1=6 N2=7	N2=19	N5=290	N1=4	N3=14	N1=1 N2=12	N1=1 N3=8 N4=79	N0=1
Permitting system established (yes/no)	Yes	Yes	No	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Waste oils only - Total No of undertakings registered/permitted;	631	9	2	6	10	N1:9 N2:54 N3:48			83	1	6	N2:31	70	2006	-	14		N1:26	
Waste oils and other waste Total No of undertakings registered/permitted;	693	72		20	36	N1:209 N2:436 N3:969		68		21	21	N1:3	200		73,056	108	N1:39 N2:53	N1:36	7
Comments	1)	Brussels and Walloon		Esti-mated									2)	3)	4)	5)	6)	7)	

Table 2. Undertakings collecting waste oil (Questionnaire, Paragraph II, Question 4)

This table shows how many undertakings that each Member State has registered/permitted to collect waste oils, whether an actual permitting system has been established and the level and number of authorities responsible for the registration/permission,

Notes:

N is a shortening for NUTS, N1:4 for example, means that the authority on NUTS level 1 gave 4 permits or undertaking registers,
1. Total number of undertakings collecting and treating waste oils according to the list of collection and treatment undertakings
2. The waste collection sector is in continuing evolution, this implies considerable variations in the number of permits
3.Permitting authorities are: NUTS3, 21 authorities; NUTS5, 290 authorities. Operative supervising authorities are: NUTS3, 21 and NUTS5, 290. The number of transport permits is 2006 taken on NUTS3 level. A few hundred intermediate storage facilities have permits on NUTS3 and NUTS5 level depending on size.
4.Average per year, England & Wales only,
5. Data from the 9 regions which have submitted data to the Ministry of the Environment
6. On N1 level, number of undertakings, which are permitted for collection of waste oils and oily waste. On N2 level, 53 permits for waste oil treatment, of which 37 for incineration with energy recovery and 16 for regeneration.
7. Waste oils only permits: 26, Number of authorizations issued by the Ministry of Environment Slovakia

V. DIRECTIVE 86/278/EEC ON SEWAGE SLUDGE

10. INTRODUCTION

Directive 86/278/EEC[56] *on the protection of the environment, and in particular of the soil, when sewage sludge is used in agriculture* regulates sewage sludge use in such a way as to prevent harmful effects on soil, vegetation, animals and man. It also aims at encouraging a sound reuse of sludge in agriculture.

In particular, the main provisions of Directive 86/278/EEC are:

– definitions of 'sludge' (sewage sludge, septic tank sludge and other sludges), 'treatment' (biological, chemical or heat treatment, long-term storage or any other appropriate process so as significantly to reduce its fermentability and the health hazards resulting from its use) and 'use' (spreading of sludge on the soil or any other application of sludge on and in the soil) (Article 2);

– values for concentrations of heavy metals in soil and sludge and maximum annual quantities of heavy metals that can be introduced into the soil (Article 4);

– heavy metal concentrations in soils may not be exceeded (Article 5);

– sludge has to be treated (Article 6);

– sludge may not be applied to certain cultures and after a certain period has elapsed (Article 7);

– the use of sludge has to take into account crop needs (Article 8);

– methods for the sampling and analysis of soil and sludge (Article 9);

– the obligation for Member States to keep up-to-date records on sludge production, quantities used in agriculture, location of parcels and other information (Article 10);

The present report is the fourth consolidated report on Directive 86/278/EEC and covers the period 2001–2003. Member States were required to provide the Commission with relevant data and information by September 2004. Several countries supplied their reports with considerable delay.

11. INCORPORATION INTO NATIONAL LAW

The previous consolidated report, relative to the period 1998-2000, mentioned a number of outstanding cases of incomplete or incorrect transposition of the Directive as well as of non-communication by Member States.

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[56] OJ L 181, 4.7.86, p. 6.

The infringement procedure against **Austria** for incomplete and incorrect transposition of the Directive has been brought to an end. In Austria the competence for regulating the use of sewage sludge in agriculture is with the individual *Land*. The procedure covered in the beginning all nine Austrian *Länder*. Subsequently, they all adopted the necessary measures by either amending or replacing their existing sewage sludge and/or soil protection laws and/or regulations through new legislation to comply with the requirements of the Directive.

The infringement case against **Italy** for non-compliance with Articles 10 and 17 of the Directive lead to an action before the European Court of Justice.[57] The Court upheld the Commission's claims and declared that Italy had not fulfilled the duties stemming from the Directive. In a subsequent exchange of information with the Commission, Italy has demonstrated that steps have been taken to address the unsatisfactory situation regarding record-keeping provided for by Article 10 of the Directive. The transmission of the relevant information to the Commission has now been improved (as shown by the tables annexed to this Report) and the infringement resolved.

During this reporting period, the following Member States have notified amending provisions:

Austria has notified around 20 legislative acts of the *Länder* within the course of the infringement procedure (see above). These acts are the following:

Burgenland:

- Gesetz vom 15. September 2000 mit dem das Bgld. Bodenschutzgesetz geändert wird LGBl. für das Burgenland Nr. 75/2000;

- Verordnung der Burgenländischen Landesregierung vom 31. Jänner 2001, mit der die Bgld. Klärschlamm -und Müllkompostverordnung geändert wird, LGBl. für das Burgenland Nr. 4/2001;

Carinthia:

- Verordnung der Kärntner Landesregierung vom 3. 10. 2000, über die Aufbringung von behandeltem Klärschlamm, Bioabfall und Grünabfall auf landwirtschaftlich genutzten Böden (Kärntner Klärschlamm- und Kompostverordnung K-KKV)", LGBl Nr. 74/2000;

- Verordnung der Landesregierung vom 27. 1. 2004, mit der die Kärntner Klärschlamm- und Kompostverordnung geändert wird, LGBl. Nr. 5/2004;

- Gesetz vom 23. 10. 2003, mit dem die Kärntner Abfallwirtschaftsordnung geändert wird, LGBl. Nr. 1/2004;

Lower Austria:

- NÖ Klärschlammverordnung, LGBl. für das Land Niederösterreich 6160/2-2;

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[57] C-248/02.

- Änderung zur NÖ Klärschlammverordnung, 29. 5. 2001, LGBl. für das Land Niederösterreich 6160/2-3;

- Niederösterreichische Müllkompostverordnung, LGBl. Nr. 6160/1-2;

Upper Austria:

- Landesgesetz, mit dem das Oö. Bodenschutzgesetz 1991 geändert wird (Oö. Bodenschutzgesetz-Novelle 2001) LGBl. Nr. 83/2001;

Salzburg:

- Gesetz vom 4. Juli 2001 zum Schutz der Böden vor schädlichen Einflüssen (Bodenschutzgesetz), LGBl. Land Salzburg Nr. 80/2001;

- Verordnung der Salzburger Landesregierung vom 16. September 2002 zum Schutz des Bodens bei der Verwendung von Klarschlamm und klärschlammhältigen Materialien (Klärschlamm-Bodenschutzverordnung), LGBl. Nr. 85/2002;

Styria:

- Verordnung der Steiermärkischen Landesregierung vom 10. Juli 2000, mit der die Klärschlammverordnung geändert wird, LGBl. Nr. 51/2000;

- Verordnung der Steiermärkischen Landesregierung vom 22. 9. 2003, mit der die Klärschlammverordnung geändert wird, LGBl. Nr.73/2003;

- Gesetz vom 28. Oktober 2003, mit dem das Steiermärkische Bodenschutzgesetz geändert wird, LGBl. Nr. 8/2004;

Tyrol:

- Gesetz über den Schutz des Feldgutes und die Ausbringung von Klärschlamm (Tiroler Feldschutzgesetz 2000 LGBl. Nr. 58/2000;

- Gesetz, mit dem das Tiroler Feldschutzgesetz 2000 geändert wird, LGBl. Nr. 56/2002;

- Verordnung der Landesregierung vom 19. 12. 2000, mit der die Ausbringung von Klärschlamm auf landwirtschaftliche Grundflächen näher geregelt wird (Tiroler Klärschlammverordnung 2000), LGBl. Nr 89/2000;

Vienna:

- Gesetz über das Verbot der Ausbringung von Klärschlamm LGBl. für Wien Nr. 8/2000 vom 2. März 2000;

Vorarlberg:

- Verordnung der Vorarlberger Landesregierung uber eine Änderung der Klarschlammverordnung, LGBl. Nr. 27/2002.

In the Flemish region of **Belgium** the Flemish Government Decree establishing the Flemish Regulations for waste prevention and management (VLAREA) has been in force since 17 December 1997. The Flemish Government Decree of 9 February 2001 has amended VLAREA with regard to the permissible concentration of metals in the standard soil.

The **Czech Republic** has adopted Act No 185/2001 Coll. on waste, which has been amended by Decree No 382/2001 Coll. of the Ministry of the Environment, the Ministry of Agriculture and the Ministry of Health on conditions governing the use of treated sludge on agricultural soil.

Ireland has notified to have amended its legislation, which is now contained in the Waste Management (Use of Sewage Sludge in Agriculture) Regulations, 1998 and the Waste Management (Use of Sewage Sludge in Agriculture) (Amendment) Regulations, 2001.

12. IMPLEMENTATION OF THE DIRECTIVE[58]

12.1. Specific conditions when sludge from septic tanks and other similar installations is used (Article 3 (2))

According to Article 3(2) residual sludge from septic tanks and other similar installations may be used in agriculture subject to any conditions that the Member States concerned may deem necessary for the protection of human health and the environment.

In **Austria** conditions vary according to the different *Länder*. The spreading of septic tank sludge is not allowed in Tyrol, Vienna and Salzburg. It is subject to detailed provisions in Carinthia, Lower Austria, Upper Austria, Voralberg and Styria.

In **Belgium** the Walloon Region requires that the use in agriculture of septic tank sludge match crop needs. There is a limit of 400 kg of nitrogen per hectare per year and a specific provision according to which only one third of the total available surface of a given farmer can be treated with septic tank sludge. No more than 20 000 litres of septic sludge can be spread per hectare per year. The Flemish Region has not given any information on this point.

In the **Czech Republic, Finland**, **Italy**, **Luxembourg,** the **Netherlands**, **Portugal**, **Slovenia**, **Spain**, **Sweden** and the **United Kingdom** septic tank sludge is subject to the same provisions as sewage sludge.

In **Denmark** and **Germany** septic tank sludge has to be delivered to a waste water treatment plant for further processing and cannot be used as such in agriculture.

In **Greece** septic tank sludge is currently not used for agricultural purposes.

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[58] For ease of reference, information already published in the previous report covering the period 1998-2000, is here repeated.

In **France** septic tank sludge has to be worked into the soil immediately after being spread on land or sanitised beforehand.

In **Ireland** septic tank sludge may be used on grassland provided that the grassland is not grazed in the following six months. In any event, untreated sludge has to be injected or otherwise worked into land.

Hungary and **Slovakia** do not allow the application of this kind of sludge to the soil.

12.2. Concentration limit values for heavy metals in soil, sludge and maximum annual loads (Article 5)

Member States must prohibit the use of sludge where the concentration of heavy metals in the soil exceeds the limit values in Annex I A (Article 5(1)). In addition Member States have either to lay down maximum quantities of sludge and limit values for heavy metals in the sludge in accordance with Annex I B (Article 5(2)(a)), or have to ensure observance of the limit values given in Annex I C for the quantities of metals introduced into the soil per unit of area and unit of time (Article 5(2)(b)).

Tables 1, 2 and 3 present the concentration limit values set by Member States in accordance with Annexes I A, I B and I C of the Directive.

In **Austria**, the concentration values of heavy metals vary in the regions, with all of them being in compliance with the limits specified in Annex I A.

In **Belgium -** Brussels region and **Italy** there is no limit for chromium in soils. In Italy, before spreading sludge it is necessary to carry out a quick oxidising test (Bartlett and James) to assess whether the soil has oxidising capacity from Cr(III) to Cr(VI). If the result is an oxidising capacity equal or higher than 1µM, sludge containing Cr cannot be spread on that soil.

In **Finland** the concentration in sludge and the annual load of copper and zinc can be doubled if there is a need to supplement these elements to the soil. In any event, the maximum soil concentrations cannot be exceeded.

In the **Netherlands** the soil limits are a function of humus and lutum content of the soil itself.

In **Sweden** the maximum annual load is calculated over a seven-year period.

Eight Member States of EU-15 (Austria, Belgium-Flanders, Denmark, Finland, the Netherlands, Portugal and Sweden) reported one or more limit values for heavy metal in soil lower than those set by the Directive. All the new Member States for which data is available present limit values below the limit values set by the Directive.

12.3. Annex I.B and maximum quantities of sludge (dry matter) applicable to soil (Article 5 (2)(a))

In **Austria** the maximum quantities applicable vary in the different *Länder*: in Lower Austria it is 2.5 t/ha/y; in Upper Austria 10 t/ha on a three-year period; in Styria 1.25

t/ha/y to grassland and 2.5 t/ha/y on arable land (these amount can be doubled if no sewage sludge was applied during the previous year).

In **Belgium** the Walloon Region determines the maximum quantities according to a formula which weighs the actual heavy metal concentration in sludge against the permissible values. On a three-year period the maximum allowable quantity is 6 tonnes per hectare on grassland and 12 tonnes per hectare on arable land. In the Flemish Region application of sewage sludge was limited to 4 tonnes every two years for arable land and 2 tonnes every two years for grazing land.

In the **Czech Republic** a maximum of 5 tonnes per hectare every three years may be used. This amount, however, can be increased to 10 tonnes per hectare on a five-year period, if the sludge contains less than half the maximum amounts of each of the monitored substances and elements which pose a risk (the amount of nitrogen added may not exceed 70% of the total nitrogen requirement of the crop to which sludge is applied).

In **Denmark** 7 tonnes of sludge may be applied per hectare per year.

In **Germany** up to 5 tonnes may be applied per hectare every three years, which corresponds to a limit of an annual application of 1.66 tonnes per hectare.

In **Italy** and in **Slovakia** the maximum quantity is 15 tonnes per hectare every three years, which corresponds to a limit of an annual application of 5 tonnes per hectare.

In **Ireland** and the **Netherlands** 2 tonnes per hectare per year may be applied to agricultural land.

In **Luxembourg** and in **Slovenia** 3 tonnes per hectare per year may be used in agriculture.

In **Portugal** 6 tonnes per hectare per year is in principle the maximum allowed quantity of sludge that may be used in agriculture although lower heavy metal content allows increasing this amount, while higher heavy metal content implies the application of smaller amounts.

Greece, **Finland**, **France**, **Spain**, **Sweden** and the **United Kingdom** have opted for Article 5(2)(b), i.e. for fixing maximum annual load on a ten year average (seven years in Sweden). **Hungary** has opted for Article 5(2)(b), i.e. for fixing maximum annual load of heavy metals.

12.4. Less stringent values for concentrations of heavy metals permitted on land for growing crops intended exclusively for animal consumption (Annex I A, footnote 1)

In **Austria** there is no possibility to exceed limit values.

Less stringent values are not permitted in **Belgium**, the **Czech Republic**, **Denmark**, **Greece**, **Finland**, **France**, **Germany**, **Hungary**, **Italy**, **Ireland**, the **Netherlands**, **Slovenia**, **Slovakia**, **Spain** and **Sweden**.

In **Portugal,** the limits for soils with a pH higher then 7 in which commercial crops are grown for animal consumption are those provided for in Table 1 of this report.

The **United Kingdom** reports 10 dedicated sites where the normal limits for all metals may be exceeded in accordance with Annex I A, footnote 1. It is generally land adjoining waste water treatment plants which was once used as a sewage farm. The total surface area of these sites (estimated) is 2 516 hectares.

12.5. Less stringent limit values for concentrations of heavy metals permitted in soils with a pH higher than 7 (Annex I A, footnote 2)

In **Austria** there is no possibility to exceed limit values.

Less stringent values are not permitted in **Belgium**, the **Czech Republic**, **Denmark**, **Greece**, **Finland**, **France**, **Germany**, **Hungary**, **Ireland**, **Italy**, **Luxembourg**, the **Netherlands, Slovenia, Slovakia** and **Sweden**.

In **Portugal, Spain** and the **United Kingdom** the limits for soils with a pH higher then 7 are those provided for in Table 1 of this report (only for soils on which commercial crops are grown for animal consumption in Portugal).

12.6. Less stringent limit values for the annual quantities of heavy metals introduced into the soils intended for fodder crops (Annex I C, footnote 1)

In **Austria** there is no possibility to exceed limit values.

Less stringent values are not permitted in **Belgium**, the **Czech Republic**, **Denmark**, **Greece**, **Finland**, **France**, **Germany**, **Hungary**, **Ireland**, **Italy**, **Luxembourg**, **the Netherlands, Portugal, Slovenia, Slovakia, Spain** and **Sweden.**

The **United Kingdom** reports 10 sites where the normal limits for all heavy metals may be exceeded in accordance with Annex I C, footnote 1. It is generally land adjoining waste water treatment plants which was once used as a sewage farm. The total surface of these sites is estimated at 2 516 hectares.

12.7. Description of the technologies employed for treating sludge (Article 6)

According to Article 6 (without prejudice to Article 7) sludge shall be treated before being used in agriculture. Member States may nevertheless authorise, under conditions to be laid down by them, the use of untreated sludge if it is injected or worked into the soil.

In **Austria**, treatment technologies are different in different regions. In Salzburg, about 34% of sewage sludge (by dry mass) is treated by aerobic and anaerobic stabilisation, adding conditioners (lime and polymers), dewatering, drying and composting. In Vorarlberg, drying and composting are obligatory. The Carinthia region uses drying composting, soilification, sanitation to treat sludge. In Styria, aerobic and anaerobic stabilisation, mechanical dewatering, composting, soilification, drying, calcification are used. Sewage sludge is also watered down before being spread as wet sludge or compost. In Lower Austria, the major methods applied to sludge treatment include aerobic and anaerobic stabilisation (unheated separated, simultaneous, mesophilic or thermophilic),

lime dewatering, composting, soilification. In Upper Austria, various types of aerobic and anaerobic stabilisation are used as well as lime dewatering and polymer dewatering.

In the Walloon Region of **Belgium** the methods applied included digestion, aerobic stabilisation, mechanical drying, thermal drying or conditioning with lime or polyelectrolites. In the Flemish Region the following technologies were employed: aerobic stabilisation, mesophilic anaerobic stabilisation, cold fermentation, thermal drying, and lime stabilisation.

In the **Czech Republic**, aerobic stabilisation is used for approximately 3% of sludge, while anaerobic stabilisation is applied to the remaining part of sludge (unheated approximately 5%, heated approximately 79%).

In **Denmark** the following technologies are employed for treating sludge: stabilisation (anaerobic stabilisation by fermentation in heated digester or treatment in a bioreactor; aerobic stabilisation by sludge aeration and composting under conditions where the temperature is not controlled; chemical treatment by addition of lime or slaked lime), controlled composting (composting with daily measurement of temperature so that all material is subject to a temperature of 55°C as a minimum for two weeks), and controlled sanitisation (treatment in reactor which ensures a temperature of 70°C as a minimum for one hour).

In **Finland** sludge undergoes anaerobic digestion, aerobic digestion, is stabilised by lime conditioning, or composted.

In **France** sludge is subject to prolonged aeration, aerobic or anaerobic stabilisation, lime conditioning, composting, or thermal drying.

The technology used in **Germany** to treat sludge involves a combination of processes, e.g. anaerobic stabilisation with subsequent liming. Sludge is stabilised in particular by means of the following methods: anaerobic (septic tanks), aerobic (oxygenation ditches, long-term treatment) and other (chemical stabilisation by adding lime and other chemicals, thermal stabilisation).

In **Greece** only small quantities of sludge have been used in agriculture so far. Research programmes concerning the treatment of sludge and its use in agriculture continue to be conducted in various areas of the country. Methods for sludge treatments are being examined in these research programmes.

In **Hungary**, biological, chemical, heat treatment, or storage for at least 6 months are applied to sludge.

In **Ireland** sludge is (i) dewatered on filter tables to a solids content of 18%, followed by storage for 3 months prior to application, subject to (ii) anaerobic digestion, (iii) thermal drying, (iv) thermophilic aerobic digestion, and (v) lime stabilisation.

In **Italy** the most common treatments are aerobic digestion (including composting), anaerobic digestion, mechanical dewatering, thermal drying, chemical treatment with alkali. Aerobic digestion is normally carried out on small sized plants up to 50,000 population equivalent (p.e.), while anaerobic digestion is for plants bigger than 50,000 p.e. Composting or co-composting installations which compost solid municipal and other

biodegradable wastes treat only a small fraction of sludge (approx. 5%). In addition to aerobic and anaerobic stabilisation, treatment plants carry out mechanical dewatering of sludge by means of drying beds, centrifuging or belt pressing (filter pressing is used in some large plants). Hygienisation and conditioning processes performed away from treatment plants include chemical treatment (with lime or ammonia), physical treatment (drying, pasteurisation) and biological treatment (composting).

In **Luxembourg** sludge is digested and then conditioned with lime or iron salts. Mechanical devices are used for dewatering. Polyelectrolites are added to sludge which is not conditioned with lime in order to facilitate dewatering.

In the **Netherlands,** sewage sludge must be treated by biological, chemical or thermal processes, by long-term storage or any other suitable method which eliminates most of the pathogenic organisms in the sludge. Treatment plants are free to choose any treatment method under condition that it brings about the required results.

In **Portugal** the technologies employed are drying beds (drainage on sand beds and evaporation of humidity), thickening, mechanical dehydration (band filters, filter presses, vacuum filters or centrifugal machines) and various stabilisation processes.

In **Spain** anaerobic digestion, long-term storage and composting are the most widely used techniques.

In **Sweden** the following techniques are used: thickening (gravity thickening, flotation), stabilisation (anaerobic, aerobic, lime), conditioning, dewatering (centrifuge, filter belt press, air drying), thermal drying and composting.

In **Slovenia**, sludge is mostly treated by dewatering, stabilisation and conditioning.

The most commonly applied treatment methods in **Slovakia** include anaerobic stabilisation (used by 57% of waste water treatment plants), anaerobic digestion in Imhoff tanks (15% of treatment plants), aerobic stabilisation (34% of treatment plants). Some other treatment methods are also applied, e.g. chemical stabilisation.

In the **United Kingdom** the technologies employed are mesophilic anaerobic digestion, thermophilic aerobic digestion, composting, lime stabilisation, liquid storage, dewatering and storage, thermal drying.

12.8. Frequency of analysis – Annex II A, paragraph 1:

According to Article 6(b) sewage sludge producers shall regularly provide users with all the information referred to in Annex II A (sludge analysis)

In **Austria** the frequency of analysis depends on the Land. It is linked to the size of the treatment plant and varies from every two months for plants treating more than 30 000 p.e. in Styria to every three years for plants up to 500 p.e. in Carinthia. Inspections should be carried out more often in cases of a high variation in demand due to commerce and industry in the area.

In the Walloon Region of **Belgium** the frequency of analysis is linked to the size of the treatment plant, i.e. 1 analysis per year for a plant treating less than 5 000 population

equivalent (p.e.), up to 1 analysis per month for plants larger than 100 000 p.e. In the Flemish Region, 6 analyses per year have to be carried out for a plant treating more than 400 ton per year, and 2 analyses per year for a plant treating less than 400 ton per year.

In the **Czech Republic**, the frequency of analyses depends on the size of the treatment plant: from 2 analyses per annum in treatment plants producing less than 250 tonnes of dry matter per year, to 12 analyses each year in plants producing over 2 500 tonnes of dry matter annually.

In the **Belgium** (Bruxelles-Capitale region), **Denmark**, **Germany**, **Greece**, **Ireland, Portugal**, **Slovakia**, **Spain** and the **United Kingdom** the same requirements as in the Directive apply.

In **Finland** the frequency of analysis is linked to the size of the treatment plant, i.e. one analysis per year for a plant treating less than 200 p.e., up to one analysis per month for plants larger than 100 000 p.e. These frequencies can be relaxed when the quality of the incoming water does not change in time.

In **France** the frequency of analysis varies from twice a year for small plants to once a week for the biggest plants.

In **Hungary**, sludge should be analysed at least every 6 months and before each injection period.

In **Italy** the frequency is increased to every three months if the treatment plant is bigger than 100 000 p.e.

In **Luxembourg** the frequency varies from once a year for small plants (less than 5 000 p.e.) up to six times a year for the biggest plants (more than 50 000 p.e.).

In the **Netherlands** the sampling frequency is at least four times per year. Depending on the variation in the composition of the sludge produced, the frequency may be up to twice a week and the samples may be combined over a four-week period, so the effective sampling frequency can be 12 times per year.

In **Portugal**, according to Order 177/96 of 3 October 1996 higher frequencies should be undertaken, namely when significant variations occur in the characterisation of incoming wastewater or in the operation of wastewater treatment systems.

In **Sweden** the frequency depends on the size of the waste water treatment plant, varying from once a year for plants treating 200 to 2 000 p.e. up to once a month for plants treating more than 20 000 p.e.

The frequency of sampling is linked to an annual capacity of treatment plants in **Slovenia**, ranging from a test every 6 months for plants producing less than 1 000 tonnes of sludge to a test every month for plants producing over 10 000 tonnes of sludge.

12.9. Specific conditions for authorising injection or working into the soil of untreated sludge – Article 6(a)

In **Austria**, injection of untreated sludge is only allowed in Carinthia, elsewhere untreated sludge cannot be used on land. In this province unsanitised sewage sludge can be used on agricultural land by means of slurry pits only if limit values for heavy metals have not been exceeded.

In the Walloon Region of **Belgium** untreated sludge is to be directly incorporated into the soil after spreading. Treated sludge had to be incorporated within 24 hours. In the Flemish Region and in the Bruxelles-Capital Region this practice is prohibited.

In the **Czech Republic**, **Denmark**, **Spain**, **Finland**, **Germany**, **Hungary, Italy**, **Luxembourg**, the **Netherlands**, **Slovakia** and **Slovenia** it is forbidden to spread untreated sludge on land.

There are no specific rules concerning this issue in **Ireland** and in the **United Kingdom**.

In **France** only septic tank sludge and sludge coming from small waste water plants (treating less than 120 kg BOD_5 per day) can be spread on land untreated. There is the obligation of immediate ploughing down.

In **Greece** existing legislation allows the competent prefectural directorate of the Ministry of Agriculture to issue a recommendation to the Prefect for the granting of a permit for the use of untreated sludge provided that the sludge will be injected or worked into the soil. The conditions governing the use of the sludge are laid down in the permit.

In **Portugal** a specific joint authorisation from the Agriculture and Environment Ministries is required for injection or working into the soil of raw sludge.

In **Sweden** untreated sludge can be used as long as it is worked into the soil within a maximum of 24 hours after being spread and its use does not cause a nuisance to local residents.

12.10. Periods of prohibition of spreading before grazing or harvesting – Article 7

According to Article 7 Member States shall prohibit the use of sludge on grassland or forage crops at least three weeks before grazing or harvesting, on soil in which fruit and vegetable crops are growing (except fruit trees) and ten months preceding the harvest on grounds where fruits or vegetable grow in direct contact with the soil and which are eaten raw.

In **Austria** the rules vary in the different Länder and are generally stricter than those provided for by the Directive. In Styria and Vorarlberg, sewage sludge can only be used in autumn after the harvest, and not before the seeds are sown. In Styria it can also be applied on silage, grain maize and cereals in the very early stage of plant growth. In Lower Austria, sludge can be applied "after the grassland is last used" under condition of meeting certain hygiene requirements. In Upper Austria, its use is prohibited on pastures, grassland, mountain pastures, Alpine pastures and forage crops, waterlogged or frozen soil, snow-covered soil, on vegetable, soft fruit and medicinal herb crops.

In the Walloon and Flemish Regions of **Belgium**, as well as in Brussels Region, six weeks have to elapse before allowing grazing on grassland or harvesting of animal forage crops. In Wallonia it is forbidden to spread sludge in forests and in nature protection areas. In the Flemish region the use of treated sludge as fertiliser or soil improver is prohibited: on grassland to be grazed or fields for growing forage crops if the forage crops are to be harvested before a period of at least six weeks has passed; on soil in which fruit and vegetable crops are growing, with the exception of fruit trees; on ground intended for the cultivation of fruit and vegetable crops which are normally in direct contact with the soil and normally eaten raw, for a period of ten months preceding the harvest of the crops and during the harvest itself.

In the **Czech Republic**, the ban to use sludge on grassland and forage crops is permanent.

In **Denmark** the period during which it is prohibited to use sludge on grassland before it is grazed and on forage crops before harvest is one year.

In **Finland** five years have to elapse before potatoes, root crops and vegetables can be grown on sludge-treated land. Sludge may be used only on soil on which grain, sugar beet, oil-bearing crops or crops not used for human or animal consumption are cultivated.

In **France** the delay is six weeks – reduced to three for sanitised sludge, i.e. sludge treated in such a way that pathogenic micro-organisms cannot be detected.

In **Germany** sludge cannot be used on meadows and pastures (permanent grassland). It can be applied to agricultural arable land only before sowing and must be immediately ploughed into the soil (prior to seeding in case of silage and green maize).

There are no provisions concerning this issue in **Greece**.

In **Hungary**, the use of sludge is forbidden in the vegetation period of forage crops. It can only be used before sowing and after harvest. There is a prohibition to apply sludge to grassland for grazing.

In **Italy** the delay is five weeks.

In **Ireland**, **Spain**, **Luxembourg**, the **Netherlands**, **Portugal** and the **United Kingdom** the same minimal provisions of the Directive apply, i.e. three weeks before grazing or harvesting and on soil in which fruit and vegetable crops are growing, or ten months in case of sludge application to soils where in which fruit and vegetable crops are cultivated in direct contact with soil and which are eaten raw.

In **Sweden**, the prohibition to apply sludge is extended to 10 months for grassland and both types of soil application.

In **Slovakia**, the ban to use sludge for permanent grassland and forage crops on arable land extends to 5 weeks before the grazing or harvest. In case of fruits and vegetables in direct contact with the soil and eaten raw, the period is the same as in the Directive (10 months).

In **Slovenia**, sludge can only be applied to meadows and pastureland in autumn after the final harvesting or pasturing.

12.11. Limit values or other measures for soils with a pH below 6 – Article 8

According to Article 8 Member States shall take into account the increased mobility and availability to the crop of heavy metals and shall, if necessary, reduce the limit values in accordance with Annex I A, where sludge is used on soils of which the pH is below 6.

Reduced limit values and special measures for sludge application on soils of the pH below 6 have been adopted by four **Austrian** Länder. In Lower Austria, a low pH may lead to a reclassification of soil to such where sludge can no longer be applied. In Upper Austria, sludge cannot be spread on soils of pH lower than 5. Sludge can be applied to soils of a pH between 5 and 5.5 only where it has a lime content of 25%. In Carinthia, two limits are applied. The first one for soils of pH between 5 and 5.5 specifies the following heavy metal concentrations: cadmium (0.5 mg/kg dry matter), chromium (50 mg/kg dry matter), copper (40 mg/kg dry matter), mercury (0.2 mg/kg dry matter), lead (50 mg/kg dry matter), nickel (30 mg/kg dry matter) and zinc (100 mg/kg dry matter). The second series of limit values applies to soils of pH between 5.5 and 5.6 and amounts to: cadmium (1 mg/kg dry matter), chromium (75 mg/kg dry matter), copper (50 mg/kg dry matter), mercury (0.5 mg/kg dry matter), lead (70 mg/kg dry matter), nickel (50 mg/kg dry matter) and zinc (150 mg/kg dry matter). In Vorarlberg, reduced limit values have been applied as regards cadmium (1 mg/kg dry matter) and zinc (200 mg/kg dry matter).

In the Walloon Region of **Belgium** it is prohibited to spread sludge on soils with a pH below 6. In the Flemish Region treated sludge may be spread on cropland only if the soil pH was higher than 5. In addition, the limit values for heavy metals were stricter than in Annex IA of the Directive.

In the **Czech Republic**, it is prohibited to spread sludge on soils with a pH below 5.6.

There are no specific rules in **Denmark**, **Greece**, the **Netherlands**, **Spain** and **Sweden**.

Since the pH value of cultivated Finnish soils is normally below 6.0, in **Finland** the limit values for heavy metal concentrations in soil are more stringent than those laid down in Annex IA of the Directive. In addition, sludge may only be used on soils with a pH value above 5.8 or 5.5 in case of use of lime-stabilised sludge.

In **France** there is a reduced annual load for cadmium (15 g/ha/y), chromium (1 200 g/ha/y), copper (1 200 g/ha/y), mercury (12 g/ha/y), lead (900 g/ha/y), nickel (300 g/ha/y) and zinc (3 000 g/ha/y) on soils with a pH between 5 and 6.

In **Germany** there are reduced concentration limits for cadmium (1 mg/kg dry matter) and zinc (150 mg/kg dry matter) for soils with a pH between 5 and 6. Sludge cannot be spread on soils with a pH below 5.

In **Hungary**, if pH<5.5 the use of sludge is forbidden; if pH is between 5.5-6.2 the application of liming material is required with sludge application.

In **Ireland** a person must have regard to increased availability and mobility to crops of heavy metals when the pH is lower than 6. No specific limit values have been adopted.

In **Italy**, when the soil pH is below 6 and the cation exchange capacity is lower than 15 meq/100g, lower limit values for heavy metals are not prescribed. In such circumstances only half of sludge which is normally permitted can be used.

In **Portugal** reduced limits apply when the pH is below 5.5 (see Table 1).

In **Slovakia**, reduced limit values have been applied for soils of a pH below 6, amounting to 0.5 mg/kg dry matter for cadmium, 30 mg/kg dry matter for chromium, 20 mg/kg dry matter for copper, 0.1 mg/kg dry matter for mercury, 70 mg/kg dry matter for lead, 15 mg/kg dry matter for nickel and 60 mg/kg dry matter for zinc. There are also limit values for concentrations of risk substances in agricultural or forest soil in the case of pH value between 5 and 6.

The same concentration values of heavy metals for soils of pH below 6 were established in **Slovenia**.

In the **United Kingdom** reduced concentration limits for copper, nickel and zinc are adopted in order to take account of the increased mobility of these heavy metals when the pH decreases (see Table 1).

12.12. Soil analyses for other parameters than pH and heavy metals – Annex II B, paragraph 1

According to Article 9 soil on which sludge is used shall be analysed as outlined in Annex II B. Member States must first ensure that the heavy metal content of the soil does not exceed the limit value. Therefore they have to decide what analyses to carry out, on the frequency of analyses and on the parameters (pH and heavy metals are obligatory).

In the Walloon Region of **Belgium**, **Denmark**, **Finland**, **France, Greece, Ireland**, **Luxembourg**, **Slovakia**, **Spain**, **Sweden** and the **United Kingdom** only pH and heavy metals have to be analysed.

In certain Länder in **Austria** soil analyses include parameters such as organic substances, phosphates, potassium and magnesium available to plants, carbonates, lime requirements, exchangeable cations (calcium, magnesium, potassium, sodium), soluable micronutrients (iron, manganese, copper, zinc, boron), total content of iron, manganese, copper, zinc, cobalt, molybdenum, water content, soil thickness. In specific cases, also analysis of polycyclic aromatic hydrocarbons, polychlorinated biphenyls and chlorinated hydrocarbons are also required.

In the Flemish Region of **Belgium** soil is additionally analysed for dry matter, organic matter, nitrogen, phosphate, total halogenated organic compounds and mineral oil. The competent authority may decide on further analyses relating to monocyclic aromatic hydrocarbons, polycyclic aromatic hydrocarbons and other organic substances.

In the **Czech Republic**, additional tests of soil category, average magnesium, potassium and phosphorus content are carried out.

In **Hungary**, analyses should include the level of humus, $CaCO_3$, particle size distribution, exchangeable cations, toxic element content (As, Cd, Cu, Cr, Hg, Mo, Ni, Pb, Se, Zn, PAH, PCB, TPH).

In **Germany**, the content of available phosphate, potassium and magnesium must be analysed prior to any sludge application.

In **Italy** also the soil cation exchange capacity has to be measured. Before the sludge is spread on land, a rapid Barlett and James analysis must be carried out to determine the soil's capacity to oxidise Cr III and Cr IV.

Arsenic content is also measured in the **Netherlands**.

Portugal requires an analysis of nitrogen and phosphorous.

In **Slovenia**, a wider spectre of parameters is measured, including the pedological characteristics of the soil.

12.13. Minimum frequency of soil analysis – Annex II B, paragraph 2

In Austria, the frequency of soil analysis differs between Länder. In Lower Austria, the soil needs to be analysed every five or ten years (depending on individual parameters). In Styria, the period is of four years. Vorarlberg requires test every ten years if the maximum authorised amount is being spread, but soil must be retested prior to spreading more sludge. In Carinthia, sludge can be spread every ten years. Similar requirements are applied by Upper Austria (every ten years, or when more than 15 tonnes of dry matter have been used).

Every three years in **Italy**; five years in **Hungary**; every six years in the **Netherlands**; every ten years in the Walloon Region of **Belgium**, the **Czech Republic**, **Ireland**, **France**, and **Germany**; where 20 tonnes of dry matter are spread in the Flemish Region of Belgium. No sludge is spread in the Bruxelles-Capitale Region of Belgium.

Denmark did not submit any information on this point, and there is no data available from **Greece**.

There is no specific minimum frequency in **Finland** – soils have to be analysed if there is reason to believe that limit values have been exceeded.

In **Luxembourg**, **Portugal** and **Slovakia** soils have to be analysed prior to each spreading of sewage sludge.

In **Spain** the frequency is determined by the Regional governments.

In **Sweden**, due to the fact that very few soils have concentrations at or close to the lower limits, soil analyses are carried out only if it is probable that the concentration of one or more heavy metals in the soil in question exceeds the limit values.

In **Slovenia** the law does not stipulate any frequency for soil analysis. The analysis must be carried out, however, every time an application for a permit to apply sludge is

requested. The validity of a permit to apply sludge lasts for 3 up to 5 years and thus soil analyses have to be carried out at these intervals.

12.14. Quantities of sludge produced, sludge used in agriculture and average concentration of heavy metals in sludge – Article 10

Article 10 of the Directive requires that Member States keep up-to-date records which register, among other information, the quantities of sludge produced and the quantities supplied for use in agriculture as well as the concentrations of heavy metals and nutrients.

Tables 5 and 6 and Figures 1 to 4 present the data received by the Commission. For completeness of information, Table 4 presents the data for the previous reporting periods (1995-1997 and 1998-2000).

Austria, Belgium (Walloon Region), Spain, Greece, France, Italy (due to better regional reporting), **Ireland, the Netherlands, Portugal** (due to better reporting) and the **UK** experienced an increase in sludge generation during the period 2001-2003. All the other Member States (EU-15) reported a levelled or slightly decreased production. Regarding the new Member States, **the Czech Republic, Hungary, Slovakia and Slovenia** have reported data with rising values.

Seven Member States (**Belgium (Walloon region), Denmark, Spain, France, Ireland, the United Kingdom and Hungary**) report to apply 50% or more of the sludge they generate on land. On the other hand **Finland, Sweden and Slovenia** apply less than 17% of the sludge they generate on land, while **Greece, the Netherlands, Belgium (Flanders), Slovakia and the Czech Republic** spread very little, if any, sludge on agricultural land.

Figure 5 indicates appreciable variations among the different Member States, some of which showed a declining trend that could be explained by increased public concerns concerning the safety of sludge used in agriculture. Also, some Member States or regions within Member States (**Flanders in Belgium; Vienna, Salzburg and Tyrol in Austria; and the Netherlands**) have passed legislation to either prohibit by law or severely restrict the spreading of sludge in agriculture on the basis of stringent limit values for heavy metals and, sometimes, organic compounds Moreover, in **Greece** farmers are generally against using sludge in agriculture, which explains why in that Member State practically all the sludge produced is landfilled.

As to quality (Table 6), the average concentrations of heavy metals in sludge used in agriculture in the EU are well below the threshold limits set in Annex IB of the Directive. This applies to both EU-15 and new Member States for which data is available. Although disparities still exist among the different Member States (not least because the analytical methods used may differ from one Member State to the other), the general trend towards a slow but steady decrease in concentrations is confirmed.

12.15. Exemptions granted to small sewage treatment plants – Article 11

According to Article 11 Member States may exempt sludge from sewage treatment plants with a treatment capacity corresponding to 5 000 person equivalents, which are designed

primarily for the treatment of domestic waste water from Articles 6 (b), 10 (1)(b), (c), (d) and (2).

No exemptions have been adopted in **Austria**, the Walloon and Flemish Regions of **Belgium**, **Czech Republic**, **Denmark**, **France**, **Hungary**, the **Netherlands**, **Portugal**, **Slovenia**, **Sweden** and the **United Kingdom**.

In most of the countries which granted the exemptions, those exemptions concerned treatment plants of a treatment capacity below 5 000 population equivalent (p.e.) (**Finland**, **Ireland**, **Italy**, **Slovakia** and **Spain**).

The exemptions are either general, or require less frequent analyses (e.g. one analysis per year in Italy). In **Finland**, some 350 plants were concerned by the exemption in 2000.

In **Germany** exemptions are made for waste water treatment plants with less than 1 000 p.e.

No data concerning exemptions is available for **Greece**.

13. CONCLUSION

Directive 86/278/EEC is a long-standing instrument and the legal actions initiated by the Commission in the past against certain Member States have contributed in better transposition and implementation of the Directive across the EU-15.

The challenge seems now more to be to put the potential drawbacks of the use of sludge in agriculture in perspective against the benefits from correct land spreading. In that respect, the conclusions drawn in the previous implementation reports remain valid[59]. Thus, the use of sewage sludge on agricultural soils as fertiliser can be held as one of the best environmental options if and only if it does not pose any threat to the environment or to animal and human health. Although risk zero does not exist in human activities, it appears that the provisions of the Directive have been quite effective in preventing the spreading of pollution because of the use of sludge.

[59] COM(1999) 752 for the period 1995-1997 and COM(2003) 250 for the period 1998-2000.

Annex III

Directive 86/278 on sewage sludge

Table 1. Concentration limit values for heavy metals in soil (mg/kg dry matter)

	86/278/EEC	Austria	Belgium	Denmark	Finland	France	Germany	Greece	Ireland	Italy	Luxem-bourg	Nether-lands
	6<pH<7											
Cadmium	1-3	0.5-2	0.9-2	0.5	0.5	2	1.5	3	1	1.5	1-3	0.8
Chromium	-	50-100	46	50	200	150	100		-	-	100-200	100
Copper	50-140	40-140	49-50	30	100	100	60	140	50	100	50-140	36
Mercury	1-1.5	0.2-1.5	1-1.3	0.1	0.2	1	1	1.5	1	1	1-1.5	0.3
Nickel	30-75	30-70	18-30	15	60	50	50	75	30	75	30-75	35
Lead	50-300	50-100	50-56	40	60	100	100	300	50	100	50-300	85
Zinc	150-300	100-300	150-170	100	150	300	200	300	150	300	150-300	140
Comments		1)	2)									

	86/278/EEC	Portugal			Spain		Sweden	UK				Czech Republic	Hungary	Slovakia	Slovenia
		pH<5	5.5<pH<7	pH>7	pH<7	pH>7		5<pH<5.5	5.5<pH<6	6<pH<7	pH>7				
Cadmium	1-3	1	3	4	1	3	0.4	3	3	3	3	0.4-0.5	1	1	1
Chromium	-	50	200	300	100	150	60	-	-	-	-	55-90	75	60	100
Copper	50-140	50	100	200	50	210	40	80	100	135	200	45-60	75	50	60
Mercury	1-1.5	1	1.5	2	1	1.5	0.3	1	1	1	1	0.3	0.5	0.5	0.8
Nickel	30-75	30	75	110	30	112	30	50	60	75	110	45-50	40	50	50
Lead	50-300	30	300	450	50	300	40	300	300	300	300	55-60	100	70	85
Zinc	150-300	150	300	450	150	450	125 3)	200	250	300	450	105-120	200	150	200
Comments															

Notes:

1. Range of values covering 9 Länder
2. Covers Flanders and Wallonia
3. Article 5(1): Limit value set as an interval 100-150 mg/kg dry matter

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Table 2. Concentration limits for heavy metals in sludge (mg/kg dry matter)

	86/278/EEC	Austria	Belgium	Denmark	Finland	France	Germany	Greece	Ireland	Italy	Luxem-bourg	Nether-lands
Cadmium	20-40	0.7-10	6	0.8	3	10 3)	10	40	5	20	20-40	1.25
Chromium	-	50-500	250	100	300	1000	900	500	350		1000-1750	75
Copper	1000-1750	70-500	375	1000	600	1000	800	1750	750	1000	1000-1750	75
Mercury	16-25	0.4-10	5	0.8	2	10	8	25	10	10	16-25	0.75
Nickel	300-400	25-100	50	30	100	200	200	400	300	300	300-400	30
Lead	750-1200	45-500	300	120	150	800	900	1200	400	750	750-1200	100
Zinc	2500-4000	200-2000	900	4000	1500	3000	2500	4000	750	2500	2500-4000	300
Comments		1)	2)									

	86/278/EEC	Portugal	Spain		Sweden	UK	Czech Republic	Hungary	Slovakia	Slovenia
			pH<7	pH>7						
Cadmium	20-40	20	20	40	2		5	10	10	5
Chromium	-	1000	1000	1500	100		200	1000	1000	500
Copper	1000-1750	1000	1000	1750	600		500	1000	1000	600
Mercury	16-25	16	16	25	2.5		4	10	10	5
Nickel	300-400	300	300	400	50		100	200	300	80
Lead	750-1200	750	750	1200	100		200	750	750	500
Zinc	2500-4000	2500	2500	4000	800		2500	2500	2500	2000
Comments										

Notes:

1. Range of values covering 9 Länder
2. For the Flemish region
3. Chromium III. Chromium VI has a limit value for concentration in sludges at 10 mg/kg. Concentration in soils not stated

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Table 3. Maximum annual average load of heavy metals to agricultural land (g/ha/yr)

	86/278/EEC	Austria	Belgium	Denmark	Finland	France	Germany	Greece	Ireland	Italy	Luxem-bourg	Nether-lands
Cadmium	150	6-25	120-150	-	3	150	-	150	-	-	150	2.5
Chromium	-	350-1250	500	-	300	1500	-	5000	-	-	4500	150
Copper	12 000	1000-1800	750-12000	-	600	1500	-	12000	-	-	12000	150
Mercury	100	6-250	10-100	-	2	150	-	100	-	-	100	1.5
Nickel	3 000	200-300	100-3000	-	100	300	-	3000	-	-	3000	60
Lead	15 000	300-1250	600-15000	-	150	1500	-	15000	-	-	15000	200
Zinc	30 000	3600-5000	1800-30000	-	1500	4500	-	30000	-	-	30000	600
Comments		1)	2)									

	86/278/EEC	Portugal	Spain	Sweden	UK	Czech Republic	Hungary	Slovakia	Slovenia
Cadmium	150	150	150	0. 75	150	-	150	30	25
Chromium	-	4500	3000	40	No limit values	-	10000	3000	2500
Copper	12000	12000	12000	300	7500	-	10000	3000	3000
Mercury	100	100	100	1.5	100	-	100	30	25
Nickel	3000	3000	3000	25	3000	-	2000	900	500
Lead	15000	15000	15000	25	15000	-	10000	2250	2500
Zinc	30000	30000	30000	600	15000	-	30000	7500	10000
Comments					3)				

Notes:

1. Range of values covering 9 Länder
2. Covers Flanders and Wallonia
3. The limit values for zinc, copper and nickel in the soil are in a range depending on the pH of the soil. The values shown are for pH 5.0 < 5.5.

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Table 4.1. Total sludge production and quantities used in agriculture in the reporting period 1995-1997[60]

Member State		Sludge produced (tonnes of dry matter)			Sludge used in agriculture (tonnes of dry matter)						Surface covered (hectares)		
		1995	1996	1997	1995	%	1996	%	1997	%	1995	1996	1997
AT	Austria	390 000			45 000	12%					10 492	10 497	11 127
BE	Walloon Region	14 311	15 200	16 594	10 687	75%	12 230	81%	14 772	89%			
	Flemish Region	73 325	65 230	69 850	9 750	13%	17 860	27%	23 363	33%	1 625	2 680	3 900
DE	Germany	2 248 647	2 215 820	2 227 609	940 932	42%	920 721	42%	909 547	41%			
DK	Denmark	166 584	161 717	151 159	109 369	67%	104 095	64%	94 250	62%	28 261 ha/ 3 years	27 393 ha/ 3 years	23 743 ha/ 3 years
ES	Spain			685 669					314 329	46%			
EL	Greece	51 624		58 993									
FR	France	750 000		820 000	494 000	66%			544 000	66%			
FI	Finland	141 000	130 000	136 000	47 000	33%	49 000	38%	53 000	39%			
IT	Italy	609 256	640 851	710 911	157 512	26%	174 181	27%	217 747	31%		7 446	11 707
IE	Ireland			38 290					4 174	11%			
LU	Luxembourg												
NL	Netherlands(*)	220	242	209	30	14%	36	15%	27	13%			
PT	Portugal	145 855 (estimate)	177 100 (estimate)	214 200 (estimate)	44 000 (estimate)	30%	53 130 (estimate)	30%	64 260 (estimate)	30%			
SE	Sweden	230 000 (estimate)	230 000 (estimate)	230 000 (estimate)	67 800	29%	90 000 (estimate)	39%			16 000 ha / year (0.6% of total culti-vated area)	21 000 ha/year (0.8% of total culti-vated area)	
UK	United Kingdom	1 120 000 (estimate)	1 120 000	1 195 000 (estimate)	548 061	49%	570 798	51%	645 798 (estimate)	54%			

(*)Sludge produced by private treatment plants. Since 1995 sludge from municipal plants is no longer used in agriculture.

[60] This Table, although relative to the previous reporting period 1995-97, is here introduced as a complement of information to the reader. The corresponding Table contained in the previous consolidated report COM(1999) 752 has been supplemented with data sent by Member States too late for being included in that report.

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Table 4.2. Total sludge production and quantities used in agriculture in the reporting period 1998-2000

Member State		Sludge produced (tonnes of dry matter)			Sludge used in agriculture (tonnes of dry matter)						Surface covered (hectares)		
		1998	1999	2000	1998	%	1999	%	2000	%	1998	1999	2000
AT	Austria	399 188	406 696	401 867	43 518	11%	38 698	10%	40 455	10%			
BE	Walloon Region	15 836	17 967	18 228	13 042	82%	9 504	53%	10 733	59%	-	-	-
	Flemish Region[61]	63 919	76 699	80 708	16 006	25%	5 410	7%	0	0			
DE	Germany	2 228 029	2 273 843	2 297 460	842 497	38%	861 631	38%	858 801	37%	-	--	-
DK	Denmark	153 780	155 621	-	96 200	62%	95 500	61%	-		23 649 ha/ 3 years	22 920 ha/ 3 years	-
ES	Spain	716 145	784 882	853 482	353 986	49%	413 738	53%	454 251	53%			
EL	Greece	59 320	60 135	66 335	0		0		0				
FR	France	858 000	855 000	-	554 000	65%	552 000	65%	-		176 000 (estimate)	176 000 (estimate)	-
FI	Finland	158 000	160 000	160 000	23 000	14%	23 000	14%	19 000	12%	-	-	-
IT	Italy[62]	883 231	899 539	850 504	194 811	22%	215 024	24%	217 424	26%	12 977	5 167	15 711
IE	Ireland	37 595	38 551	35 039	5 238	14%	8 734	23%	14 109	40%	-	-	-
LU	Luxembourg	-	7 000	-	-		5 600	80%	-		-	1 870	-
NL	Netherlands[63]	220	242	-	34	15%	36	15%	45	-			
PT	Portugal	121 138 (estimate)	374 147 (estimate)	238 680 (estimate)	41 413	34%	66 547	18%	37 176	16%	-	-	-
SE	Sweden[64]	221 000	221 000 (estimate)	220 000 (estimate)	56 000	25%	56 000 (estimate)	25%	35 000 (estimate)	16%	13 000 (estimate)	13 000 (estimate)	8 000 (estimate)
UK	United Kingdom	1 045 150	1 105 918	1 066 176	502 200	48%	554 924	50%	584 233	55%	-	-	-

61 No sludge from urban waste water treatment plants has been used in agriculture since 1 December 1999 because it has not been possible to keep to the VLAREA requirements.

62 Data not complete for all Regions.

63 Municipal sludge has not been used in agriculture since 1995. The values given here therefore relate only to sewage sludge produced by private facilities.

64 Data on surface covered are based on the assumption that 4.3 tonnes of sludge are spread per hectare every six years, corresponding to about 120 kg P/ha every six years.

Table 5. Total sludge production and quantities used in agriculture in the reporting period 2001-2003

		Sludge produced (tonnes dry matter)			Sludge used in agriculture (tonnes dry matter)						Surface covered (hectares)		
Member State		2001	2002	2003	2001	%	2002	%	2003	%	2001	2002	2003
AT	Austria 1)	96 110	140 529	115 448	27 800	29%	40 443	29%	32 622	28%	10 619	10 914	12 283
BE	Flemish region 2)	81 351	82 871	76 072								1 740	9 012
	Walloon region	18 514	20 297	23 520	10 377	56%	10 212	50%	11 787	50%			
DE	Germany 3)	2 300 686	2 212 318	2 172 196	758 615	33%	726 706	33%	725 379	33%			
DK	Denmark	158 017	140 021		83 292	53%	82 029	59%			26 746 4)	28 619 3)	
ES	Spain 5)	892 238	987 221	1 012 157	606 118	68%	658 453	67%	669 554	66%			
GR	Greece	67 755	77 646	79 757									
FR	France	89 3252	910 255		509 250 6)	57%	524 290 6)	58%			185 526	186 521	
FI	Finland	159 900	161 500	150 000	25 000	16%	22 000	14%	26 000	17%			
IT	Italy	884 964	942 761	905 336	293 253	37%	302 112	36%	297 861	32%			
IE	Ireland	33 559	33 350	42 147	15 155	45%	19 565	59%	26 743	63%			
LU	Luxembourg			7750					3300	43%			
NL	Netherlands	536 000	571 000	550 000	27	0%	38	0%	34	0%			
PT	Portugal	209 014	408 710		69 853	33%	189 758	46%					
SE	Sweden 7)	220 000	220 000	220 000	27 500	13%	20 000	9%	19 000	9%			
UK	United Kingdom	1 186 615	1 302 689	1 360 366	708 740	60%	759 376	58%	823 415	61%			
CZ	Czech Republic 8)	146 000	206 000	211 000	62-70 000	42-48%	200	0%	300	0%			
HU	Hungary 9)			52 553					31 221	59%			5 808
SK	Slovakia 10)	53 500	51 270	54 940				0%		0%	37 855	41 960	38 915
SI	Slovenia 11)	8 200	7 000	9 400	500	6%	1 100	16%	800	9%			

Notes:

1. Data from some regions are incomplete
2. For the sewage sludge from water treatment plants for urban and municipal wastewater, data on basis of dry matter are available. In the tables hereby results are given, expressed in ton.
3. The 2003 data for one Land are estimated (here based on 2002 data).

4. Covered surface is calculated from the maximum allowed addition of phosphorus (30kg P/ha/year) which can be dosed for 3 years, that is, 90 kg P
5. Including use in gardening
6. Sludges used in agriculture: value without reagents
7. Sludge used in agriculture is an estimate
8. According to ISOH (waste management information system) data, there was a practically complete shift away from the direct use of sewage sludge in agriculture in 2002 (200-300 tonnes per annum equates to under 0.2% of total production).
9. Data on sludge produced refer only to those waste water treatment plants where sludge has any agricultural use.
10. Estimated data
11. The information is an estimate.

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Table 6. Average heavy metal concentrations in sludge (mg/kg dry matter)

	86/278/EEC	**Austria**			**Belgium**			**Denmark**		
		2001	2002	2003	2001	2002	2003	2001	2002	2003
Cadmium	20-40	0.2-4.5	0.4-6.1	0.5-6.4	1.48	1.47-2.3	1.38-4.0	1.4	1.4	-
Chromium	-	12-68.9	14-55	16-98	62.4	41-59.9	56-57	22.3	29.0	-
Copper	1000-1750	16-224	18-230	65-301	173.7	169.7-253	161.9-325	213	236	-
Mercury	16-25	0.19-1.53	0.99-1.82	0.222-2.33	1.64	1.18-1.2	0.94-1.0	0.9	1.2	-
Nickel	300-400	12-45.4	10-50	9-72	28.8	22-25.8	27.7-33	25.2	23.4	-
Lead	750-1200	15-86	10-90	10-153	116.1	110.4-136	102.3-153	45.2	46.7	-
Zinc	2500-4000	522-1242	240-1600	223-2115	946.7	912-971.6	847.9-1064	679	710	-
Nitrogen	-	410-19500	560-32840	80-114000	36900	3960-32100	5530-37500	43500	44100	-
Phosphorus	-	300-31000	230-40000	430-41800	26300	3550-25900	5200-25500	28900	31400	-
Comments		1)			2)					

	Finland			**France 3)**			**Germany**			**Ireland**			**Greece**
	2001	2002	2003	2001	2002	2003	2001	2002	2003 4)	2001	2002	2003	2001-2003
Cadmium	0.9	0.6	0.6	1.5	1.4	-	1.2	1.1	1.1	1.0	1.7	1.4	-
Chromium	102	54	35	33.6	30.6	-	45	45	42	5)	5)	20.4	-
Copper	258	293	267	243.8	256.7	-	304	306	305	203	386	228	-
Mercury	0.5	0.4	0.5	1.2	1.0	-	0.8	0.7	0.7	1.0	1.1	0.5	-
Nickel	28	34	23	21.5	21.1	-	27	27	27	40	36	22	-
Lead	34	17	15	64.5	55.5	-	53	50	48	64	54	49	-
Zinc	484	461	412	597.4	549.5	-	794	750	746	452	756	384	-
Nitrogen	29000	28000	29000	48650	52013	-	39357	38846	40328	28312	24443	40095	-
Phosphorus	25000	29000	27000	39333	36545	-	27337	22019	22559	8753	6503	24108	-
Comments													

	Italy			Luxembourg	Netherlands			Portugal			Spain			Sweden		
	2001	2002	2003	2001-2003	2001	2002	2003	2001	2002	2003	2001	2002	2003	2001 6)	2002	2003
Cadmium	1.88	1.79	1.90	-	0.7	0.5	0.6	3.1	2.7	1.0	2.9	2.8	2.2	1	1	1
Chromium	111.64	88.40	98.61	-	19	16	17	116	183	30	109	114	88	24	22	23
Copper	266.29	295.40	289.79	-	41	24	34	224	329	29	333	297	310	345	293	287
Mercury	1.13	1.06	1.03	-	0	0	0	<0.5	0.4	0.8	1.7	1.4	1.2	1	1	1
Nickel	74.48	63.79	62.76	-	11	8	9	44	58	20	42	38	34	14	12	14
Lead	109.67	136.10	120.81	-	11	13	13	50	84	56	114	113	104	29	22	21
Zinc	806.66	872.45	794.46	-	148	132	140	671	530	845	862	830	712	454	426	413
Nitrogen	5480	5080	5000	-	1400	4600	1500	26986	37400	33000	55731	48819	41556	43900	46100	43500
Phosphorus	1930	2100	1800	-	1600	1000	1200	9800	15800	26000	42990	40480	35403	25700	24100	28200
Comments																

	United Kingdom			Czech Republic			Hungary			Slovakia			Slovenia		
	2001	2002	2003	2001 7)	2002	2003	2001	2002	2003	2001	2002	2003	2001	2002	2003
Cadmium	2.33	2.42	1.5	2.71	2.05	11.6			2	2	3	3	-	-	1
Chromium	92.5	91.6	84	66.8	33.04	54			68	75	107	86	-	-	47
Copper	398.26	342.01	320.15	206	170.7	177.9			167	221	250	284	-	-	122
Mercury	1.52	1.46	1.53	3.46	1.95	2.9			1	3	4	5	-	-	3
Nickel	36.22	32.43	31.23	46.7	27.4	30.9			29	32	52	53	-	-	27
Lead	179.3	150.52	145.62	89.7	57.4	35.7			45	88	431	131	-	-	53
Zinc	680.22	625.63	580.01	1256	833.5	801			1087	1070	1400	1460	-	-	958
Nitrogen	40235	36232	35325	44		12				35300	25300	33800	-	-	47412
Phosphorus	26765	28344	28770	27		12				5900	8200	1320	-	-	7398
Comments															

Notes:

* Estimate

1. Covers 9 Länder
2. Covers Flanders and Wallonia
3. 2003 data currently not available. Acquisition underway.
4. The 2003 data for one Land are estimated (here based on 2002 data).
5. No information available for 2001 or 2002
6. The content in 2001 is an estimate
7. Average values for heavy metal content in total production of sludge in the Czech Republic, values for the use of sludge in agriculture alone are not available for 2001.

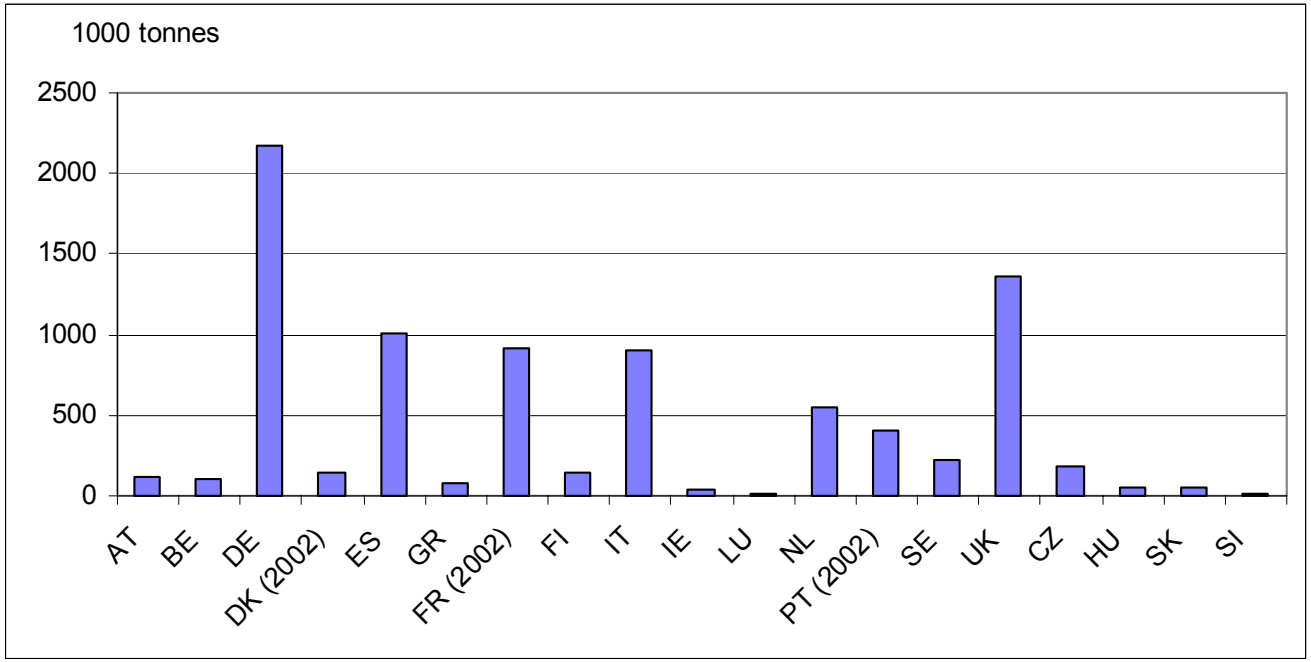

Figure 1. Total sludge production by Member States in 2003

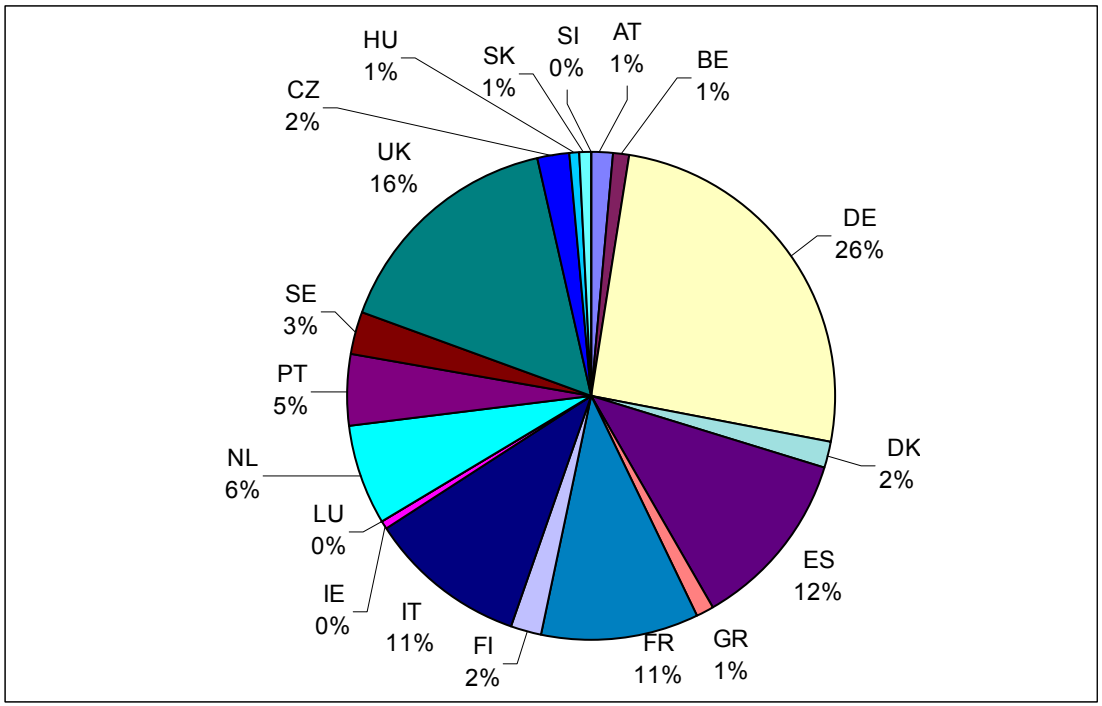

Figure 2. Percentage of sludge production by Member States in 2003

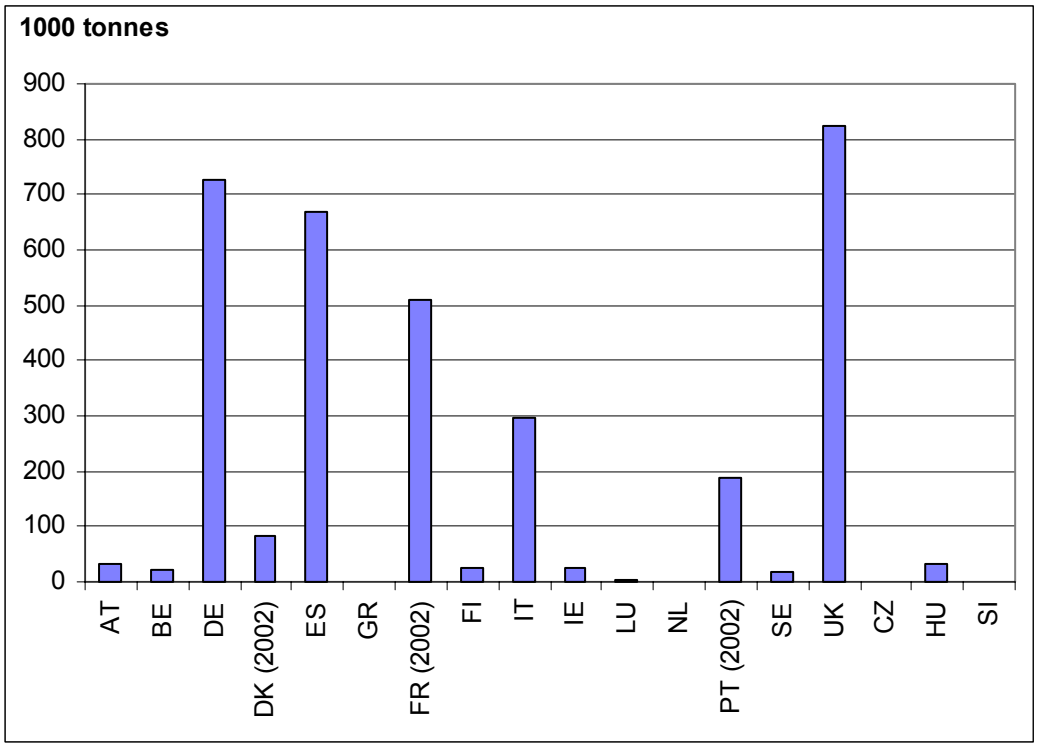

Figure 3. Sludge used in agriculture by Member States in 2003

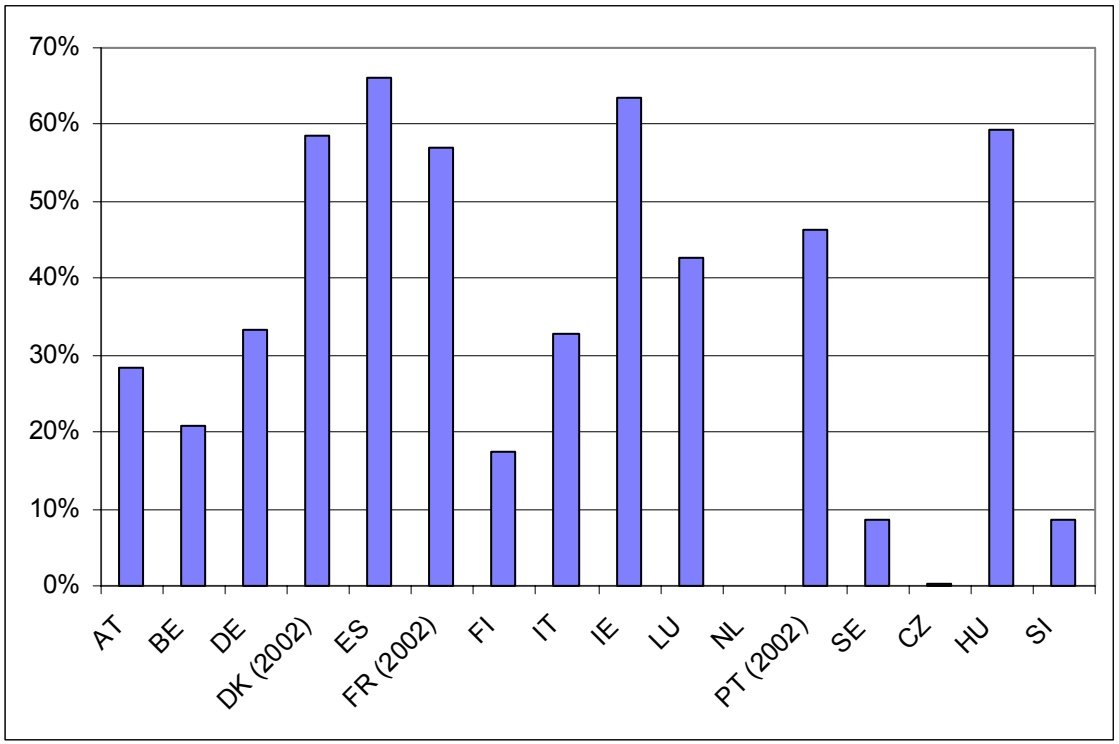

Figure 4. Percentage of sludge used in agriculture by Member States in 2003

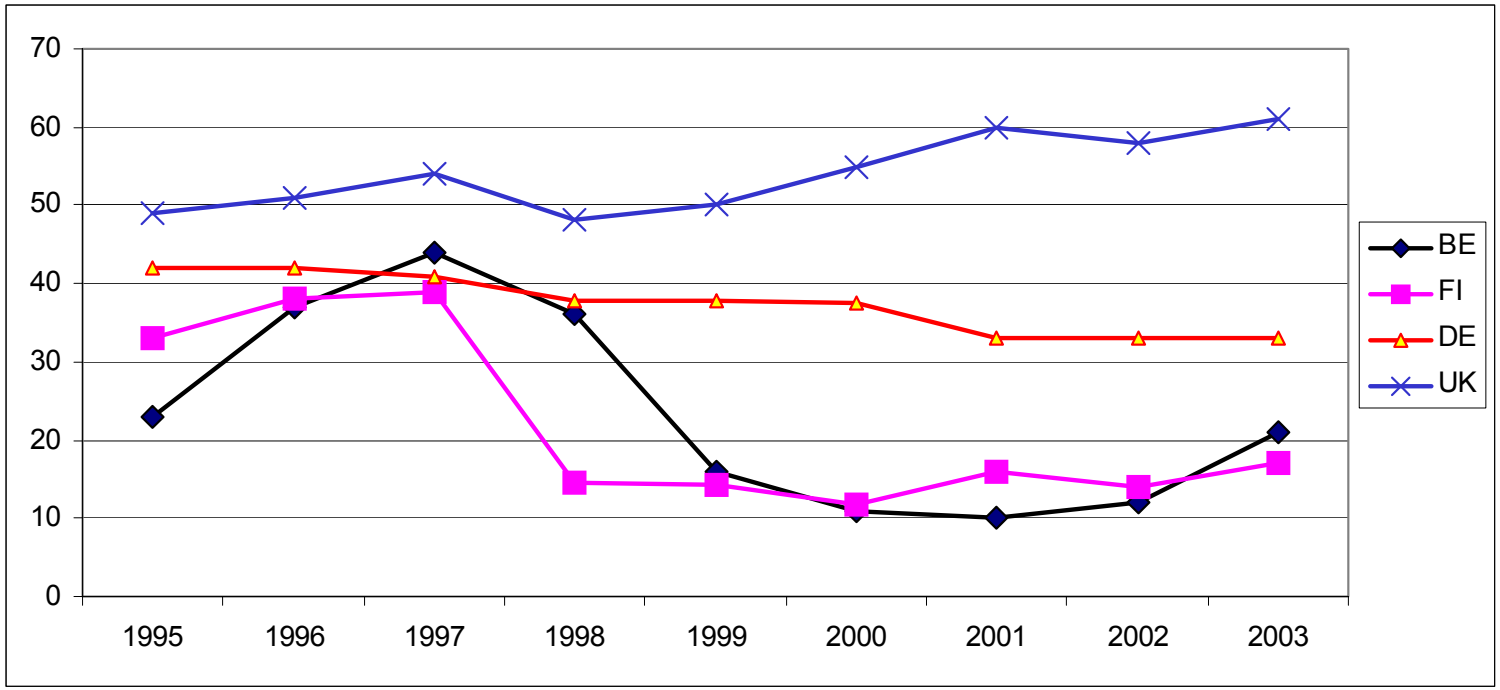

Figure 5. Percentage of sludge used in agriculture in selected countries in the period 1995-2003

VI. DIRECTIVE 94/62/EC ON PACKAGING AND PACKAGING WASTE

14. INTRODUCTION

Directive 94/62/EC[65] on Packaging and Packaging Waste (Packaging Directive) has two main objectives: to protect the environment and to ensure the functioning of the internal market. To this end, the Directive lays down measures aimed as a first priority, at preventing the production of packaging waste and, as additional fundamental principles, at reusing packaging, at recycling and other forms of recovering packaging waste and hence, reducing the final disposal of such waste.

These measures include:

- Prevention: National measures and encouragement of standards (Article 4)
- Reuse: National measures (Article 5)
- Targets to be achieved by 30 June 2001 (Article 6 (1) subparagraphs a and c):
    - Recovery and incineration at waste incinerators with energy recovery between 50 and 65%
    - Recycling between 25 and 45% (15% per material)
    - Greece, Ireland and Portugal may postpone the attainment of these targets until 31 December 2005 (in this case, a 25% recovery target by 30 June 2001 applies)
    - The ten Member States who acceded to the European Union on 1 May 2004 may postpone the attainment of a number of these targets until a date fixed in the Accession Treaty.

Table 1: Transition periods for targets in Article 6 (1) subparagraphs a and c for Member States who acceded to the European Union on 1 May 2004

Member State	Transition period under the Accession Treaty
Cyprus	Overall recovery and recycling: 2005 Paper/Cardboard: 2005
Czech Republic	Overall recovery: 2005 Plastics: 2005
Estonia	None
Hungary	Overall recovery: 2005 Plastics: 2005 Glass: end 2004
Latvia	Overall recovery: 2007

[65] OJ No L 365, 31.12.1994, p.10 – 23, as amended by Directive 2004/12/EC, OJ No L 47, 18.2.2004, p. 26-31 and by Directive 2005/20/EC, OJ No L 70, 16.3.2005, p. 17-18.

	Plastics: 2007
Lithuania	Overall recovery: 2006
Malta	Overall recovery: 2009 Overall recycling: 2005 Plastics: 2009
Poland	Overall recovery: 2007 Plastics: 2005 Metals: 2005
Slovakia	Overall recovery: 2007 Metals: 2007
Slovenia	Overall recovery: 2007 Plastics: 2007

– Targets to be achieved by 31 December 2008 (Article 6 (1) subparagraphs b, d and e):

  – Recovery and incineration at waste incinerators with energy recovery of a minimum of 60%

  – Recycling between 55 and 80% (with a minimum of 60% for glass, 60% for paper and board, 50% for metals, 22.5% for plastics and 15% for wood)

  – The following Member States may postpone the attainment of these targets

Table 2: Later deadlines for targets in Article 6 (1) subparagraphs b, d and e

Member State	Latest date to achieve the targets of article 6 (1) subparagraphs b, d and e
Greece, Ireland and Portugal	31.12.2011
Cyprus, Czech Republic, Estonia, Hungary, Lithuania, Slovak Republic, Slovenia	31.12.2012
Malta	31.12.2013
Poland	31.12.2014
Latvia	31.12.2015

– Return, collection and recovery systems to be set up by Member States according to certain criteria (Article 7),

– Marking to be established by a future directive[66] and an identification system to be adopted through comitology (Decision 97/129/EC[67]); (Article 8)

[66] A Commission proposal was submitted to the European Parliament and the Council but as a result of lack of progress, this proposal was withdrawn in 2004 (COM(2004)542 final/2, 1.10.2004).

[67] OJ L 50, 20.2.1997, p. 28-31.

– Essential requirements for packaging to be allowed to freely circulate within the Internal market and promotion of standardisation by the Commission (Articles 9, 10 and 18[68])

– Limits for heavy metals in packaging (Article 11[69])

– Information systems and data formats to be adopted through comitology (Decision 97/138/EC[70] for data until 2002, Decision 2005/270/EC[71] for data from 2003 onwards); (Article 12)

– Information for users (Article 13)

– Economic instruments: national measures (Article 15)

This report is based on the replies to the questionnaire adopted by Commission Decision 97/622/EC[72] of 27 May 1997. In addition, the reports sent to the Commission under Decision 97/138/EC have been used to produce the data on packaging placed on the market, re-used, recovered and recycling. Where appropriate, reference is made to available studies.

15. INCORPORATION INTO NATIONAL LAW

15.1. Implementation into national law

All Member States have provided the Commission with details of their laws, regulations and administrative provisions introduced to comply with the Packaging Directive.

15.2. Programmes going beyond the objectives referred to in Article 6(1)(a) and (b)

*Article 6(1) (a), (c) and (d) sets a range within which Member States must set national recovery and recycling targets. According to **Article 6(10)**, Member States are permitted to pursue programmes going beyond the targets of Article 6(1) (a), (c) and (d), if they provide to this effect appropriate capacities and on condition that these measures avoid distortions of the internal market and do not hinder compliance by other Member States with the Directive. The Member States shall inform the Commission thereof. The Commission shall confirm these measures, after having verified, in co-operation with the Member States, that they are consistent with the considerations above and do not constitute an arbitrary means of discrimination or a disguised restriction on trade between Member States.*

The following countries have communicated such programmes:

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68 The references to standards EN 13427:2004, EN 13428:2004, EN 13429:2004, EN13430:2004, EN 13431:2004 and EN 13432:2000 have been published in a Commission Communication in OJ C 44, 18.2.2005, p 23.

69 Derogations have been adopted for plastic crates and plastic pallets (Decision 1999/177/EC, OJ L 56, 4.3.1999, p. 47-48) and glass packaging (Decision 2001/171/EC, OJ L 62, p.20-21). The decisions apply for certain limits or under certain conditions.

70 OJ L 52, 22.2.1997, p. 22-30.

71 OJ L 86, 5.4.2005, p. 6-12.

72 OJ L 256, 19.9.1997, p. 13-19

Austria: confirmed in Decision 1999/42/EC of 22 December 1998[73]

Belgium: confirmed in Decision 1999/652/EC of 15 September 1999[74] and in Decision 2003/82/EC of 29 January 2003[75]. For 1998, the targets are 45% recycling and 70% recovery, for 1999 and 2000 50% recycling and 80% recovery. For 2001, 60% recycling and 80% recovery, for 2002 65% recycling and 85% recovery and for 2003 70% recycling and 90% recovery.

Netherlands: confirmed in Decision 1999/823/EC of 22 November 1999[76]

Further notifications have been received by **Denmark** and **Sweden**. In both cases, it was considered that the programmes exceeding the targets were not measures taken by the Member State but programmes set up by industry in order to comply with the Directive. Such programmes would not fall under the scope of article 6(10).

15.3. Infringement proceedings

Currently, infringement proceedings are ongoing with regard to two Member States. A decision has been taken to refer **Germany** to the European Court of Justice with respect to the effects of mutually incompatible deposit systems for one-way packaging (so-called "island solutions"), which constitute barriers to the internal market. **The Netherlands** has been sent a reasoned opinion for a prior authorisation system applying to certain types of one-way packaging under Covenant III.

16. APPLICATION OF THE DIRECTIVE

16.1. Prevention of packaging waste

Article 4 *of the Packaging Directive provides that, in addition to the measures to prevent the formation of packaging waste taken in accordance with Article 9 of the directive, additional preventive measures must be implemented. Such other measures may consist of national programmes or similar actions.*

Most Member States have adopted measures to prevent the formation of packaging waste. Details are provided below.

In **Austria**, waste associations and collection and recovery systems provide information on possible waste prevention methods and the advantages of reusable packaging systems.

In **Belgium**, a wide range of prevention measures have been introduced. These include provisions in the general prevention plan in the interregional cooperation agreement (third general prevention plan 2004). A voluntary agreement with the distribution sector includes targets to reduce the quantity of disposable shopping bags. The Domestic Waste

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73 OJ L 14, 19.1.1999, p. 24-29
74 OJ L 257, 2.10.1999, p. 20-23
75 OJ L 31, 6.2.2003, p. 32-35
76 OJ L 321, 14.12.1999, p. 19-23

Implementation Plan 2003-2007 in the Flemish region includes targets to increase prevention and reuse by 2% by 2007 (compared to 2000; for drinks packaging the target is 20%). This target is to be achieved by a set of measures, subsidies and awareness raising campaigns. In the Brussels Capital region, the third plan for the prevention and management of waste 2003-2007 includes actions to ensure packaging waste prevention (awareness raising campaigns, studies on a possible levy on disposable shopping bags and incentives to economic operators who present a general waste management plan). The Walloon waste plan provides for actions, inter alia to encourage bulk purchase. Various tools have been developed to facilitate consultation of professional federations and support of companies, in particular SMEs.

In the **Czech Republic**, the Delivery Programme for Packaging and Packaging Waste contains specific measures on packaging prevention. This programme was drawn up by a working group including representatives of economic operators such as waste disposal firms, packaging and packaging materials producers, users and distributors of packaging and packaging recovery organisations.

In **Denmark**, the material, environmental burden and weight based packaging tax is expected to have a preventive effect on the quantity of packaging waste. In addition, Denmark has a programme of subsidies for cleaner technology, products etc. In 2002, this included a campaign to prevent packaging waste.

In **Finland**, Government Decision No. 962/1997 lays down quantitative targets for packaging waste. The principal preventive means are substantial reuse and deposit-return systems. Manufacturers are making increasing use of reusable pallets, trolleys and plastic crates.

In **France**, the fees charged by the recycling systems are based on units and weight of packaging and give an incentive to prevent packaging waste. They also integrated criteria on recyclability. The National Packaging Council has produced prevention catalogues and best practice manuals for industry and consumers. The French Environment Agency (ADEME) conducts a specific programme on prevention of waste generation, including packaging issues. Stakeholders are consulted in various ways, inter alia through a Consultative Commission on household packaging and the National Packaging Council.

In **Germany**, there are criteria for the "Blue Angel" eco-label for equipment for the production of carbonated water.

In **Greece**, the National Organisation for the Alternative Management of Packaging and Other Products (EOEDSAP; set up in accordance with article 5 of Law 2939/2001) provides for the development of programmes with the application of the prevention principle as the key component.

In **Hungary**, large companies are obliged to make waste management plans, including a chapter on packaging and packaging prevention.

In **Ireland**, a draft National Waste Prevention Programme has been developed by the Environmental Protection Agency (EPA) with the overall objective of stabilising and, in the longer term reversing the growth of waste generation. The four year programme will focus on waste generation, resource productivity and technologies and will integrate a range of initiatives in relation to education and awareness measures, technical, training and financial

assistance. The membership fee structure of the producer responsibility body Repak Limited is based on the nature and quantity of packaging placed on the market and directly incentivises the prevention and minimisation of packaging by producers.

In **Italy**, further to maximising reuse, recycling and recovery, the packaging recovery system set up by the legislative decree No. 22/97 draws up a general prevention programme. This programme undertakes a number of studies and initiatives with producers and users of packaging concerning the methods of producing goods and packaging, logistics, etc. with the aim of reducing the amount of raw materials used and to cut packaging waste.

In **Luxembourg**, a voluntary agreement was signed concerning the use of reusable bags.

In the **Netherlands**, the Packaging Covenant III, drawn up and signed on 4 December 2002 includes a separate annex specifying the measures which producers and importers should take to comply with the prevention objectives. This includes quantitative and qualitative prevention. In addition to taking measures to promote prevention, producers and importers must submit a report each year on the measures taken and their impact. More information can be found on pages 48-49 of the Packaging Covenant III.

In **Portugal**, there are a number of actions on reuse (see chapter 3.2).

In **Slovakia**, there is an obligation to prepare a prevention programme.

In **Slovenia**, in addition to the application of the European standards, the "Operational programme for the management of packaging and packaging waste for 2000-2007 sets out a general framework for information campaigns in the area of packaging prevention. An agreement between the Ministry of the Environment, Spatial Planning and Energy and the Slovenian Chamber of Commerce on packaging management measures has been concluded.

In **Spain**, Article 5(c) of Law 11/1997 provides that the total quantity of packaging waste arising shall be reduced by at least 10% by weight. According to the seventh additional provision in Law 10/1998 persons responsible for placing on the market packaged products generating more than a threshold to be specified by the government have to draw up prevention plans to minimise and prevent at source the production of packaging waste and any adverse effects thereof.

In the **United Kingdom**, a tonnage obligation provides financial incentives to lower tonnage, and thus costs.

16.2. Measures to encourage reuse systems

__Article 5__ provides that Member States may encourage reuse systems of packaging, which can be reused in an environmentally sound manner, in conformity with the Treaty.

Most Member States have introduced measures to encourage reuse systems. The following information is based on the replies to the questionnaire of Commission Decision 97/622/EC. More information can be found in a study on reuse available on the following website: http://europa.eu.int/comm/environment/waste/studies/packaging/reuse.htm.

Austria took measures with a view to administrative simplifications regarding the recording and notification requirements of the relevant regulation. Austrian industry (117 businesses, in particular drinks bottlers, producers and importers) has undertaken a voluntary commitment to promote reusable packaging and keep existing reusable packaging.

In **Belgium**, reusable packaging is not subject to eco-taxes. Reusable packaging is exempted from the take-back obligations of the Belgian legislation and therefore not subject to payments to recycling systems. All three regional waste plans also contain measures to encourage reusable packaging. An example for a measure in the Flemish region is the pilot project "retour is terug", where families can save points for buying reusable packaging on a chip card and get a rebate on waste tax.

In the **Czech Republic**, commercial premises and surfaces larger than 200 m^2 are obliged to offer beverages also in reusable packaging if such packaging exists on the market. For selected reusable packaging, the levels of deposits were harmonised by means of a decree.

Denmark has a very high rate of refillable bottles for beer and soft drink. Danish legislation provides for an obligatory deposit system for refillable and disposable packaging. Moreover, there is a large quantity of plastic and wooden transport packaging (in particular crates and pallets).

Finland uses taxes and deposit-return systems to encourage re-use of packaging.

In **Germany**, there is a deposit obligation on one-way drinks packaging[77].

In **Hungary**, a packaging tax ("product charge") is paid for reusable packaging only when the packaging is put on the market for the first time but not when it is sent back for refilling.

In **Ireland**, the information programmes by the Department of the Environment encourage the public to prevent, reduce, re-use and recycle their waste, in particular packaging waste. Re-use of plastic shopping bags has been encouraged by the introduction of the environmental levy on plastic bags in March 2002. An Attitudes and Actions Survey indicates that reusable shopping bags (which are not subject to the levy) are now being used most often by 90% of shoppers.

In **Italy**, reuse is one of the priorities within the framework of the packaging recovery system set up by the legislative decree No. 22/97. The annual general programme for the prevention and management of packaging and packaging waste also identifies measures to increase the proportion of packaging waste which can be reused, including improving the characteristics of such packaging so it is able to withstand a higher number of trips.

In the **Netherlands**, the Packaging Covenant III includes a protocol in a separate annex, pertaining to the sub-covenant for producers and importers, concerning the use of refillable packaging for beer, soft drinks and mineral waste. Under the terms of this protocol, existing combinations of product and (refillable) packaging are maintained unless it is shown that a

[77] Parts of this provision are subject to an open infringement procedure

change would have a lesser or at the most equal impact on the environment[78]. For more information, see pages 50-53 of the Packaging Covenant III.

Portugal has set reuse targets for soft drinks, beer, natural mineral water and table wine (ministerial order 29-B/98 of 15 January 1998). A study for the assessment of reusable packaging and the obstacles to its use was completed. The study analysed national market trends over the period 1997-2001 and presented a three-year forecast for reusable packaging, identifying the main existing obstacles to its use and promotion through selected case studies. In addition, there is an ordinance in the Autonomous Region of the Azores setting the level of deposit fees for cases where reusable packaging is mandatory.

In **Slovakia**, there is a deposit system for reusable packaging. The introduction of a deposit system for non-reusable packaging is currently being considered.

In **Spain**, the encouragement of reuse is part of the obligation of companies when drawing up packaging prevention plans. The national programme on packaging and packaging waste sets a series of targets for reuse of packaging and lays down how they are to be attained.

Sweden has reuse targets for glass and PET in its national legislation and encourages deposit-return systems for beverage packaging.

In the **United Kingdom**, businesses are allowed to exclude any tonnage of packaging reused from their tonnage obligation and may spread the cost of the first-trip obligation over four years.

16.3. Measures to set up return systems

*According to **Article 7**, Member States must take the necessary measures to set up systems to provide for the return and/or collection of used packaging and/or packaging waste and systems for the reuse or recovery, including recycling, of packaging and/or collected packaging waste. These systems shall be open to the participation of the economic operators of the sectors concerned and to the participation of the competent public authorities. They shall also apply to imported products under non-discriminatory conditions and shall be designed so as to avoid barriers to trade or distortions of competition in conformity with the Treaty.*

In most countries, producer responsibility systems have been set up and producers must take back packaging waste, organise their own take back systems or participate in return systems for the return, collection, reuse, recovery or recycling of packaging waste. Specific elements of such schemes that have been provided by Member States in their replies to the questionnaires are outlined below. The only countries where other schemes than producer responsibility are applied are the Netherlands and Denmark who rely on municipalities or agreements with industry to organise the return of packaging waste. In some new Member States, producer responsibility systems are only being built up.

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[78] This measure is currently the subject of an infringement procedure because one way packaging is only admitted on the Dutch market subject to prior authorisation under certain conditions. This is incompatible with Article 18 of the Packaging Directive, which provides that Member States shall not impede the placing on the market of their territory of packaging which satisfies the provisions of the Directive.

More detailed information on national systems can be found in: European Commission 2001, European Packaging Waste Management Systems (available on the following website: http://europa.eu.int/comm/environment/waste/studies/packaging/epwms.htm.

In **Austria**, manufacturers and retailers are obliged to take back used packaging. Alternatively, they may participate in a collection and recycling system. Information on existing systems can be accessed on http://www.umweltnet.at/article/archive/6935: Liste der genehmigten Sammel- und Verwertungssysteme (in German).

In **Belgium**, return systems have to be authorised by the Inter-Regional Packaging Committee (IVC/CIE). Those return systems are responsible for attaining the recycling and recovery targets on behalf of their members. Currently, two such systems exist: FOST Plus for household packaging and VAL-I-PAC for industrial packaging. Re-usable drinks packaging is exempt from ecotax if the packaging is covered by a returnable deposit system. The packaging should bear a clearly visible indication that it is reusable and that the deposit paid will be returned.

In the **Czech Republic**, companies may be authorised to operate compliance schemes for the return and recovery of packaging waste ("authorised waste companies"). At present, there is one such authorised waste company (EKO-KOM a.s.). There are also a number of waste disposal firms which offer waste recovery services on a normal commercial basis.

In **Denmark**, municipal systems for the return of packaging apply.

In **Finland**, packers with a turnover exceeding 840939 € are responsible for ensuring reuse and recovery of packaging waste. For this purpose, there are eight organisations to supervise collection and recovery of packaging waste (period 2001-2003). These mainly material specific organisations have established a joint organisation called PYR Oy to coordinate operations and ensure that agreed targets are met.

In **France**, obligations for household and industrial packaging differ. For household packaging, packers/fillers are responsible to contribute to or ensure the disposal or recovery of packaging from their products. This can be done through authorised organisations such as Eco-Emballages and Adelphe. For industrial packaging, the holder of the waste is obliged to send packaging waste for recovery. Several professional organisations have been set up to take back industrial packaging waste.

In **Germany**, there is one system covering most of the household packaging, DSD AG. For wholesale trade and industry and for the collection and recovery of transport packaging, there are a number of nationwide companies specialised in the collection and recovery of specific packaging types. Additionally, there is a multitude of other waste management companies managing return and recovery operations on behalf of third parties.

In **Greece**, a collective alternative packaging management system (SSED) has been set up to operate selective collection of packaging waste. Additionally a system (KEPED) has been created to collect oil packaging waste from filling stations, vehicle repair workshops etc. The Office for the Alternative Management of Packaging and Other Products (GEDSAP) is responsible for supervising the return systems.

In **Hungary**, so called "integrated coordination systems" were established but obliged companies may also fulfil their obligations individually. The following organisations are registered to coordinate return schemes: Öko-Pannon, Öko-Pack with general responsibility, ÖKO-FERR for metal packaging, Recyclomed for packaging of medicines and CSEBER for pesticides.

In **Ireland**, local authorities are required to arrange for facilities for the recovery of household waste. At the end of 2003, circa 1700 bring banks and 55 civic amenity sites were in place. This is an increase of 100% since 1998. The number of households with access to a service for the segregated collection of dry recyclables has increased from 70,000 households to over 560,000 households by the end of 2003. This represents 42% of all households in the State. Obligated producers have put waste collection/recovery systems in place either individually or as part of Repak Limited.

In **Italy**, there are six sectoral consortia (paper, plastics, wood, glass, steel and aluminium). These consortia co-operate within an overall national consortium, CO.NA.I. All these consortia are governed by statutes approved by joint decrees of the environment and industry ministries. CO.NA.I is responsible for the organisation of an integrated return system in co-operation with public authorities. For this purpose, a programme agreement with the National Association of Italian Municipalities (ANCI) was signed in 1999. The six sectoral consortia prepare contributions to the annual programme for the prevention and management of packaging and packaging waste. This programme identifies among others measures to achieve the recovery and recycling targets. It also fixes material specific targets every five years.

In **Luxembourg**, the "Green Point" system has been established and an authorised body (VALORLUX) runs the collective return system for household and similar packaging waste.

In the **Netherlands**, there is a strong role of municipalities in the collection of packaging waste. The Packaging Covenant III specifies certain obligations for industry.

In **Portugal**, the necessary infrastructure for the selective collection and sorting of packaging waste from the general public included 23 sorting centres, 155 ecocentres and 19493 ecopoints in operation. In addition, annual evaluations were carried out of the performance of the systems licensed to manage packaging waste (either through an integrated system ("Sociedade Ponto Verde" and "Valormed") or through a one-way packaging consignation system ("Antonio Pereira – Aguas do Marão"). Possible solutions to problems encountered were discussed with a view to ensuring constant improvement of the available management systems. First steps were also taken to create an integrated management system for packaging waste from plant protection products.

In **Slovakia**, a recycling fund has been set up to support collection, recovery and processing of packaging waste. Government Order No. 22/2003 sets recycling and recovery targets for packaging waste.

In **Slovenia**, the basis for setting up a packaging waste management system is the Operational programme for the management of packaging and packaging waste for 2000-2007. In the second half of 2003, the firm SloPak obtained a permit and the system effectively commenced operation as of 1 January 2004.

In **Spain**, chapter IV of Law 11/1997 governs the systems for the return of municipal packaging waste. More specifically, this includes provisions on (i) the deposit, return and collection system; and (ii) the integrated management system. The first additional provision of Law 11/1997 lays down the obligations for commercial and industrial packaging waste.

In **Sweden**, material companies have been created for glass, plastic, paper and cardboard, corrugated board, metal, aluminium cans and PET bottles. REPA-Registret administers the fees. Förpackningsinsamlingen overlooks the collection systems. All companies cover household and industrial packaging throughout Sweden through kerbside collections, from blocks of flats, municipal recovery centres and regional collection points.

In the **United Kingdom**, there is a range of collection systems, including local authorities, packaging compliance schemes, waste collectors and others. For recovery and recycling of packaging waste, a producer responsibility system has been established, under which 80% of obligated parties comply through packaging compliance schemes who discharge the legal obligation to achieve recovery and recycling targets. Some businesses discharge the obligation themselves; where they do, they will use established waste management companies and existing systems to discharge their obligations.

16.4. Encouragement of the use of recycled material

Article 6(4) *provides that, where appropriate, Member States shall encourage the use of materials obtained from recycled packaging waste for the manufacturing of packaging and other products.*

The majority of countries have taken such measures. Details can be found below.

In **Austria**, the voluntary industry commitment to refill and recycle drinks packaging also includes an increased use of recycled material (e.g. through "bottle to bottle" recycling of PET).

In **Belgium**, there are various measures to encourage the use of recycled materials in the regional prevention plans. In the Brussels Capital region, the Royal Belgian Institute for the Sustainable Management of Natural Resources and the Promotion of Clean Technology (KINT) recently published a survey of recycled products (a website is being set up).

In **Denmark**, the environment and weight based packaging tax covering particular products makes provision for a 40% tax reduction when recycled plastic and paper are used.

In **France**, the national environment protection agency ADEME and the return system Eco-Emballages support research and development programmes to develop applications for the use of secondary materials. Eco-emballages publishes a catalogue of products made from recycled materials destined for public purchasers.

In **Germany**, producers and distributors must assume product responsibility by giving priority to the use of recoverable waste or secondary materials when manufacturing products. Public purchasers must check to what extent products from recycled materials can be used in public procurement. The "Blue Angel" eco-labelling scheme pays particular attention to the use of recycled materials.

In **Hungary**, companies may receive financial support in the framework of the product charge system if it collects and recycles a certain amount of packaging waste and produces a marketable product.

In **Ireland**, a Market Development Group comprising representatives of relevant private and public sector interests was established in July 2004. The Group will develop and drive a Market Development Programme aimed at realising the full resource value of all reclaimed recyclable material and developing innovative outlets to use and obtain optimum value for recycled materials.

In **Italy**, the "general programme for the prevention and management of packaging and packaging waste" drawn up by the national return system consortium CO.NA.I. contains measures to increase the proportion of packaging waste which can be recycled. Public authorities are responsible for encouraging the use of recycled materials from packaging waste.

In the **Netherlands**, the Packaging Covenant III contains relevant provisions (in particular article 8 of the sub-covenant for producers and importers).

In **Portugal**, actions to encourage the use of recycled materials include the possibility for individual companies to apply for financing from Community funds (namely "Plano Operacional do Ambiente, PEDIP and Life-Environment).

In **Slovakia**, the use of recycled materials is supported by the Recycling Fund.

In **Slovenia**, activities to promote the use of recycled material are set out in the Operational programme for the management of packaging and packaging waste for 2000-2007.

In **Spain**, the Autonomous Communities have undertaken a large variety of awareness-raising actions to promote the use of recycled packaging waste, either directly or through bodies created to the effect.

In the **United Kingdom**, packaging compliance schemes are required to have policies showing steps to increase use of recycled packaging waste in packaging or product manufacturing. Local authorities run "Buy Recycled" campaigns and the Government's "Are You Doing Your Bit" campaign encourages consumers to buy recycled products.

16.5. Information campaigns

*According to **Article 6(6)**, the measures and targets referred to in Art. 6 paragraphs 1 (recovery and recycling targets) and 4 (use of recycled materials) shall be published by Member States and shall be the subject of an information campaign to the general public and economic operators. **Article 13** provides that Member States shall take measures to ensure that users of packaging, including in particular consumers, obtain the necessary information on return, collection and recovery systems, their role in contributing to reuse, recovery and recycling of packaging and packaging waste, the meaning of markings and the appropriate elements of waste management plans.*

All Member States have published the measures and targets on recycling and recovery. Most countries have reported about a very wide range of information and communication measures.

In **Austria**, the targets of the Packaging Regulation were published as part of the 2001 Federal Waste Management Plan. The collection and recovery systems have an obligation to carry out public awareness campaigns. Waste advisers and local authority publications provide information at local level.

In **Belgium**, the Inter-regional Packaging Commission (IVC/CIE) and the return systems FOST Plus and VAL-I-PAC disseminate information through the press, radio and TV, mailing campaigns, information brochures, participation in professional fairs, presentations to professional federations and companies, various training courses, websites (e.g. http://www.ivcie.be) etc. The Walloon region published a "scoreboard" for the environment in the region. Reports on the results of consultations in the Brussels Capital region can be found on http://www.ibgebim.be/nederlands/contenu/content.asp?ref=950 and http://www.ibgebim.be/nederlands/contenu/content.asp?ref=823. In co-operation with the Belgian Federation of Distribution Enterprises (FEDIS), posters were distributed to inform about the participation in recycling systems, encouraging participation in separate collection, an explanation of the "Green Dot" symbol and the annual licence fee paid to the return system.

In the **Czech Republic**, the targets were published in Act No 477/2001 and the Czech Republic Waste Management Plan. A nationwide press campaign to inform economic operators was run in 2002, accompanied by a series of seminars, in which about 30% of all economic operators took part. Official information is available on www.env.cz and www.ekokom.cz. Under the terms of its authorisation, EKO-KOM a.s. is obliged to organise public information measures. This includes information campaigns on TV and in the press, training measures in municipalities and cities, educational and training programmes in schools, leaflets, notice boards etc. A television campaign to encourage citizens to sort their waste runs until 2006.

In **Denmark**, the Environment Protection Agency has regularly taken part in meetings and conferences on the various measures to attain the targets of the Packaging Directive. The Agency has also drawn up a guide for the municipal waste authorities providing information and advice on the reuse of plastic and paper/cardboard transport packaging.

In **Finland**, the targets have been published in Council of State Decision 962/1997. Furthermore, packers, traders, local authorities and transporters in a contractual waste transport scheme have a duty to give publicity and guidance. Examples from PYR (national umbrella organisation of the return systems) and the various return systems include seminars, press notices, articles, guidance documents, leaflets, telephone campaigns, a news magazine, participation in fairs, internet pages, radio and TV advertising, posters, information on studies and research results, events in schools, day-nurseries, with scouts etc. Other bodies involved in information activities include the Association of Packaging Technology and Research, the Finnish Packaging Association, local authorities and industry and trade confederations.

In **France**, the packaging data are sent to the members of the Consultative Commission on household packaging and a wide range of other actors. Various publications by the national environment agency ADEME are widely distributed and presented at trade fairs. The data are also available on ADEME's website. Information on the selective collection of packaging is given both on a national and local level.

In **Germany**, the targets have been published in the Official Journal (Bundesgesetzblatt) and been subject to various public awareness campaigns at federal, regional and local level as well

as by industry. The operator of a dual waste management system and the local authorities have to co-ordinate on public information. Notices in shops provide information on the return of grouped packaging in accordance with §5 of the Packaging Ordinance. Arrangements for the return of transport packaging are made public by market competition. The results of DSD AG are published annually.

In **Greece**, the Ministry of the Environment, Regional Planning and Public Works has organised various information events, seminars, meetings with economic operators etc. It has also printed information leaflets aimed both at economic operators and at local authorities and the general public. The alternative management systems are obliged to organise information and awareness-raising campaigns aimed at the general public and packaging waste managers.

In **Hungary**, information campaigns involving associations of municipalities and different industry and trade sectors were held. This includes presentations, press, TV, radio, various publications, websites etc. Municipalities and coordinating systems inform the public via regional and local newspapers, radio, TV, schools, websites etc.

In **Ireland**, the policy statement Preventing and Recycling Waste – Delivering Change which was published in March 2002 made specific reference to the targets to be achieved by end 2005 and the measures considered necessary for their achievement. Following the introduction of revised Packaging Regulations in March 2003 a series of 8 regional seminars on the requirements of the new Regulations and their implications for business was organised in association with the Irish Business and Employers Confederation (IBEC). In addition, all local authorities have been active in publicising the provisions of the new Regulations by means of local press advertisements and visits to businesses by their respective environmental awareness officers and enforcement officers. Repak has also had a nationwide radio advertising campaign to inform business of the new Regulation. Information on packaging and packaging waste is available to users of packaging through the Department's the environmental information office (ENFO) and its associated website (www.enfo.ie). Various information campaigns are held both at local and national level (e.g. the Department's Race against Waste campaign which was launched in July 2003, a Waste Advisory Group and three regional networks, a "Small Change" manual for businesses and various partnerships with business, local authorities, environmental awareness officers and the Green Schools programme).

In **Italy**, CO.NA.I and the individual sector consortia have undertaken various information campaigns aimed at consumers and users of packaging. Details of the information campaigns are set out in a specific chapter of the general prevention programme.

In **Luxembourg**, relevant information is provided in a website (www.emwelt.lu). In its authorisation, VALORLUX has been obliged to provide adequate information to consumers.

In the **Netherlands**, article 15 of the Integration Covenant lays down the framework for information provision. Under its rules, a communication group has been set up comprising representatives of all the public and concerned industrial organisations, including local authorities, material organisations, etc. The public is frequently informed about separate collection of packaging through various general information campaigns and publications in periodicals of all the organisations involved.

In **Portugal**, a large range of awareness raising instruments were used by the Waste Institute (INR), the Autonomous Region of Madeira (DRRAM), the Sociedade Ponto Verde (SPV), the Integrated system for waste medicinal products and their packaging (Valormed) and the municipal and multi-municipal management systems. Information was disseminated through awareness-raising and training actions, conferences and events promoted by different institutions. The media used include TV, radio, press and internet.

In **Slovakia**, the Recycling Fund informs the public about its activities on a regular, monthly basis through broadcasting. Regulation No. 5/2002 contains requirements on packaging marking and identification.

In **Slovenia**, the "Rules on management of packaging and packaging waste" were first published in the Official Gazette of the Republic of Slovenia No 104/2000 (amendments in No. 12/2002). The "Operational programme for the management of packaging and packaging waste for 2000-2007" was published in the Official Gazette No 29/2002 and on the website of the Ministry of the Environment, Spatial Planning and Energy. Municipal waste management services are required to inform the public on the practical aspects of separate collection of packaging waste. The firm SloPak must inform the public and end-users in an appropriate manner on the available services for the collection and recycling of non-municipal packaging waste.

In **Spain**, the measures and targets have been published in Article 5 of Law 11/1997. Information campaigns have been undertaken both by the central government, regional and local authorities, and by the integrated packaging and packaging waste management systems. There were various communication, training and public awareness events. These activities were focused on the general public and specific sectors of society such as consumers and users, school children, concerned businesses, civil servants. Media used include press, radio, TV, cinema, videos, mail, outdoor advertising, exhibitions, trade fairs, seminars etc. Materials produced include teaching modules and other educational materials, leaflets, brochures, photographs, stickers, badges etc.

In **Sweden**, public authorities have published reports, internet publications, information leaflets and brochures. Similar information was produced by the operators of the return systems aimed both at the general public and at concerned industry.

In the **United Kingdom**, the regulations have been published both in Great Britain and Northern Ireland, along with non-statutory guidance ("The User's Guide"). The Environment Agency and the Scottish and Northern Irish agencies also publish guidance. This is also available on the government websites. Information campaigns include "The Forward Look for Planning Purposes" and the Government's "Are You Doing Your Bit" campaigns, aimed at the public and at economic operators. Compliance schemes must have policies on providing information to users/consumers of packaging. Businesses selling packaging have an obligation to provide information to consumers. Various publications inform the users of packaging.

16.6. National Standards relating to the essential requirements and to the concentration levels of heavy metals

*According to **Article 9**, only packaging that complies with the essential requirements of Annex II of the Directive may be placed on the market. For this purpose, harmonised standards shall give presumption of conformity with the essential requirements. In the absence of harmonised standards, national standards can also give presumption of conformity. **Article 11** sets concentration for four heavy metals in packaging.*

At **Community** level, the references to harmonised standards EN 13427:2004, EN 13428:2004, EN 13429:2004, EN13430:2004, EN 13431:2004 and EN 13432:2000 have been published in a Commission Communication in OJ C 44 of 18 February 2005[79]. During the reference period of this report, however only standards EN 13428:2000 and EN 13432:2000 were considered to be harmonised standards pursuant to Commission Decision 2001/524/EC[80].

Belgium, Germany, **Ireland, Italy, Slovakia, Slovenia, Spain** and **Sweden** have indicated the existence of national standards in the area covered by the question. **Finland** and the **United Kingdom** have adopted the standards EN 13427, EN 13428, EN 13429, EN 13430, EN 13431 and EN 13432 as national standards relating to the essential requirements for packaging. There is no national standard on heavy metal concentrations. This is considered to be covered by CEN report CR 13695-1.

16.7. Specific chapter on waste management plans

*According to **Article 14**, Member States must include a chapter on the management of packaging and packaging waste in the waste management plans required pursuant to Article 17 of Directive 75/442/EEC.*

All Member States except Slovenia have indicated either that such chapters exist in their waste management plans or that they have taken the necessary legislative measures to ensure that they are part of regional waste management plans. Slovenia indicates that it has adopted a special "Operational programme for the management of packaging and packaging waste for 2000-2007"

16.8. Economic instruments

***Article 15** foresees that, in the absence of Community economic instruments, Member States may adopt such measures in accordance with the principles governing Community environmental policy, inter alia, the polluter-pays principle.*

As indicated in the section on return systems, most Member States have implemented a producer responsibility system. Additional measures or specific aspects of producer responsibility systems are outlined below:

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79 Commission Communication, OJ C 44, 18.2.2005, p 23.

80 OJ L 190, p. 21-23

In **Belgium**, a system of eco-taxes is applied. Producers of one-way packaging are exempt from this eco-tax if recycling targets are achieved. Re-usable drinks packaging is exempt from ecotax if the packaging is covered by a returnable deposit system.

In **Denmark**, there is a packaging tax based on the material, environmental burden and weight of the packaging. A revised scheme applies since 2001. There is also a tax on disposable packaging and on carrier bags and a volume-based tax on beer, spirits and certain soft drinks. An obligatory deposit applies to packaging for beer and soft drinks.

Finland uses taxes and deposit-return systems to encourage re-use of packaging. A levy of 0.67 € per litre is charged on disposable packaging (0.16 € for packaging in a deposit-refund recycling scheme). No levy is charged on refillable packaging. In deposit systems, between 0.10 and 0.40 € are charged for reusable glass bottles, PET-bottles and aluminium cans.

In **France**, a reduced VAT rate (5.5% instead of 19.6%) applies to the separate collection, sorting and treatment of waste covered by contracts with authorised return systems.

In **Greece**, there are certain financial schemes for investments in packaging recycling and recovery.

In **Hungary**, producers are obliged to pay a product charge. However, they receive exemptions from the payment if they reach a certain minimum recovery rate (either individually or as a member of a coordinating system).

In **Ireland**, re-use of plastic shopping bags has been encouraged by the introduction of the environmental levy on plastic bags in March 2002. An Attitudes and Actions Survey indicates that reusable shopping bags (which are not subject to the levy) are now being used most often by 90% of shoppers.

In **Spain**, there is a national investment scheme with a volume of 350 million € for the period 2000 to 2002. Many investments are also planned on regional and local levels.

The **United Kingdom** applies a system of packaging recovery notes (PRNs). This system is used to demonstrate compliance with the recovery/recycling obligations.

17. QUANTITIES OF PACKAGING WASTE, RECOVERY AND RECYCLING RATES

17.1. Introduction

__Article 12__ of the Packaging Directive requires Member States to establish databases on packaging and packaging waste. In addition it requires Member States to provide the Commission with their available data. During the reference period, this was done according to __Commission Decision 97/138/EC__ of 3 February 1997[81] establishing the formats relating to the database system pursuant to the Packaging Directive.

[81] OJ L 052 22/02/1997 P. 0022-0030

Article 3 of Commission Decision 97/138/EC requires Member States to provide the Commission with data covering the whole of each calendar year (starting with 1997) within 18 months of the end of the relevant year. According to Article 7 of this Decision the data is intended to monitor the implementation of the objectives of Directive 94/62/EC and to serve also for information purposes and as a basis for future decision-making.

On 22 March 2005, this Decision was replaced by Commission Decision 2005/270/EC[82]. The new Decision will apply starting with the data for 2003.

The Member States who joined the European Union on 1 May 2004 do not have an obligation to report data for the years before their accession.

All 15 Member States with data provision obligations have provided data for the years up to 2002. At the time of drafting this report, only few and preliminary data have been received for 2003 and therefore are not considered here. Additionally, data for 2002 have been provided on a voluntary basis by the Czech Republic and by Hungary. However, these two countries were not yet Member States during the reference period. Therefore, **wherever in this chapter there is a reference to the Member States or the European Union, this only covers the 15 countries that were members at the time**.

17.2. Packaging Waste Generation

The total amount of waste packaging generated within European Union in 2000 was around 65.5 million tonnes. Until 2002, this amount increased to 66.6 million tonnes (see Table 1). Between 1999 and 2002, the share of glass among total packaging went down from 24.2% to 21.7%, the share of plastics went up from 15.9% to 16.9%, the share of paper went up slightly from 40.5% to 40.6% and the share of metals went down slightly from 7% to 6.9%. The share of wood is roughly 13% and other packaging materials contribute to less than 1%.

The largest contributors in terms of tonnage in 2002 are Germany (15.4 million tonnes), France (12.3 million tonnes), Italy (11.3 million tonnes), the UK (9.9 million tonnes) and Spain (6.4 million tonnes). In order to compare the contributions of each Member State, it is necessary to perform a normalisation. The normalisation factor that was chosen in the past for this purpose was population, however it is also possible to use GDP. The GDP for a Member State is necessarily dependent upon its population but it also indicates the economic activity that this population generates. It is perhaps therefore a more appropriate normalisation factor than simply to use population. Both methods of normalisation will be used in this report.

The amount of waste packaging generated by each Member State both in terms of per head of population and per unit of GDP are shown in Table 2 and Figures 1 and 2.

17.2.1. Packaging waste generated per capita in Member States

On average across the whole of the European Union the amount of waste packaging generated per head of population increased from 174 kg in 2000 to 176 kg in 2002.

[82] OJ L 86, 5.4.2005, p. 6-12.

The Member States that generated the lowest amounts of packaging waste per head of population were Finland, Greece, Sweden and Portugal. These Member States each generated less than 130 kg per head of population in 2002. The Czech Republic and Hungary have a per capita packaging waste generation slightly lower than Finland. The Member States that generated the highest amounts of packaging waste per head of population were France, Ireland, Italy, the Netherlands and Luxemburg. These Member States each generated more than 190 kg per head of population in 2002. The only Member States who reduced the amount of packaging waste generated per head of population between 2000 and 2002 were Belgium, Denmark, Spain, France and Austria.

17.2.2. Packaging waste generated per unit of GDP in Member States

The Member States that generated the lowest amounts of packaging waste per unit of GDP were Finland, Sweden and Luxembourg. The Member States that generated the highest amounts of packaging waste per unit of GDP were Portugal, Italy and Spain. The Czech Republic and Hungary had a packaging waste generation per unit of GDP close to the highest of the Member States.

17.3. Overall Recycling and Recovery

Article 6(1) *of Directive 94/62/EC sets the following targets for 2001: 50-65% recovery and incineration at waste incineration plants with energy recovery and 25-45% recycling. In addition a minimum of 15% recycling must be achieved for each packaging material.*

Article 6(7) *of Directive 94/62/EC allows Greece, Ireland and Portugal to postpone the attainment of these targets to 2005. However they are still required to recover at least 25% of their packaging waste in 2001.*

Table 3 and Figures 3 to 5 show the achievements of Member States in 2000, 2001 and 2002 in terms of the total recovery and incineration at waste incineration plants with energy recovery and recycling of all packaging waste generated on their territory.

In 2001, 1 out of 27 applicable targets (i.e. 2 targets per Member State, except for GR, IRL and P who had 1 target each) was missed by 2%. In 2002, all of the 27 applicable targets were reached.

17.4. Material-Specific Recycling

The achievements of Member States in 2000, 2001 and 2002 in terms of the material-specific recycling of glass, paper, metal and plastic packaging waste are shown in Table 4 and Figure 6.

As was stated previously, Article 6(1) of Directive 94/62/EC requires that by 2001 a minimum of 15% recycling had to be achieved for each packaging material. Article 6(7) of Directive 94/62/EC allows Greece, Ireland and Portugal to postpone the attainment of this target to 2005.

In 2001, 2 out of 48 applicable targets (i.e. 4 targets per Member State, except for GR, IRL and P) were missed by 1%. In 2002, all of the 48 applicable targets were reached.

17.4.1. Glass Packaging Recycling

On average across the whole of the European Union[83], the total amount of glass packaging recycling has gone down in absolute terms from 8.5 million tonnes to 8.4 million tonnes. However, as also the amount of glass packaging put on the market went down, the recycling rate increased nevertheless from 57 to 58%. All Member States achieved the 15% recycling target. Greece, Ireland, Portugal and the Czech Republic all had recycling levels well above 15%. Only Hungary had a slightly lower glass recycling rate.

17.4.2. Paper Packaging Recycling

On average across the whole of the European Union, the total amount of paper and board packaging recycling has increased from 16.8 million tonnes in 2000 to 18.4 million tonnes in 2002. The recycling rate went up from 64 to 68%. All Member States achieved the 15% recycling target. Greece, Ireland, Portugal, the Czech Republic and Hungary all had paper recycling levels well above 15%.

17.4.3. Metal Packaging Recycling

On average across the whole of the European Union, the total amount of metal packaging recycling has increased from 2.5 million tonnes in 2000 to 2.6 million tonnes 2002. The recycling rate went up from 53 to 57%. All Member States achieved the 15% recycling target. Ireland, Portugal, the Czech Republic and Hungary all had recycling levels above 15%. Only Greece had a lower metal recycling rate.

17.4.4. Plastic Packaging Recycling

The total amount of plastic packaging recycling has increased from 2.2 million tonnes in 2000 to 2.7 million tonnes in 2002. The recycling rate went up from 22 to 24%. In 2001, two Member States missed the 15% recycling target by 1%. In 2002, all Member States achieved the 15% recycling target. Ireland and the Czech Republic also had plastic recycling levels above 15%. Greece, Portugal and Hungary had recycling levels below 15%.

17.5. Conclusions

The results show that Directive 94/62/EC has been successful in increasing the rates for recycling and recovery and incineration with energy recovery at waste incineration plants above the targets set for 2001. In addition, although total tonnages of packaging waste continue to increase in most Member States, a decoupling between economic growth and growth of packaging waste has occurred for the EU as a whole and for many individual Member States in the period 2000 to 2002. An in-depth analysis of the costs and benefits of the Packaging and Packaging Waste Directive will be given in a separate report pursuant to Article 6(8) of the Directive (report from the Commission to the Council and the European Parliament on the implementation of directive 94/62/EC on packaging and packaging waste and its impact on the environment, as well as on the functioning of the internal market).

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[83] This analysis does not include any increases in recycling in Portugal due to a lack of either 1997 data.

Annex IV

Tables and Figures on Packaging and Packaging Waste Generation, Recovery and Incineration at Waste Incineration Plants with Energy Recovery, and Recycling

Table 1: Packaging waste generated

Member State	**2000**	**2001**	**2002**
BE	1496290	1423542	1490200
CZ			832211
DK	852258	864616	856716
DE	15121100	15017800	15434700
EL	934500	974500	994700
ES	6628035	5864409	6374074
FR	12499000	12336000	12275000
IE	795197	820320	849571
IT	11168200	11262000	11367000
LU	79701	79440	84952
HU			790000
NL	2903000	2984000	3117000
AT	1170000	1096650	1059000
PT	1225689	1281778	1298269
FI	442500	457100	451300
SE	976800	1010154	1029386
UK	9179981	9313900	9897255
EU15	65472251	64786209	66579123

Table 2: Packaging waste generated per capita and GDP

	Packaging Waste Generated (kg per head of population)			Packaging Waste Generated (kg per GDP in 1000 Euros)		
Member State	**2000**	**2001**	**2002**	**2000**	**2001**	**2002**
BE	146	138	144	6,15	5,80	6,06
CZ			82			10,95
DK	160	161	159	5,42	5,45	3,97
DE	184	182	187	7,36	7,26	7,44
EL	88	92	94	8,79	8,81	8,64
ES	164	143	156	12,31	10,60	11,22
FR	212	208	206	9,22	8,93	8,76
IE	210	214	217	9,75	9,50	9,33
IT	194	194	197	12,13	12,02	12,06
LU	182	180	191	4,23	4,08	4,20
HU			78			10,8
NL	182	186	193	7,64	7,76	8,02
AT	144	135	132	5,73	5,32	6,56
PT	121	122	128	12,31	12,66	12,73
FI	86	88	87	3,48	3,57	3,50
SE	110	114	115	4,60	4,70	4,49
UK	156	158	167	9,17	9,13	9,38
EU15	174	172	176	8,73	8,52	8,88

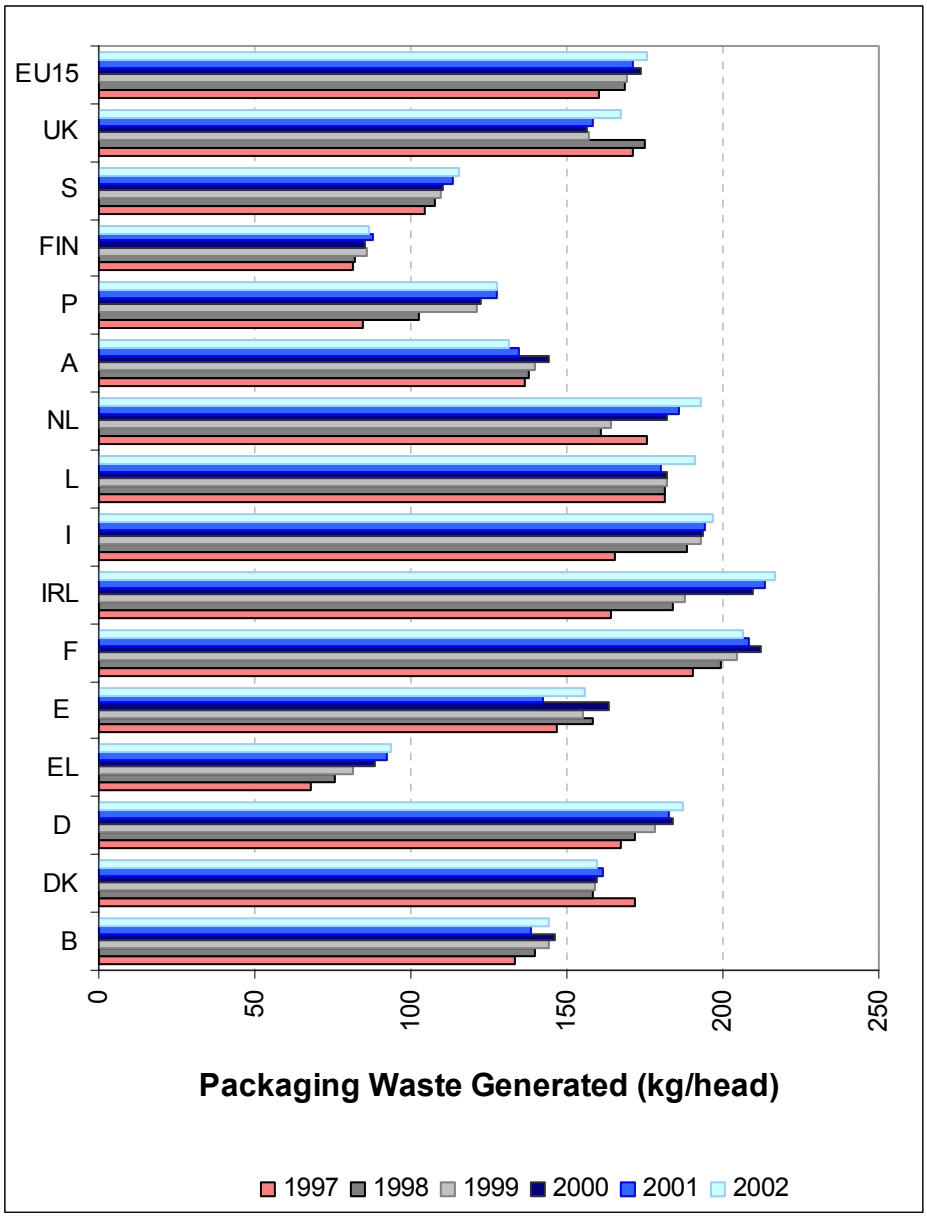


Figure 1: Packaging waste generated per capita

Figure 2: Packaging waste generated per unit of GDP

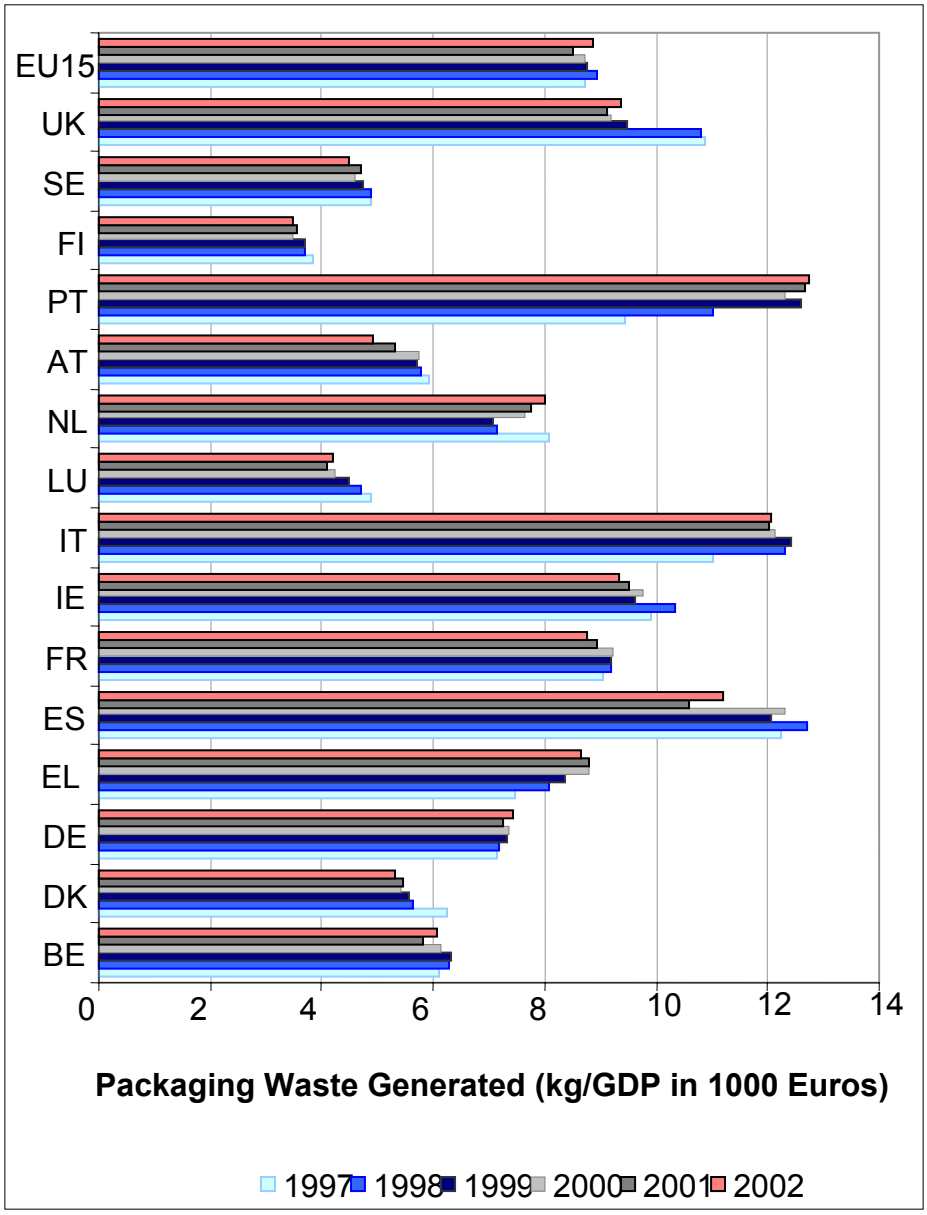


Table 3: Total recovery and recycling

	Total Recovery			Total Recycling (%)		
Member State	**2000**	**2001**	**2002**	**2000**	**2001**	**2002**
BE	71%	88%	91%	63%	71%	70%
CZ			29%			29%
DK	91%	90%	94%	56%	57%	57%
DE	81%	79%	78%	78%	76%	74%
EL	33%	33%	33%	33%	33%	33%
ES	44%	50%	50%	40%	44%	44%
FR	57%	59%	62%	42%	44%	45%
IE	19%	27%	35%	19%	27%	35%
IT	43%	51%	56%	38%	46%	51%
LU	59%	69%	62%	45%	57%	57%
HU			37%			34%
NL	77%	59%	61%	59%	56%	57%
AT	76%	73%	75%	69%	64%	66%
PT	46%	52%	50%	31%	38%	36%
FI	60%	62%	61%	50%	47%	49%
SE	66%	66%	67%	58%	63%	65%
UK	45%	48%	50%	40%	42%	44%
EU15	58%	60%	62%	51%	53%	54%

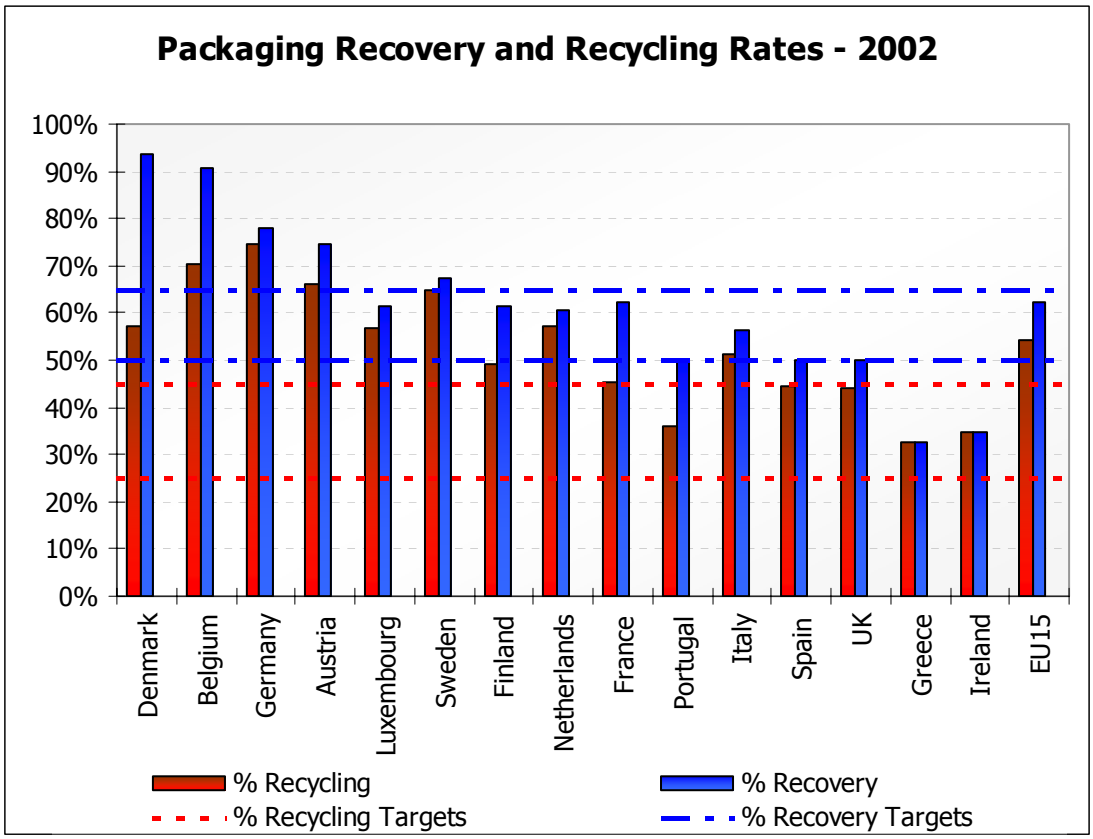


Figure 3: Packaging Recovery and Recycling Rates in 2002

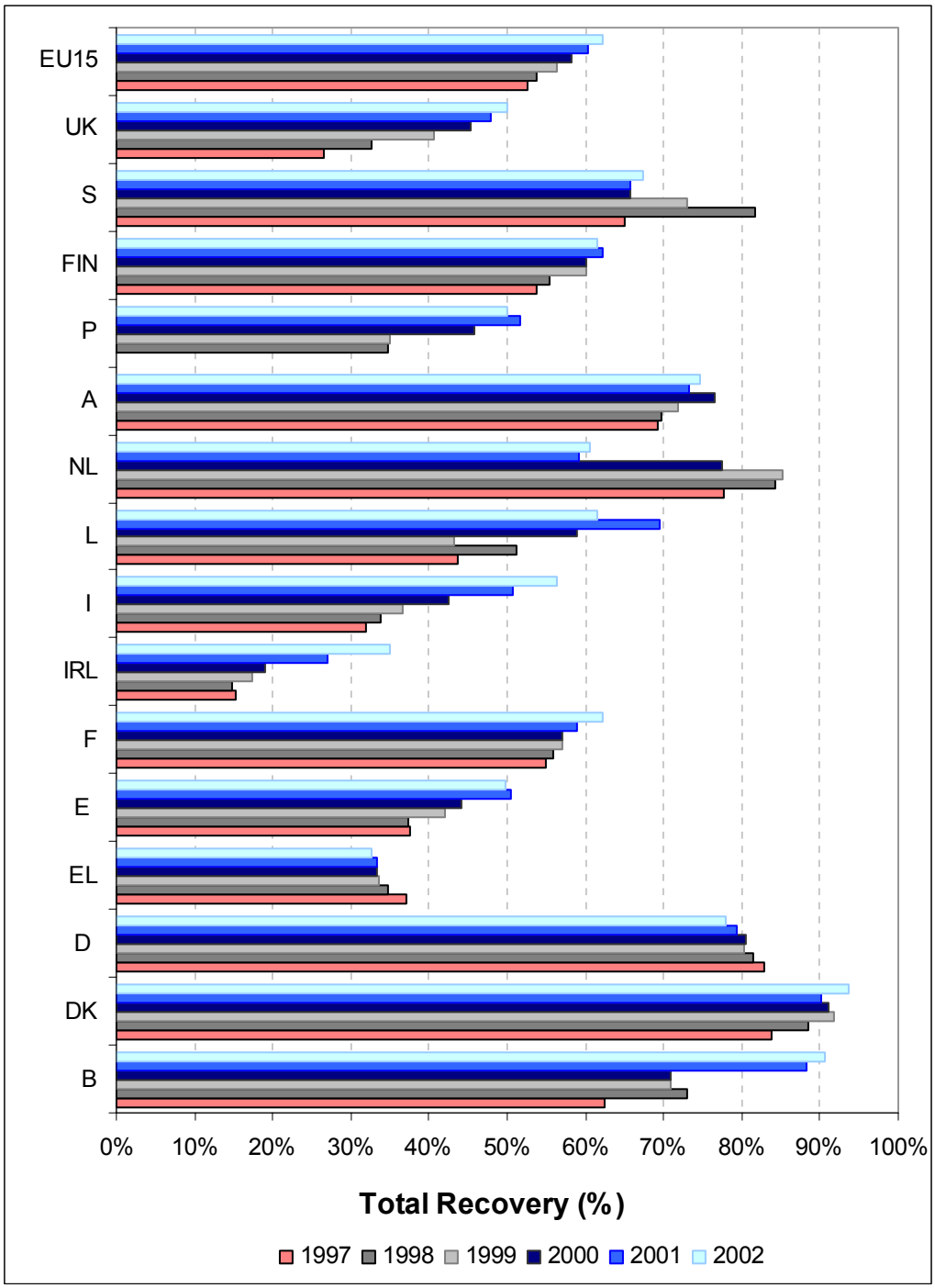


Figure 4: **Total recovery**

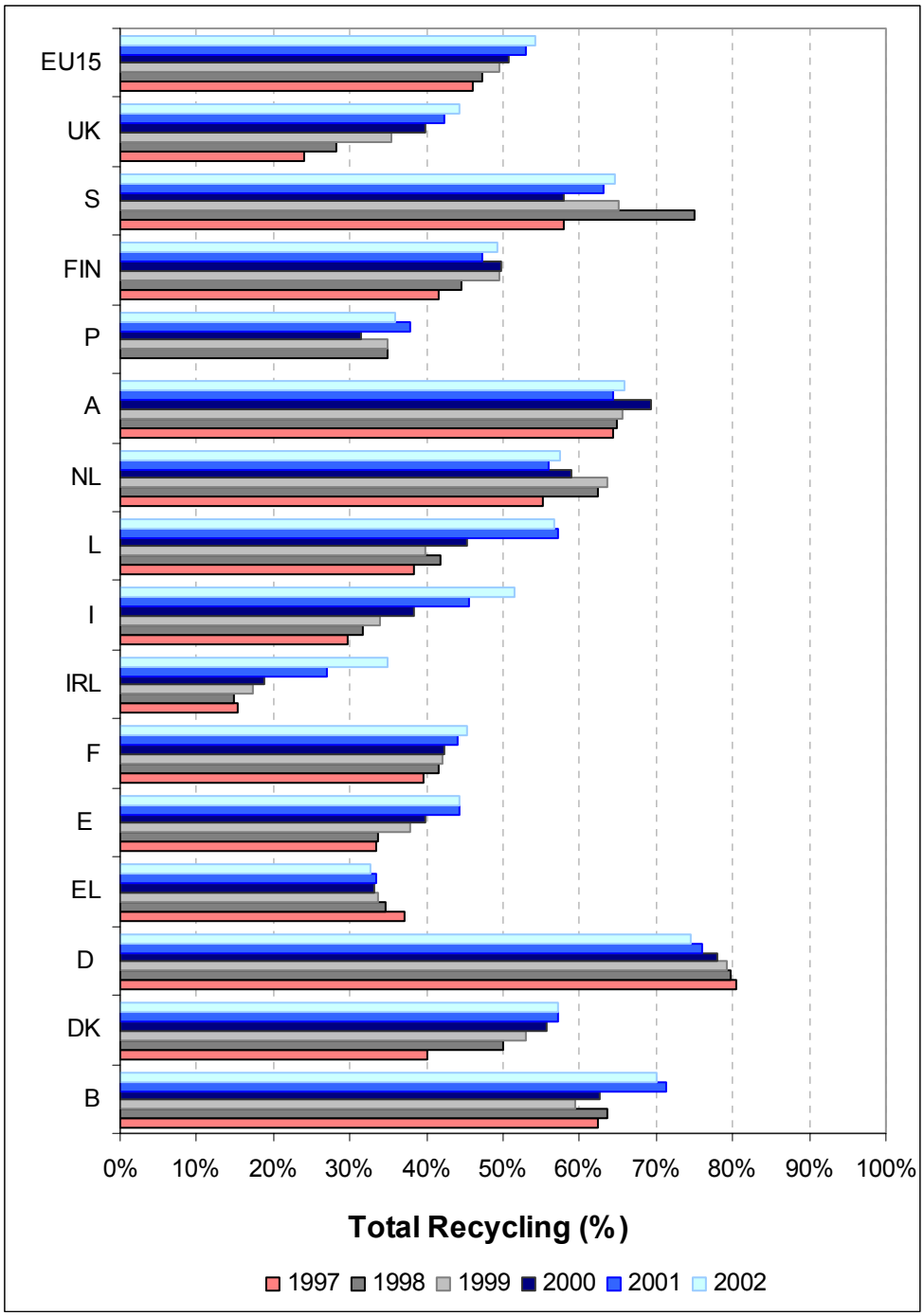


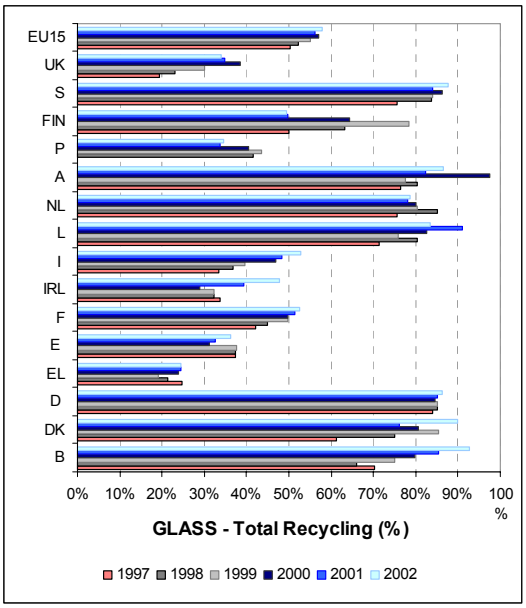
Figure 5: **Total recycling**

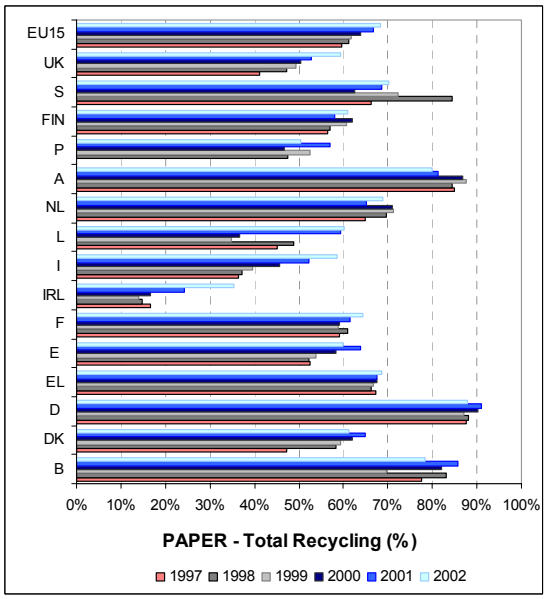
Table 4: Recycling per material

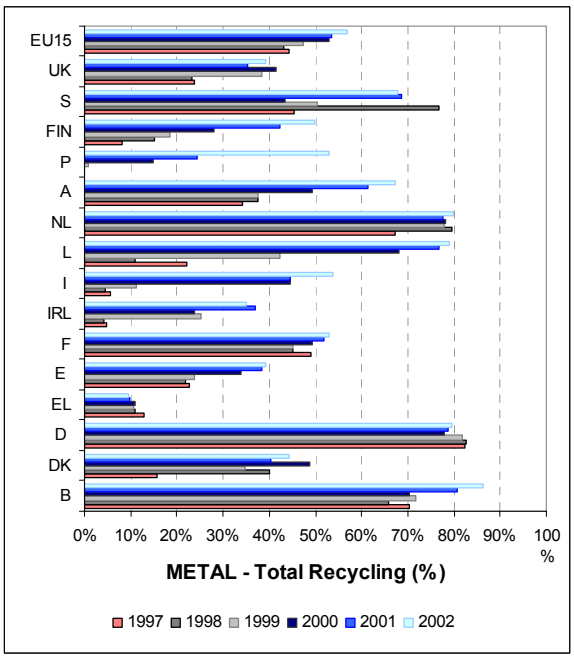
	Glass Recycling			Paper Recycling		
Member State	**2000**	**2001**	**2002**	**2000**	**2001**	**2002**
BE	80%	85%	93%	82%	86%	78%
CZ			42%			36%
DK	81%	76%	90%	62%	65%	61%
DE	85%	85%	86%	90%	91%	88%
EL	24%	24%	24%	67%	68%	68%
ES	31%	33%	36%	58%	64%	60%
FR	50%	51%	52%	59%	61%	64%
IE	29%	39%	48%	17%	24%	35%
IT	47%	48%	53%	46%	52%	59%
LU	83%	91%	83%	37%	59%	60%
HU			12%			55%
NL	80%	78%	79%	71%	65%	69%
AT	97%	82%	86%	87%	81%	80%
PT	41%	34%	35%	47%	57%	50%
FI	64%	50%	49%	62%	58%	61%
SE	86%	84%	88%	63%	69%	70%
UK	39%	35%	34%	50%	53%	59%
EU15	57%	56%	58%	64%	67%	68%

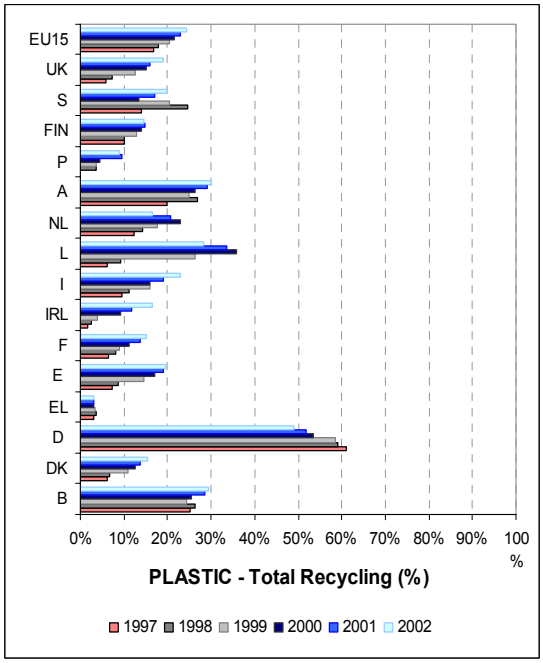
	Metal Recycling			Plastic Recycling		
Member State	**2000**	**2001**	**2002**	**2000**	**2001**	**2002**
BE	70%	81%	86%	25%	28%	29%
CZ			17%			21%
DK	49%	40%	44%	12%	14%	16%
DE	78%	79%	80%	53%	52%	49%
EL	11%	10%	10%	3%	3%	3%
ES	34%	38%	39%	17%	19%	20%
FR	49%	52%	53%	11%	14%	15%
IE	24%	37%	35%	9%	12%	17%
IT	45%	44%	54%	16%	19%	23%
LU	68%	77%	79%	36%	34%	28%
HU			37%			9%
NL	78%	78%	80%	23%	21%	16%
AT	49%	61%	67%	26%	29%	30%
PT	15%	24%	53%	5%	10%	9%
FI	28%	42%	50%	14%	15%	15%
SE	43%	69%	68%	14%	17%	20%
UK	42%	35%	39%	15%	16%	19%
EU15	53%	54%	57%	22%	23%	24%

Figure 6: **Recycling per material**









VII. DIRECTIVE 1999/31/EC ON THE LANDFILL OF WASTE

18. INTRODUCTION

Directive 1999/31/EC[84] regulates the operation of landfill of waste in such a way as to prevent or reduce as far as possible negative effects of landfilling on the environment and human health, taking also into account the global environment. To this end, the Directive contains provisions on wastes and treatments acceptable or not in landfills, and lays down conditions for the permitting, operation and closure and after care of landfills.

The main elements of Directive 1999/31/EC are in particular:

– definition of 3 classes of landfill, namely for hazardous, non-hazardous and inert waste;

– measures to reduce the landfilling of biodegradable waste through the establishment of relevant targets, with a view to reducing global warming and promoting separate collection, recycling and recovery of such waste;

– a requirement that only waste that has been subject to treatment can be landfilled, as well as a ban of certain wastes from being landfilled;

– establishment of criteria for accepting waste in landfills (the detailed requirements are specified in Council Decision 2003/33/EC[85]), as well as procedures for the reception of waste in landfills;

– procedures for permitting, control and monitoring during operation, and closure and after-care. They are complemented by specific technical requirements, as well as by a provision to integrate relevant costs in the price for landfilling;

This report is based on the questionnaire adopted by Commission Decision 2000/738/EC of 17/11/2000[86]. It covers the period 2001-2003.

19. INCORPORATION INTO NATIONAL LAW

19.1. National Law

All Member States that replied have submitted their national transposition requirements.

The United Kingdom was condemned by the European Court of Justice for incomplete transposition of the Directive (case C-423/02). The missing transposition measures have in the meantime been notified to the Commission.

Concerning non industrial inert waste France has failed to notify transposition measures. France was condemned by the European Court of Justice for incomplete transposition of the

84 OJ L 182, 16.07.1999, p. 1
85 OJ L 11, 16.1.2003, p. 27
86 OJ L 298, 25.11.2000, p. 24

Directive (case C-172/04). As the missing transposition measures have still not been notified the Commission has started a procedure against France pursuant to Article 228 of the Treaty.

The Commission is currently assessing whether the transposition measures notified by the Member States are in compliance with the Directive.

19.2. Use of landfill gas

*According to **paragraph 4.2 of Annex I** landfill gas must be collected, treated and used and, if it cannot be used to produce energy, it must be flared. **Paragraph 4.3 of Annex I** requires that such collection, treatment and use of landfill gas must be carried on in a manner which minimises damage to or deterioration of the environment and risk to human health.*

Some Member States (**Austria, Germany, Denmark, Sweden**) consider their policy of banning the landfilling of biodegradable waste as the most efficient way to reduce the gas emissions from landfills.

In all Member States there is an obligation to collect landfill gas and treat or use it where feasible. In France the establishment of a gas collection system is only required at the latest one year after completion of the landfill cell.

Some Member States submitted information on the number of landfills where the gas is collected and used:

The **United Kingdom** has 254 landfill gas power installations. In **Finland** gas is collected from 26 landfills, in **Hungary** from 22 landfills, in **Sweden** from 73 and in **France** from 201. The gas is used for energy at only one landfill in **Slovakia**, 1-2 in **Hungary**, at 5 landfills in **Slovenia**, at 10 in the **Czech Republic,** at least 20 in **Spain**, 33 in **France** and 73 in **Sweden**.

Annex I point 4 states that the collection, treatment and use of landfill gas shall be carried out in a manner which minimises damage to or deterioration of the environment and risk to human health. It is up to the Member States to define more detailed requirements to implement this obligation.

Some Member States have submitted information on national rules concerning the collection, treatment and use of landfill gas:

In **Austria** the Ministry of Environment recommends using Schedule No 502 "Degassing of landfill sites" produced in 1997 by the Austrian Water and Waste Management Association as a technical standard for the degassing of landfills.

Belgium has fixed general requirements for gas drainage systems in its Decree on landfill. Furthermore the general and sectorial conditions for the engines in which the recovered landfill gas is used are of relevance.

In the **Czech Republic** a number of technical standards (CSN 838030, CSN 838032, CSN 838033, CSN 838034, CSN 838035, CSN 838036, TNO 838039) lay down principles for the design, construction, testing and operation of gas installations at surface landfills where landfill gas is produced.

Denmark does not have any requirements for the collection and use of landfill gas at present, as this is not deemed necessary due to the general landfill ban for biodegradable waste in

force since 1997. Requirements might be set in the future for landfills benefiting from an exemption from the landfill ban.

In **France** ADEME has produced a guidance document on the effective management of landfill gas (http://www.ademe.fr/htdocs/publications/cataloguedeseditions/ref3939.htm).

In **Germany** the emission requirements for flares and combustion engine plants are laid down in the Technical Instructions on Air Quality Control, part 5.4.8.1.). The use of landfill gas is promoted by the Renewable Energy Act.

In **Ireland** the EPA has issued guidance documents on landfill monitoring, landfill operational practices and landfill site design, which all deal in detail with landfill gas issues (http:/www.epa.ie/TechnicalGuidanceandAdvice/GuidanceDocuments). Gas control is also addressed in the EPA's draft of a BAT note for landfill (http:/www.epa.ie/Licensing/BATConsultation/BATConsultationDocuemnts/FileUpload,6034,en.pdf)

In the **Netherlands** implementing rules to the Decree on landfill (soil protection) lay down provisions on the collection and treatment of landfill gas. Requirements for the flaring are laid down in the licence.

In **Portugal** Decree Law No 152/2002 regulates the collection and treatment of landfill gas (Annex II, point2.2.c and Table 1, Annex IV part 1, point 6.1 and Part 2, point 9.3)

Slovenian legislation on landfills requires periodic measurements of emissions of dust and vapours from organic compounds into the atmosphere.

In **Spain** legislation was adopted to improve the viability of more environmentally sustainable electricity (Royal Decree 2818/1998 of 23 December 1998 on the production of electricity by plants using renewable energy sources or resources, waste and/or cogeneration, recently replaced by Royal Decree 436/2004 of 12 March 2004establishing a method for updating and reorganising the economic frameworks for special-scheme electricity production, Official State Gazette No 75, 27 March 2004).

In the **United Kingdom** the Environment Agency has produced guidance documents on the effective management of landfill gas. Emissions based regulation provides for measures to minimise damage to the environment and risk to human health. Emission standards have been developed for landfill gas engines, flares and landfill surfaces. As landfill sites are being permitted they are required to develop a gas management and confirm their ability to achieve these emission standards, which are then subsequently checked via periodical monitoring.

19.3. Minimisation of nuisances and hazards

Section 5 of Annex I *requires measures to be taken to minimise nuisances and hazards arising from landfill through emissions of odours and dust, wind-blown materials, noise and traffic, birds, vermin and insects, formation and aerosols, fires.*

All Member States that have replied have put measures in place aiming to avoid or reduce nuisances as required in Section 5 of Annex I of the Directive.

Most Member States have incorporated the obligation as set out in the Directive into their legislation. Ssome have defined the necessary measures in more detail in their legislation, while others provide that the necessary measures must be specified in the licence.

Examples of measures against nuisances mentioned by the Member States taken include:

Odours: active and passive degasification, daily covering of the waste, covering of areas not in operation with 0.5 m of soil, reduction of surface and numbers of areas of work, location of landfills far away from residential areas, ban on the acceptance of penetratingly pungent waste, surface sealing, reduction of the landfilling of odour producing organic waste, cleaning of tyres, pre-treatment of waste, treatment of leachates, installation of nebulisers to counteract odours

Dust: paving of access roads, regular cleaning of internal roads, sprinkling of problematic areas, cleaning of wheels of vehicles, revegetation of sealed and covered areas, packaging or treatment of dust producing waste

Windblown material: fencing of area, minimising the landfill area, covering of waste, surface sealing, immediate collection of wind-blown materials, placement of waste collection nets on the embankments of the site, planting of trees around the landfill, construction of earth containment walls around problematic areas

Birds, vermin, insects: covering of waste, surface sealing, pre-treatment of waste, reduction of biodegradable waste, effective compacting of waste, spraying, fumigation, noise emission

Fires: high level of waste compacting, covering with mineral materials, ban on the acceptance of highly flammable waste, continuous controls and temperature checks at the bottom of the landfill and in the gas wells, ban on smoking, degasification, fire control plans, emergency response plans, monitoring via cameras, construction of earth containment walls, clearing of borders of the site to prevent spreading of fire from or to the site.

19.4. Waste acceptance criteria or lists

__Article 11__ provides for procedures for the acceptance of waste in landfills, in accordance with the specifications in Annex II. Under the general principles set out in __Section 2 of Annex II__ waste acceptance at a landfill can be based either on lists of accepted or refused waste, defined by nature and origin, and on waste analysis methods and limit values for the properties of the waste to be accepted.

All replying Member States except Ireland and Spain have indicated that they have defined waste acceptance criteria and procedures.

The **Austrian** Landfill Order contains limit values for landfill types, a positive list for certain construction waste materials and analysis procedures.

In **Belgium,** in **Flanders** waste acceptance criteria and procedures are defined in Article 5.2.4.1 of Vlarem II (Decree of the Flemish Government of 1 June 1995 laying down general and sectoral provisions on environmental health as subsequently amended). These will need to be adapted to Council Decision 2003/33/EC. Council Decision 2003/33/EC is implemented by the decree of the Government of the **Brussels Region** of 13 November 2003 amending Annex II of the decree of the Government of Brussels of 18 April 2002 on the landfilling of

waste (Moniteur Belge of 18 December 2003). In **Wallonia** there are no official analytical criteria such as criteria based on leaching tests. It is, however, current practice in cases of doubt or dispute to carry out analyses of wastes and to decide on the basis of criteria adopted in other regions or countries or even to anticipate the criteria of Council decision 2003/33/EC. The leaching test preferably used is DIN 38414 S4, which is similar to the test provided in Council decision 2003/33/EC.

In the **Czech Republic** waste acceptance criteria are contained in Annexes to Decree No 383/2001 Coll.

Denmark has compiled lists (only for inert and mineral waste) and criteria determining what types of waste can be accepted in each landfill class (inert waste, mineral waste, mixed waste, hazardous waste); cf. Annex 1 to the Landfill Order (Order 650 of 29 June 2001).

In **Finland** the Decree 1129/2001 of the Ministry of Environment establishes a list of hazardous wastes. Other lists or evaluation criteria have not been established, as other measures (waste acceptance test, expert opinions) have been considered sufficient pending the establishment of sufficiently uniform Community criteria.

In **France** the provisions of Council Decision 2003/33/EC are implemented by the decree of 30 December 2002 for hazardous waste. This includes lists of waste accepted or refused, the waste acceptance procedure, a special acceptance procedure for asbestos waste, the tests and analysis methods fro conformity checking and a system of quality assurance for on-site laboratories. For non hazardous waste the main provisions of Decision 2003/33/EC are implemented by the decree of 9 September 1997, which is being modified to implement the Decision completely. For landfills for industrial inert waste the Decision is implemented by the Decree of 31 December 2004 and for inert waste from construction and public works by the Technical Guidelines of June 2004 (wastes accepted/refused, acceptance procedure).

In **Germany** the Waste Deposition Ordinance (Abfallablagerungsverordnung, §§ 3,4) and the Landfill Ordinance (Deponieverordnung, §§ 6,7) lay down acceptance criteria. In addition several Länder have their own positive lists and additional restrictions of total content of organic pollutants and heavy metals. These additional lists and criteria apply from time to time only to specific landfill sites.

In **Hungary** a new ministerial decree replacing Decree 22/2001 (X.10.) KöM on the rules and other preconditions for landfilling and the closing and after-care of landfills is currently under preparation, which will include the conditions for wastes that may be accepted in various landfill classes in accordance with Council Decision 2003/33/EC. The environmental inspectorate will specify in the operating permit the nature of wastes that may be disposed of in the given landfill.

In **Luxembourg** the acceptance of waste is regulated in Annex II of the Regulation of 24 February 2003 on landfilling.

In **Ireland** the conditions for the acceptance of waste are site specific. Also, Section 50 of SI 395 of 2004 applies.

In **Italy** the waste acceptance criteria were implemented by the Decree of the Minister of Environment of 13 March 2003, which was subsequently replaced by the Decree of 3 August 2005.

In **the Netherlands** the Decree on waste landfill sites and landfill prohibitions includes a list of waste that may not be landfilled and the conditions associated with it.

The **Portuguese** Decree-Law No 152/2002 establishes in its Annex III preliminary acceptance criteria, criteria based on analysis of the waste and criteria based on analysis of the eluate, including the corresponding limit values.

In **Slovakia** the waste acceptance criteria are contained in § 29 (1-4), § 32(4-7) of Decree No. 283/2001 Coll. and in § 18 and Annexes 5 and 6 of the Act No. 223/2001 Coll. on Waste.

Slovenian legislation requires all waste to be assessed before being accepted at a landfill. This assessment must include information on the owner of the waste, the origin, the necessary treatment, the expected consequences of the properties of the waste, the hazardous properties and an evaluation of the acceptability of the waste. The assessment must be based on a chemical analysis. Exemptions can be granted. The Rules on waste disposal also contain limit values for certain parameters in the waste and in the eluate.

In **Spain** the criteria for waste accepted or refused at each landfill are set in Royal Decree 1481/2001 which transposes the Directive. At regional level criteria have been set in Catalonia (Decree 1/1997 of 7 January 1997 on the arrangements for waste at controlled sites, Official Gazette of the Government of Catalonia No 2307, 13 January 1997), in the Basque Country (Decree 423/1994 of 2 November 1994 on the management of inert and inactivated waste, Official Gazette of the Basque Country No 239, 19 December 2004) and in other regions on a case by case basis. The regional legislation will have to be amended to comply with Royal Decree 1481/2001.

Decision 2003/33/EC was implemented in **Sweden** by the Swedish Environmental Protection Agency's administrative provisions (2004:10) on the landfill of waste. These lay down criteria and limit values for different classes of landfill.

19.5. Collection of meteorological data

*According to **Section 2 of Annex III**, Member States should, as part of their reporting obligation under Article 15, supply data on the collection method for meteorological data. It us up to Member States to decide how the data should be collected (in situ, national meteorological network, etc.).*

All replying Member States allow the use of data from the nearest meteorological station, except Wallonia where the installation of a meteorological station is required at every landfill receiving biodegradable waste and in Italy at every landfill. In Denmark any form of data collection that ensures corresponding quality of data collected is accepted. In Luxembourg local meteorological are required depending on the size of the landfill.

No detailed information was provided by the replying Member States on the collection method for meteorological data. Only Germany refers to point 10.6.6.2 of the Technical Guidelines on Municipal Waste, § 11(2) of the DepV in conjunction with point 9.6.6.1 and Annex G of the Technical Guidelines on Waste and DIN 19685, May 1997 edition (Climatologic location study – Determination of the meteorological parameters).

Austria, Belgium (Flanders and Wallonia), Denmark, France and **Germany** determine the data to be collected and the collection methods in legislation, while in **Finland, Greece, Slovenia** and **Spain** they are determined on a case by case basis by the competent authority.

The **Netherlands** replied that it does not consider hydrologic balances a useful instrument for the Netherlands. In **Wallonia** water balances are not systematically used. **Spain** informs that almost no facilities are able to measure water balance.

19.6. 2.6. Monitoring of leachate, surface water, gas emissions

Section 3 of Annex III *establishes requirements and sampling frequencies for monitoring leachate, surface water, gas emissions and atmospheric pressure.*

All replying Member States reported that they have put in place monitoring requirements in order to fulfil the requirements of Section 3 of Annex III of the Directive.

Because of the small quantities of biodegradable waste landfilled in **Denmark**, Danish legislation does not lay down a general requirement that there should be monthly registration of gas emissions and atmospheric pressure at landfills.

The **United Kingdom** has produced a significant body of technical guidance to underpin the legislative requirements for monitoring.

19.7. Cases where the measurement of volume and composition of surface water was not required

On the basis of the characteristics of a landfill site, the competent authority may determine that measurements of volume and composition of surface water foreseen in ***Section 3 of Annex III*** *are not required*

In **Austria, Denmark, Greece, Hungary, Italy, Slovenia, Sweden** and the **United Kingdom** there are no such exemptions.

In **Belgium**, in **Flanders** the measurement of volume and composition of surface water is not necessary for landfills discharging their purified leachate into the sewage system, as the water discharged is deemed to end up in the water purification plant and not directly in the surface water. In **Wallonia** measurement requirements are set on a case by case basis where necessary.

In **Finland** the measurement of surface water quality and composition was not required in 14 landfills for non hazardous waste and 11 landfills for inert waste. In these cases the volume of surface water in the landfill site and its immediate surroundings was small due to hydrogeological conditions in the landfill site. Another reason was that the impact of the landfills was considered insignificant, eg due to its size.

In **France** there is no monitoring system for landfills for inert waste. In non hazardous waste landfills depending on the characteristics of the site the measurements may not be required.

In **Ireland** any discharge to surface waters is monitored. Licences also generally require monitoring of the receiving water itself.

In **Germany** surface extraneous water inflows are collected far upstream of the landfill sites, thereby enabling them to be diverted under their own momentum around the landfill sites in trenches or pipelines. Diversion of this wastewater under the landfill site is not permitted. The possibility of the landfill exerting a negative impact on the wastewater therefore does not arise. Consequently, control measurements are deemed not to be required in such cases.

Only in cases where the receiving stream flows directly through the landfill site, which is very rare in Germany, measurements of the surface water upstream and downstream have to be carried out.

In the event of cleaned leachates being discharged directly into a receiving stream the maximum discharge levels stipulated in the Waste Water Ordinance must be complied with. In these cases the discharge will be checked and not the receiving stream.

In **Luxembourg** the measurements are not required for landfills for uncontaminated inert waste.

In **the Netherlands** the Provincial Executive may provide on the basis of the characteristics of the site that measurements are not required.

In **Portugal** the competent authority may consider that such monitoring is not necessary, depending on the characteristics of the landfill.

Competent authorities in **Slovakia** can determine whether there is a need for the monitoring of the surface water and whether the landfill can have impacts on the surface water.

Spanish legislation does not lay down general criteria for when monitoring of surface water is compulsory. Authorities decide on a case by case basis. Catalonian legislation requires the collection and analysis of rainwater which has circulated over the landfill body.

20. IMPLEMENTATION OF THE DIRECTIVE

20.1. Exemptions for non-hazardous waste from prospecting and extraction, treatment and storage of mineral resources, as well as from the operation of quarries

__Article 3(3)__ of the Directive gives the possibility to Member States to declare that the deposit of non- hazardous waste, other than inert waste, resulting from prospecting and extraction, treatment and storage of mineral resources as well as from the operation of quarries and which are deposited in a manner preventing environmental pollution or harm to human health, can be exempted from provisions in Annex I points 2, 3.1, 3.2 and 3.3 relating to water control, leachate management and soil and water protection.

Of the Member States that replied Italy, Luxembourg, Slovakia and Sweden stated that they have made use of this exemption.

In **Italy** Article 3 point 3 of the legislative decree no. 34 of 13 January 2003 provides possible exemptions concerning the control of water, the management of leachate and criteria for the protection of soil and water.

In **Slovakia** the Mining Act applies to waste from mining and the Water Act applies to the storage of sludge in lagoons.

In **Sweden** a general provision covering all the exemptions provided in Article 3(3) of the Directive has been included in Section 5 of the Regulation on the landfill of waste.

20.2. Exclusion of islands and isolated settlements

*According to **Article 3(4)** Member States may declare, at their own option, that certain provisions of Articles 6(d), 7(i), 8(a)(iv), 10, 11(1)(a), (b) and (c), 12(a) and (c), Annex I, points 3 and 4, Annex II (except point 3, level 3, and point 4) and Annex III, points 3 to 5, are not applicable, under certain conditions, to (a) landfill sites for non-hazardous or inert wastes with a total capacity not exceeding 15000 tonnes or with an annual intake not exceeding 1000 tonnes serving islands and (b) landfill sites for non-hazardous or inert waste in isolated settlements.*

France, **Greece** and **Spain** have made use of this exemption. Greece and Spain have provided a list of excluded islands and isolated settlements. These lists have been put on the Commissions website (http://europa.eu.int/comm/environment/waste/landfill_index.htm) and a notice was published in the Official Journal of the European Union (OJ C 316, 13.12.2005).

In **France** the exclusion of islands has been transposed into French legislation (Article 2 of the decree of 9 September 1997 as amended), but it was never used during the reporting period. France has not made use of the possibility of excluding isolated settlements, but is considering introducing an exemption for municipalities in Guyana that do not have access to roads.

Spain has excluded isolated settlements in the following regions:

- Aragon: only for non-hazardous and inert waste landfills intended for the disposal of building and demolition waste generated exclusively in the settlements on the list;
- Castile-Leon: for non-hazardous and inert waste landfills intended for the disposal of waste generated exclusively in the settlements on the list;
- La Rioja: for non-hazardous and inert waste landfills intended for the disposal of waste generated exclusively in the settlements on the list (Decision No 249/2003 of 15 May 2003 of the Director-General for Environmental Quality of the Government of La Rioja).

Not all the settlements on the list have a landfill. The Spanish Government does not have information on the amounts and the nature of the waste sent to the exempted sites. This information is however necessary to show, as required in Article 3(3), that exempted landfills are only intended for waste generated by the isolated settlements.

20.3. Exclusions for underground storage

***Article 3(5)** gives the possibility to Member States to declare, at their own option, that underground storage can be exempted from provisions in Article 13(d) and in Annex I, point 2, except first indent, points 3 to 5 and in Annex III, points 2, 3 and 5.*

Of the Member States that replied, Germany, Ireland, the Netherlands, Slovakia and Sweden have made use of this exemption.

In **Germany** there are four underground disposal sites. Special rules apply to underground disposal.

In **Ireland** there are three licenses for underground storage of mining waste. These licences comply with the requirements of the Directive except the requirements that have no relevance to underground management of waste.

The Netherlands has provide the option in Article 1(4) of the Decree on landfill(soil protection) and in Article 11a (2) of the Decree on waste landfill and landfill prohibition, but no use has been made of this option.

In **Slovakia** the Mining Act applies to underground storage. This exclusion goes beyond the exclusion provided in Article 3(3) which only covers certain requirements of the Directive.

In **Sweden** a general provision covering all the exemptions provided in Article 3(3) of the Directive has been included in Section 5 of the Regulation on the landfill of waste.

20.4. National strategy for the reduction of biodegradable waste going to landfills

20.4.1. Status of notifications

All Member States that have replied have submitted their national strategies, except the Czech Republic, Ireland and Spain.

In the **Czech Republic** the strategy is part of the Implementation Programme. Phase 1of the Programme has been drawn up. Phase 2 will be drawn up in 2004 and then the strategy will be notified to the Commission. To date the Commission has not received the complete strategy.

In **Slovenia** the "Operational programme for the disposal of waste with the aim of reducing the quantities of deposited biodegradable waste" was adopted in 2004 for the period until the end of 2008, pursuant to the National Environmental Protection Programme (NPVO) in the area of waste disposal (Official Gazette of the Republic of Slovenia No 83/99) and in compliance with obligations under Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste. The operational programme will be submitted in line with the notification procedure.

In **Ireland** a draft national strategy on biodegradable waste was published for public consultation and notified to the Commission in April 2004. The Commission received a final draft of the strategy in December 2005, but has not received the final Irish national strategy and is addressing this issue in the context of the follow up to the judgement of the European Court of Justice against Ireland in case C-494/01. Ireland points out that the delay is due to ongoing discussions with the Department of Agriculture and Food on how to develop the necessary biological treatment capacity of waste with appropriate safeguards for the protection of the environment and the need to maintain animal health and food safety standards.

Spain replied that its strategy had not been notified, but that several strategy documents and plans exist at national and regional level covering the issue for the largest waste streams. The

Commission is examining this issue in the context of the compliance check of Spanish legislation.

20.4.2. Classification of wastes as biodegradable waste and biodegradable municipal waste

Some Member States have transposed the definition of Article 2 b) and/or c) of the Directive literally without specifying in more detail which waste types are covered by this definition (**Brussels, Wallonia, Finland, Greece, Hungary, Portugal, Spain, Sweden and the United Kingdom**).

Some Member States have established lists of wastes considered biodegradable (Austria, Belgium-Flanders, Czech Republic, Denmark, France, Italy, Germany, the Netherlands and Slovakia). Some of these Member States estimate a certain percentage of waste fractions as biodegradable.

Austria has the following list of biodegradable municipal waste: waste paper/paperboard/cardboard, cemetery waste, garden and park waste, roadside cuttings, kitchen and canteen waste, market waste, and around 50% of residual and bulky waste.

In **Belgium-Flanders** the following categories exist: biodegradable municipal waste, flammable domestic waste, flammable class 2 industrial waste, separately collected biodegradable waste, biodegradable other waste, sewage sludge, wood, animal, paper/paperboard, garden, food.

Denmark considers the following wastes biodegradable: 75% of combustible waste, separately collected paper/paperboard, food/organic waste, wood, garden waste, 35 % of combustible bulky waste from households and institutions, commerce and offices as well as 75% of domestic waste from institutions, commerce and offices.

France considers as biodegradable municipal waste putrescible waste, garden waste, paper and paperboard falling under the Chapters 20 and 15 01 of the list of waste included in Annex II of decree no. 2002/540 of 18 April 2002 which transposes decision 2000/532/EC as amended.

In **Germany** compostable organic waste, faeces, septic tank sludge and sewage sludge from domestic wastewater treatment are considered 100% biodegradable. In addition, 55% of mixed municipal waste, 50% of similar commercial waste, 50% of bulky waste and 50% of street cleaning residues are considered biodegradable.

In **Ireland** the four categories of municipal biodegradable waste are paper and paperboard, organics (i.e. food and garden waste), textiles and wood. The main streams of non municipal biodegradable wastes are: industrial sludges from the intensive agriculture and the food&drinks industries (e.g. paunch, slurries, biological WTTP sludges, spent grains from brewing, bedding, chicken litter, vegetable washings and trims, etc) as well as urban waste water treatment sludge.

Italy considers food waste, garden waste, paper, paperboard, wood and natural textile fibres biodegradable waste.

In **Luxembourg** kitchen waste, green waste, paper waste and wood waste are considered biodegradable.

In the **Netherlands** kitchen and garden waste, organic waste, paper and wood are considered fully biodegradable and textiles, carpets and leather/rubber partly biodegradable.

Slovenia considers the following waste as biodegradable municipal waste:

– waste paper, paperboard, textiles

– waste from green biomass and natural wood from gardens and parks and waste from the processing of plants intended for food

– waste food and organic waste from the production and preparation of food, mostly kitchen waste from households, canteens and restaurants; biodegradable waste from the preparation of food of plant origin and biodegradable waste from the preparation and processing of meat, fish and other food of animal origin

– waste from processing of wood, bark, cork and straw

Slovakia considers waste falling under the following codes of the European Waste List biodegradable municipal waste: 20 01 01 paper and paperboard, 20 01 08 biodegradable kitchen and canteen waste, 20 01 25 edible oil and fat, 20 01 38 wood other than mentioned in 20 01 37, 20 02 01 biodegradable waste, 20 03 01 mixed municipal waste and 20 03 02 waste from markets.

20.4.3. Experiences with the application of the strategy

Austria states that its strategy has been successful and that the targets of Article 5(2) of the Directive were achieved in 2001.

In **Belgium**, in **Flanders** the last target of Article 5(2) of the Directive was already achieved in 2000 through the application of the ban on landfilling flammable waste (waste with a TOC of more than 6%). In **Wallonia** a pilot project of separate collection of biodegradable waste was carried out with more than 200 000 inhabitants. This project has shown that in urban areas resistance of the population is strong and the resulting low rate of recovery makes the system costly. The development of this collection was thus recommended only in rural and semi-rural areas.

Germany has already achieved the last target of Article 5(2) in 2003.

In **Italy** the application of the national strategy has already achieved important results. The application of the regional plans required by Article 5 of Legislative Decree no. 36 of 13 January 2003 will lead to the achievement of the targets throughout the national territory.

In the **Netherlands** the ban on landfilling combustible waste has proven a successful instrument.

Spain explains that the amount of compost produced by composting plants is low due to the fact that the organic waste treated in these plants is mostly mixed with other materials despite the Regional Waste Plans' support for separate collection of organic waste. In recent years, however, some provinces and districts have begun introducing large-scale separate collection of specific biodegradable municipal waste to be biologically treated.

In **Sweden** the strategy has lead to a considerable reduction of the amount of organic waste landfilled. Both the proportion of household waste and the proportion of municipal sewage sludge landfilled fell to 15% between 1994 and 2003.

20.4.4. Amounts of biodegradable municipal waste produced in 1995

Of the replying Member States **Slovakia and the Walloon Region** did not transmit the data on the amounts of biodegradable municipal waste produced in 1995.

Finland submitted data of 1994, **Greece** of 1990, **Germany** of 1993.

The amounts reported are summarised in Table 1.

It is to be noted that it is difficult to compare the amounts indicated by the Member States in their reports with the latest data published by Eurostat[87], which should be used as a basis pursuant to Article 5(2). The amount of biodegradable municipal waste produced in 1995 determines the extent of the Member States' obligation to reduce the landfilling of this waste in the years 2006-2016. It is therefore of fundamental importance to ensure that the basis of the data is clear and comparable. The Commission services intend to discuss this issue in more detail with the Member States.

20.4.5. Amounts of biodegradable municipal waste and other biodegradable waste going to landfills

Denmark, Luxembourg, Sweden and the Walloon Region did not submit data for all three years of the reporting period. This data was also not fully provided by Hungary, the Czech Republic and Slovakia.

According to the reported data **Austria, Belgium-Flanders, Denmark, Germany, the Netherlands and Sweden** have already fulfilled the target of 2016 (reduction of landfilled amount to 35% of amount produced in 1995), **France** has already fulfilled the target of 2009 (reduction of landfilled amount to 50% of the amount produced in 1995) and **Finland and Italy** have already fulfilled the target of 2006 (reduction of landfilled amount to 75% of the amount produced in 1995).

The amounts reported are summarised in Table 2. The distance of the Member States to the reduction targets is shown in Figure 3.

Of the replying Member States only Austria reported the amounts of non municipal biodegradable waste going to landfills. Spain reported the amounts of urban sludge landfilled.

20.4.6. Adaptations of the strategies

Most Member States replied that they were not intending to amend their strategy at the moment.

In **Belgium-Flanders** intends to continue reducing the amount of biodegradable waste going to landfill beyond the targets of the Directive through continued application of the landfill

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87 European Commission, Eurostat: Waste generated and treated in Europe, Data 1995 - 2003, Edition 2005

bans, additional incineration and processing capacities, measures for waste prevention and more advanced selective collection.

The **Portuguese** strategy acknowledges the need to clarify the concept of compost and to set rules for its composition and use.

In **Spain** large-scale separate collection systems for biodegradable municipal waste are being established in some regions, provinces and districts.

Slovenia reported a prohibition of the landfilling of green biomass and natural wood (waste from gardens and parks, waste from the processing of plants intended for food) and the promotion of composting of kitchen waste.

20.5. Number of existing landfills

A table summarising the information received from Member States on the number of existing landfills can be found in Table 3.

Existing landfills are landfills that were operating or authorised to operate on 16 July 2001. Operators of existing landfills had to present a conditioning plan by 16 July 2002 describing the measures necessary to adapt the landfill to the requirements of the Directive. The competent authority must then decide as soon as possible whether and under which conditions the landfill may continue to operate. All existing landfills must be adapted to the requirements of the Directive at the latest by 16 July 2009. The purpose of this question is to get an overview of the progress made in Member States towards the achievement of this obligation in each reporting period. For the purpose of this question, complying landfills are landfills that already fulfil all the technical requirements of the Directive and do not need any more upgrading.

Denmark has not submitted its numbers. Numbers are incomplete for **Italy** (only the total number of existing landfills is given), **Greece** (no information on rest capacities) and the **United Kingdom** (only the total number of existing landfills is given). The **Czech Republic** has indicated the total numbers of landfills per category.

In **Austria** there are no landfills for hazardous waste. The highest number of landfills is for inert waste. All the landfills comply with the Directive. A few have been closed since 2001. None have been re-equipped.

In **Flanders** and **Wallonia** regions of **Belgium**, the number of existing landfills, in particular for non hazardous waste and for inert waste is relatively low. In Flanders around half of the landfills comply and an equally high number have been closed. In Wallonia most of the existing landfills do not comply with the Directive.

In **Finland** most existing landfills do not comply with the Directive. A high number of landfills for non hazardous waste have been closed or re-equipped. Several landfills for hazardous waste and for inert waste have not been closed or re-equipped yet.

In **France** all landfills for hazardous waste comply with the Directive. Of the non complying non hazardous waste landfills most have been re-equipped or closed. All landfills for industrial inert waste comply. There is no data available concerning landfills for inert waste from construction and public works.

In **Germany** many of the landfills for hazardous waste and all the underground landfills comply with the Directive. For non hazardous and inert waste many landfills do not comply and only few have been closed or reequipped.

Greece has no existing landfills for hazardous waste and inert waste. Of the non hazardous waste landfills roughly a third comply with the Directive, none have been closed in the period 2001-2003 and very few have been re-equipped. This is explained by the fact that the licensing authorities have not informed the Ministry of Environment of the submission of conditioning plans by the operators.

In **Hungary** all landfills for hazardous waste comply with the Directive; three have been closed between 2001 and 2003. There are a high number of non hazardous waste landfills of which very few comply with the Directive, very few have been closed between 2001 and 2003 and none have been reequipped. The number of inert waste landfills is low. None of them comply with the Directive, have been closed or reequipped.

Italy has a total of 1223 existing landfills. The number of existing landfills is broken down per region into landfills for municipal waste and landfills for special waste. The information from the regions has not been collated. No information was provided on the number of landfills closed or rehabilitated, or on the rest capacity.

In **Ireland** there are no landfills for hazardous waste. Conditioning plans have been presented for most of the landfills for non hazardous waste and inert waste. Many landfills for non hazardous waste have been closed since 2001.

In **Luxembourg** there are no landfills for hazardous waste. All landfills for non hazardous waste and inert waste comply with the Directive. Two landfills for inert waste have been closed since 2001.

In the **Netherlands** all landfills for hazardous and for non hazardous waste comply with the Directive. Many landfills have been closed since 2001, but no information is given on which landfill categories they belong to. No information is given on landfills for inert waste.

Portugal has only one hazardous waste landfill. The conditioning plan for this landfill is still under assessment. Most of the landfills for non hazardous waste comply with the Directive; for the rest the conditioning plans are under assessment. One landfill for non hazardous waste was closed since 2001. There is only one landfill for inert waste and it complied with the Directive. Seven dumping sites are mentioned which are under assessment.

None of the landfills in **Slovakia** comply with the Directive. 21 landfills for hazardous waste have been closed since 2001. No other landfills were closed or re-equipped.

One of the two landfills for hazardous waste in **Slovenia** complies with the Directive. Of the landfills for non hazardous waste only very few comply with the Directive and a high number have been closed or re-equipped.

In **Spain** most of the landfills for hazardous waste comply with the Directive, a few have been closed or re-equipped. A very high number of landfills for non hazardous waste have been closed since 2001 and some were re-equipped. Of the inert waste landfills very few comply and very few have been closed or re-equipped.

The proportion of landfills in **Sweden** that comply with the Directive is very low: only 1 of 44 hazardous waste landfills, 11 of 186 non hazardous landfills and 3 of 47 inert waste landfills comply. Very few have been closed or re-equipped.

In conclusion it can be seen that in some Member States many landfills already comply with the Directive, in particular the landfills for hazardous waste. For landfills for non hazardous waste and for inert waste, however, a very high number will have to be re-equipped or closed in the next two reporting periods in order to ensure that by 16 July 2009 – as stipulated by Article 14 – no landfill is in operation that does not comply with the Directive.

Also, in several Member States, the information on the number of existing landfills and their compliance with the Directive is not comprehensive. This may be due to the fact that not all of the conditioning plans have been submitted and assessed yet. In the next reporting periods a more accurate number of existing landfills and landfills to be closed or re-equipped should be available.

On the basis of complaints received the Commission has started infringement proceedings against Spain, Greece, Ireland and Belgium for failing to ensure that all operators of existing landfills had presented their conditioning plans by 16 July 2002 as required by Article 14 of the Directive.

In addition the Commission has started 'horizontal cases' against Italy and France for bad application of Articles 4, 8, 9 of the Waste Framework Directive and Article 14 of the Landfill Directive because of the existence of numerous unauthorised landfills in these Member States.

Spain was condemned by the European Court of Justice for not having taken the necessary measures to ensure the application of Article 14 of the Directive in the case of an uncontrolled landfill in Punta de Avalos, La Gomera (case C-157/2004).

20.6. Costs of landfill

Article 10 *provides that Member States shall take measures to ensure that all of the costs involved in the setting up and operation of a landfill site, including as far as possible the cost of the financial security or its equivalent, and the estimated costs of the closure and after-care of the site for a period of at least 30 years, shall be covered by the price to be charged by the operator for the disposal of any type of waste in that site. Subject to the requirements of Council Directive 90/313/EEC of 7 June 1990 on the freedom of access to information on the environment(9)Member States shall ensure transparency in the collection and use of any necessary cost information.*

All replying Member States have stated that they have implemented in their legislation the obligation of the landfill operator to include all costs of the construction, operation, closure and after-care into the price charged for accepting waste.

Some Member States have given more details on the calculation of the costs and prices:

In **Flanders** and **Wallonia** regions of **Belgium**, the after-care period to be taken into account is 30 years, which can be extended by the competent authority.

In **Germany** for the purposes of calculating the financial security an after-care period of 30 years is stipulated for landfills of classes I, II, III and IV and 10 years for landfills of class 0.

In **Luxembourg** a financial guarantee must be established.

In **Portugal** the financial security must be equivalent in value to at least 10% of the total investment planned, separate, unconditional and irrevocable, payable on first call within five days, at the request of the beneficiary and lodged with an institution authorised by the Banco de Portugal.

In **Spain** an application for a permit must be accompanied by an economic analysis showing that all the costs will be covered by the prices. This must be regularly updated. Spain points out that the application of Article 10 of the Directive is difficult in the case of existing landfills whose reamaining useful life is too short to allow them to recover the costs listed in Article 10. Also, there is the problem that landfills that will be closed before July 2009 and do not apply this article will be able to operated cheaper than other landfills although they are not necessarily the most environmentally suitable. Also, it is the lcoal authorities who are responsible for municipal waste and they do not always pass on the full costs of landfills to its users. It is therefore intended to develop a model for the calculation the amount to be charged for waste disposed of by means of controlled landfill. This amount should eb variable according to the amounts landfilled by a waste generator per year and should discourage disposal in favour of recovery.

Some Member States gave more detailed information on how they have regulated access to information on the landfill prices and costs:

In **Wallonia** the operator must report to the competent authority on the tariffs put in place, their structure, excluding taxes and including taxes for each waste type. In the medium term the adoption of a decree on the setting of tariffs for waste management operations is foreseen.

In **France** the ADEME has put in place a mechanism to collect and diffuse information on costs and prices for the disposal of municipal waste.

In **Germany** the landfill operators and public-sector waste disposal services are obliged to place at the disposal of the competent authorities overviews of costs and charges. Under the Environmental Information Act citizens are entitled to consult these overviews. Furthermore, provisions or statutes of the Länder guarantee that those required to pay charges have the right to examine the calculations involving fees or expenditure on landfills. As a rule charges are established by statute by the public-sector waste disposal services following intensive public discussions, whereby the bases for the calculations can be examined.

In **Slovakia** the operator of a landfill must report the amount of finances from the special purpose financial reserve to the competent authority.

20.7. After-care of closed landfills

Article 13 *lays down conditions that have to be met in order for a landfill to start the closure procedure, as well as for it to be considered as definitely closed. After that the operator shall be responsible for its maintenance, monitoring and control (including landfill gas, leachate and groundwater) for as long as may be required by the competent authority, taking into account the time during which the landfill could present hazards. The operator shall notify the*

competent authority of any significant adverse environmental effects revealed and shall take corrective measures as appropriate.

All the replying Member States have reported that they have established the obligations as laid out in Article 13 of the Directive. Greece has not provided a description of the closure procedure, stating that it does not have any closed landfills.

The **Brussels** Region does not have existing landfills and instead described the measures that can be taken in the case of old landfills where there is still biological degradation activity and which pollute the groundwater.

In **Italy** the measures for new landfills are defined in Article 13 point 1 of the Legislative Decree no. 36 of 13 January 2003. They include the compliance with the measures laid down in the post-closure management plan and the environmental rehabilitation, which must be presented together with the application for authorisation. For existing landfills the measures have to be indicated in the conditioning plan pursuant to Article 17 point 3 of the Legislative Decree no. 36 of 13 January 2003.

Some Member States described their requirements for the covering of landfills.

20.8. Description of the planning procedure for landfills

Section 1 of Annex I *sets out general requirements to be taken into consideration for the location of a landfill. The landfill can be authorised only if the consideration of these requirements, or the corrective measures to be taken, indicate that the landfill does not pose a serious environmental risk.*

In **Austria** before the licensing procedure the landfill site must have been surveyed and its conformity to the requirements established. The landfill licence must include the documentation giving information on the suitability of the site. Certain areas, such as water protection zones, spa water protection zones, flood run-off areas, are automatically excluded as sites.

In **Belgium**, in **Flanders** a licence may only be granted if it contains conditions guaranteeing that the site meets the requirements set out in legislation. Currently no licences are granted for new class I and class II landfills in order to keep the landfill capacity to a minimum. If nevertheless additional landfill capacity is needed a spatial planning procedure must be carried out and in some cases an environmental impact assessment. In **Wallonia** a "Plan of Landfills" was adopted in 1999 and amended in 2003. This plan contains the selection of the most suitable sites for the construction of landfills. Its development was accompanied by a broad public enquiry.

In the **Czech Republic** the planning process is regulated by the Building Act and the above-mentioned technical standards (chapter 2.2). There are no special arrangements for landfills.

The location of new landfills in **Denmark** follows the guidelines of the Planning Act and the Consolidated Order on additional rules relating to the Planning Act.

In **Finland** the assessment procedure defined in the Act on Environment Impact Procedure is a precondition for the environmental permit.

In **France** for landfills falling under the Act on Classified Installations an impact study must be attached to the application for a permit justifying the location of the landfill. These landfills may also be established in conformity with the objectives set out in the regional waste management plan. For other landfills the criteria set out in legislation must be considered.

In **Germany** landfill locations which are classified as regionally important are incorporated into the Waste Management Plan and/or the Waste Disposal Plan (of the Länder) and into the Area Development Plan or a land-use planning procedure is implemented. In the licensing procedure the impacts on the objects protected under the Act on Environmental Impact Assessment must be identified, described and evaluated. As a next step a hydro-geological study of the selected sites and an assessment of environmental and spatial impacts must be carried out. This is concluded by a hydro-geological evaluation of the alternative sites.

In **Hungary** landfills may be established in conformity with the purposes and objectives set out in the national and regional waste management plans as well as the local physical plan, building codes and national urban planning and construction requirements. Landfills may only be established in industrial zones and/or outlying areas based on the physical plan. The environmental inspectorate lays down the protective distance between the site boundary and residential areas, buildings, protected natural areas, agricultural areas, which may not be less than 1000 m for hazardous waste landfills. Hungary has set more specific geological, hydro-geological criteria for the selection of areas suitable for landfills.

In **Ireland** applicants for a landfill licence must describe the location of the landfill in terms of distance from the boundary of the facility to residential and recreational areas, waterways, water bodies and other agricultural or urban sites.

In **Italy** the planning procedure is set out in points 1.1 and 1.2 of Annex 1 to the Legislative Decree no. 36 of 13 January 2003.

In **Luxembourg** there is no special procedure for hazardous and non hazardous waste landfills. The criteria are taken into account in the EIA and the authorisation procedure. For inert waste landfill, however, a special sectoral plan was elaborated to determine adequate sites at a regional level as there is a shortage of capacity. (http://www.environnement.public.lu/dechets/dossiers/dechets_inertes/index.html).

The **Netherlands** has sufficient capacity for waste landfills. During the period covered by the National Waste Management Plan no permission is therefore given for establishing a new landfill site or extending an existing one.

Portugal requires the following to be submitted for the purpose of assessing permit applications:

– site approval certificate issued by the municipal council certifying the site's compatibility with the relevant municipal development plan or, in the absence of any such plan, by the relevant Regional Coordination and Development Committee;

– approval of the site, with regard to the impact on water resources, by the relevant Regional Coordination and Development Committee.

In **Spain** the location of a landfill is chosen after a technical and economic study of the site and an environmental impact assessment has been carried out.

In **Sweden**, when planning a new landfill, an environmental impact assessment must be carried out for several locations. This must be followed by a weighted assessment of the local authorities' plans for the different areas and the effect on the environment and on health which the landfill may have. The location deemed to have the lowest effect overall must be selected.

In the **United Kingdom** the Environment Agency and the Waste Planning Authorities have a role in determining landfill location. The Waste Planning Authorities have the responsibility to consider the requirements of Annex I Section 1 of the Directive. The relevant waste management plans will also have a bearing on the location of landfills.

20.9. Technical requirements

Section 2 of Annex I *sets out general requirements for water control and leachate management.*

All Member States have given a short description of their measures in order to fulfil the requirements of Section 2 of Annex I. These include provisions on the geological barrier, the base and sides sealing, the establishment of a drainage system, the collection and treatment of leachate and landfill gas, the prevention of water entering the landfill and the surface sealing and top covering of the landfill.

In addition Member States have given the following details:

Leachate is treated on-site in some Member States (**Belgium-Flanders, Portugal, Sweden**). In some Member States (**Belgium-Wallonia, Spain**) leachate may also be treated in authorised wastewater treatment plants.

In **Belgium-Flanders** the spraying of leachate or other excess water back on the landfill is prohibited. In **Spain** leachates are still sometimes recirculated to the landfill body.

In the **Netherlands** no substances may be used in the base sealing material that could contaminate the soil. If pollutant substances are used in the surface sealing, care must be taken that the sealing construction can not lead to the contamination of the soil and the surface water.

Portugal specified that leachate must be collected and treated according to legislation in force. Pre-treatment is always performed on-site; final treatment may be carried out either on-site or in an authorised wastewater treatment plant.

20.10. Technical requirements for inert waste landfills

According to ***Section 3.4 of Annex I*** *the requirements in paragraphs 3.2 and 3.3 of this Annex relating to a geological barrier and a leachate collection and sealing system may be adapted by national legislation for inert waste landfills.*

Netherlands and **Spain** do not have different requirements for inert waste landfills those set out in sections 3.2 and 3.3 of Annex I of the Directive.

All the other replying Member States stated that they have different requirements for inert waste landfills.

In **Belgium-Wallonia** the decree of 27 February 2003 provides less stringent requirements for landfills for inert waste with regard to the minimum distance of the landfill to certain areas, the base and side sealing and drainage layer, the control of the settlement of the waste, service and control equipment, the collection and discharge of contaminated water and leachates and the handling of landfill gas.

In **Ireland** licences can contain some engineering exemptions which are appropriate for inert waste landfills.

In **Slovenia** the conditions for the construction and operation of landfills for inert waste are determined in Annexes 7 and 8 of the Code on landfill.

20.11. Reduction of technical requirements

*According to **Section 3.4 of Annex I** the requirements in paragraphs 3.2 and 3.3 of this Annex relating to a geological barrier and a leachate collection and sealing system may be reduced if, on the basis of an assessment of environmental risks, the competent authority has decided that collection and treatment of leachate is not necessary or it has been established that the landfill poses no potential hazard to soil, groundwater or surface water.*

Finland, France, Germany, Hungary, Italy, Slovakia, Slovenia, Spain, Sweden and the United Kingdom have made use of the possibility to reduce the requirements of paragraphs 3.2 and 3.3 of Annex I of the Directive for certain landfills.

In **Finland** the requirements have been reduced for 16 landfills: 10 landfills for non-hazardous waste and 6 landfills for hazardous waste. This was justified by the insignificant impact of the landfill. The criteria taken into consideration include hydrogeological conditions in the landfill site, other environmental factors and the type of waste.

In **France** for hazardous waste mono-landfills the provisions on the collection and treatment of leachates can be adapted if a study on the evaluation of environmental and health risks shows the equivalence of the proposed alternative measures. For non hazardous waste mono-landfills the technical prescriptions can be adapted on the basis of a risk evaluation showing the absence of risks for the soil, the groundwater or the surface water. In both cases an opinion of the Conseil supérieur d'installations classées is needed.

Germany states that point 3 of Annex I of Directive has been transposed for hazardous waste landfills, but alternatively the requirements of the Technical Guidelines on Waste for the geological barrier and the base liner can be applied. Both variants are considered equivalent. For non hazardous waste landfills an alternative barrier system has been defined in the Landfill Order, which is considered equivalent. In addition, under strict conditions, it is possible to deviate from the requirements for the collection of leachate, the geological barrier or base sealing system and the surface sealing system, if it is proven that risks for the environment are excluded.

In **Hungary** the inspectorate is entitled to mitigate the technical requirements, in particular relating to the structure of the engineered sealing system, if it has been established on the basis of preliminary inspections following testing of the environmental effects of the landfill that said landfill does not pose a potential hazard to the geologic medium, the surface water, groundwater or the air.

In **Italy** such exemptions can be granted for non-hazardous waste other than inert waste from prospecting and extraction, treatment and storage of mineral resources as well as from the operation of quarries.

In **Slovakia** a transition period is given for existing landfills (established before 1 September 2002) until 1 January 2009.

Slovenia has set different requirements than those set in paragraph 3.3 of Annex I of the Directive concerning the thickness of the drainage layer and of the recultivation layer.

In **Spain** some landfills have been authorised with the application of different or less stringent requirements than those set out in paragraphs 3.2 and 3.3 of Annex I of the Directive. The Minsitry of Environment has drawn up a proposal for common procedure for all competent authorities wishing to adopt this exemption, which would become compulsory if it is adopted.

In **Sweden** exemptions or derogations from the requirements may be granted to individual landfills following a special examination to decide whether this poses a risk to human health.

In the **United Kingdom** the requirements can be reduced to an appropriate extent on the basis of a site specific risk assessment.

Most Member States make use of the possibility of granting derogations from the requirements of paragraphs 3.2 and 3.3 of Annex I of the Directive. Several Member States have, however, granted general exemptions for certain landfills in their legislation, which goes beyond what is allowed under paragraph 3.4.

Apart from Finland no Member State has given information on the landfills for which derogations have been granted.

Annex V

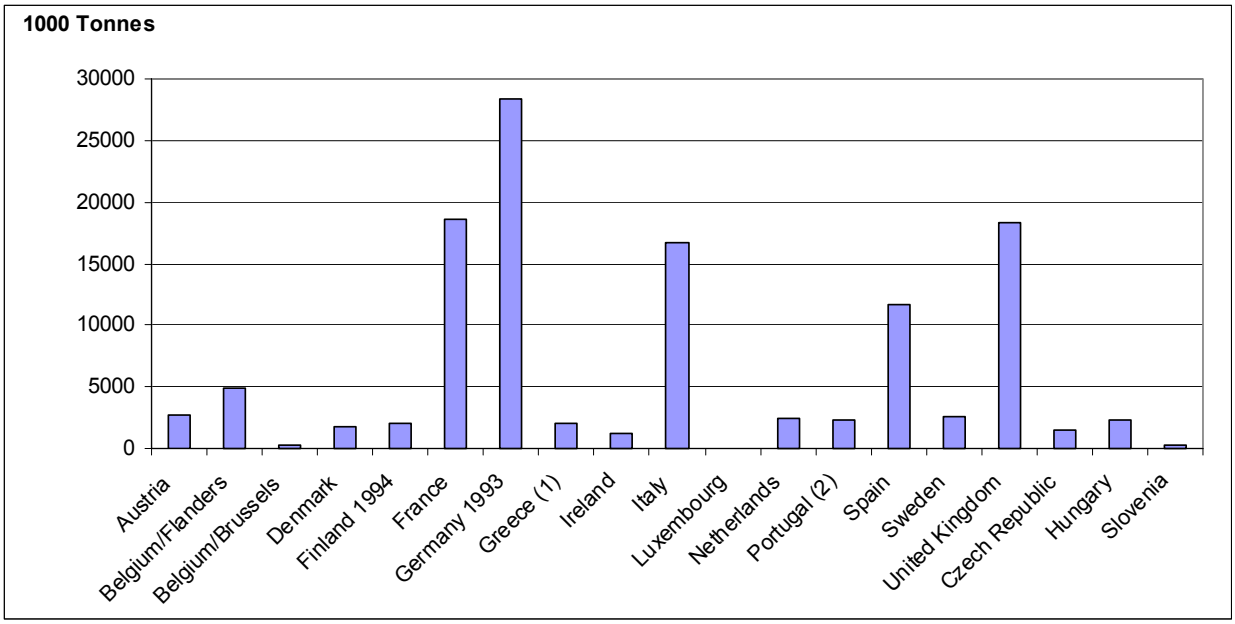
Table 1. Generation of Biodegradable Municipal Waste in 1995 (tonnes) (Question II,4d)

Member State	BMW generation 1995
Austria	2,675,300
Belgium/Flanders	4,841,000
Belgium/Brussels	212,272
Belgium/Wallonia	
Denmark	1,813,283
Finland (1994)	2,100,000
France	18,615,000
Germany	28,410,000
Greece (1)	2,100,000
Ireland	1,251,336
Italy	16,757,000
Luxembourg	28,924
Netherlands	2,406,000
Portugal (2)	2,252,720
Spain	11,685,317
Sweden	2,540,000
United Kingdom	18,260,000
Czech Republic	1,530,000
Hungary	2,340,000
Slovenia	332,000

(1) 1 440 000 tonnes of that quantity equals total generation of food and garden waste

(2) 1 359 400 tonnes of food and garden waste

Figure 1. Generation of Biodegradable Municipal Waste in 1995



(1) Other equals total generation of food and garden waste: 1 440 000 tonnes

(2) 1 359 400 tonnes of food and garden waste

Table 2. Landfilled biodegradable waste, 2001-2003 (Question II4,e)

1000 Tonnes/year	Austria			Belgium-Brussels			Belgium-Wallonia			Belgium-Flanders			Denmark		
Year	2001	2002	2003	2001	2002	2003	2001	2002	2003	2001	2002	2003	2001	2002	2003
Biodegradable municipal waste	472	463	462	57	52	54				998	698	584	72	38	
Other biodegradable waste	7	12	12							150	31				
Total biodegradable waste	479	475	474				618	538		1154	730				

1000 Tonnes/year	Finland			France			Germany (1)			Greece (2)			Ireland		
Year	2001	2002	2003	2001	2002	2003	2001	2002	2003	2001	2002	2003	2001	2002	2003
Biodegradable municipal waste	1215	1234	1118	7478	7462	7100	8063	8668	7235	2827	2877	2926	1291	1219	1177
Other biodegradable waste	783	827	755				5105	2562	2296						
Total biodegradable waste	1998	2061	1873				13168	11266	9530						

1000 Tonnes/year	Italy			Luxembourg			Netherlands			Portugal			Spain		
Year	2001	2002	2003	2001	2002	2003	2001	2002	2003	2001	2002	2003	2001	2002	2003
Biodegradable municipal waste	12750	11530	10094				910	730	410	1622	1953	1878	8852	9268	9291
Other biodegradable waste															
Total biodegradable waste															

1000 Tonnes/year	Sweden			UK (3)			Czech Republic			Hungary			Slovenia		
Year	2001	2002	2003	2001	2002	2003	2001	2002	2003	2001	2002	2003	2001	2002	2003
Biodegradable municipal waste			428	19226	18864	18010							311000	297000	283000
Other biodegradable waste															
Total biodegradable waste							1125	1166				1720			

Note:

1. Germany: In the case of domestic waste, the types of waste indicated correspond to those set out in the List of Wastes Ordinance (Abfallverzeichnisverordnung - AVV); as a rule these wastes are not totally but only partially biodegradable.
2. Greece: estimated figure
3. Only estimated total available

Figure 2a. Tonnes of biodegradable municipal waste Landfilled, 2001-2003

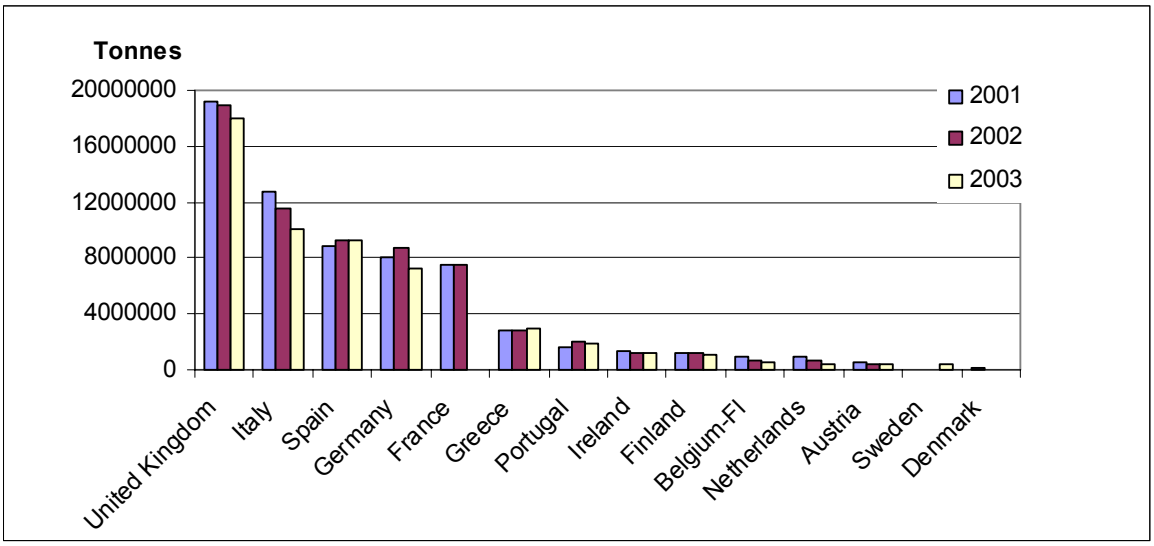


Figure 2b. Kg/capita of biodegradable municipal waste Landfilled, 2001-2003

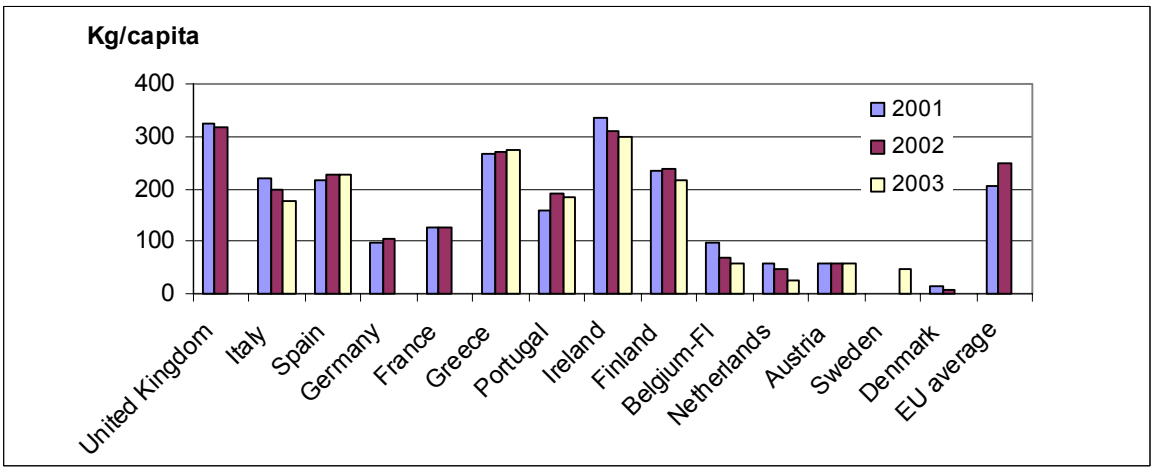


Figure 3. Biodegradable municipal waste distance to target, 2002

(Excluding Luxembourg and the Belgium regions Wallonia and Brussels)

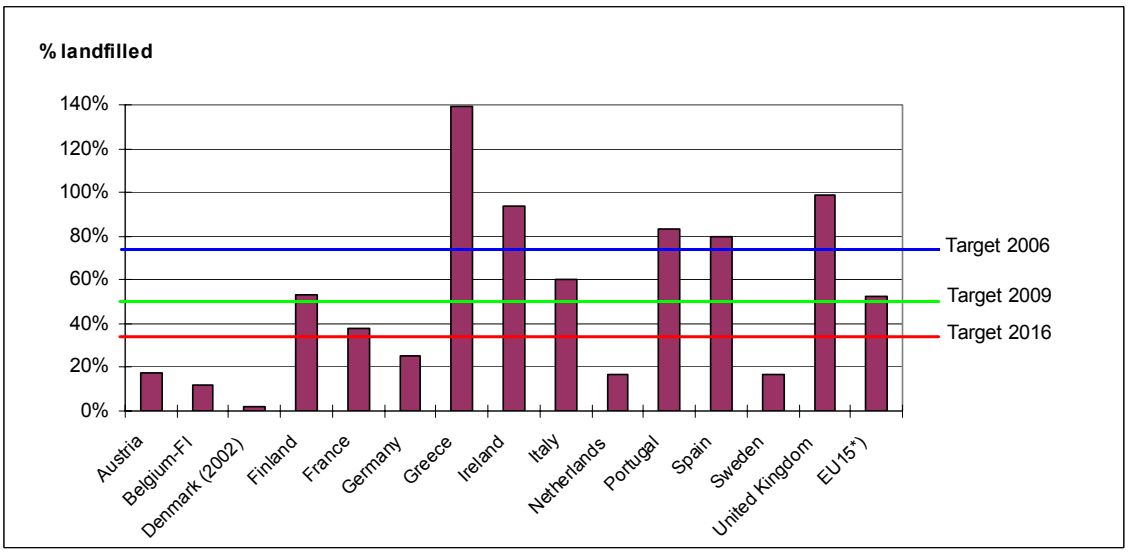


Table 3. Number of existing landfills (in operation or authorised on 16 July 2001) (Question II.5)

	For hazardous waste				For non-hazardous waste				For inert waste				For other waste			
Number of landfills	Total	Comply	Closed	Reequipped	Total	Comply	Closed	Reequipped	Total	Comply	Closed	Reequipped	Total	Comply	Closed	Reequipped
Austria	0	0	0	0	88	88	3	0	288	288	6	0	0	0	0	0
Belgium/Flanders	6	2	1	3	11	5	5	1	11	5	6	0	17	1	5	11
Belgium/Brussels	0	0			0	0	5		0	0	6		0	0	5	
Belgium/Wallonia	3	1			14	4			17	1						
Denmark (1)																
Finland	17	8	0	1	148	31	119	17	16	1	2		0	0		
France (2)	26	26	0		401	275	40		400	40						
Germany	65	40	4	0	2772	595	4	7	1388	514	261	82	4	4	69	13
Greece					36	10						4		0		
Ireland	0	0	0	0	55		28		5		2		0	0	0	0
Italy (3)													1223			
Luxembourg					2	2			10	10	2					
Netherlands	10	10	1	0	20	20	26	0	0	0	0	0	1	1	0	0
Portugal (4)	1				57	49	1		1	1			7	0		
Spain (5)	24	20	2	1	387	131	389	52	623	62	25	6	0	0	0	0
Sweden	44	1	1	2	186	11	0	0	47	3	8	3	39	1	2	1
United Kingdom	223				355				395							
Czech Republic (6)	28				190				171				19			
Hungary	32	32	3		1367	42	38		14	0	0					
Slovakia	15	0	0		125	0	21		21	0	0		0	0	0	
Slovenia	2	1	0	0	72	4	0	1	9	0	30	43	0	0	3	0

Notes:

(1) No information provided.

(2) The total number for inert waste landfills is a range from 400 to 2000 landfills.

(3) Only the total number of existing landfills is indicated. In addition a report containing lists of landfills for municipal waste and landfills for special waste per region was submitted.

(4) Situation as of 30 September 2004. The assessment of compliance of existing landfills with the Directive is still in course and the final results are not yet available.

(5) Situation as of 31 December 2003. Landfills reequipped are included in the total number of existing complying landfills.

(6) About 60% of the landfills will have to be adjusted according to the requirements of the Directive 199/31/EC until 2009. It is estimated that 10 – 15 % of these landfill will be closed down, if the necessary adjustments will prove to be economically inefficient.

Table 4. Rest capacity for landfills (Question II5)

	For hazardous waste	For non-hazardous waste	For inert waste	For other waste
Rest capacity (1000 tonnes)				
Austria		34,336	37,611	
Belgium/Flanders 1)	7,681	9,253	2,225	
Belgium/Brussels				
Belgium/Wallonia	2,315	19,167	15,502	
Denmark				
Finland	400	46,800	75,400	
France	25,000			
Germany	35,820	526,210	220,290	15,000
Greece				
Ireland				
Italy				
Luxembourg		2,331	24,699	
Netherlands	50,972	0	0	74
Portugal 2)		25,000		
Spain				
Sweden	7,297	59,188	1,384	811
United Kingdom				
Czech Republic				
Hungary	150	11,000	1,800	
Slovakia	4,861	20,854	14,251	
Slovenia				

Notes:
The rest capacity relates to the situation on 31 December 2003.
(1) As of 31 December 2003. The value reported refers to 33 landfills for non-hazardous (municipal) waste.

Figure 4a. Landfills for hazardous waste; total and complying with the directive

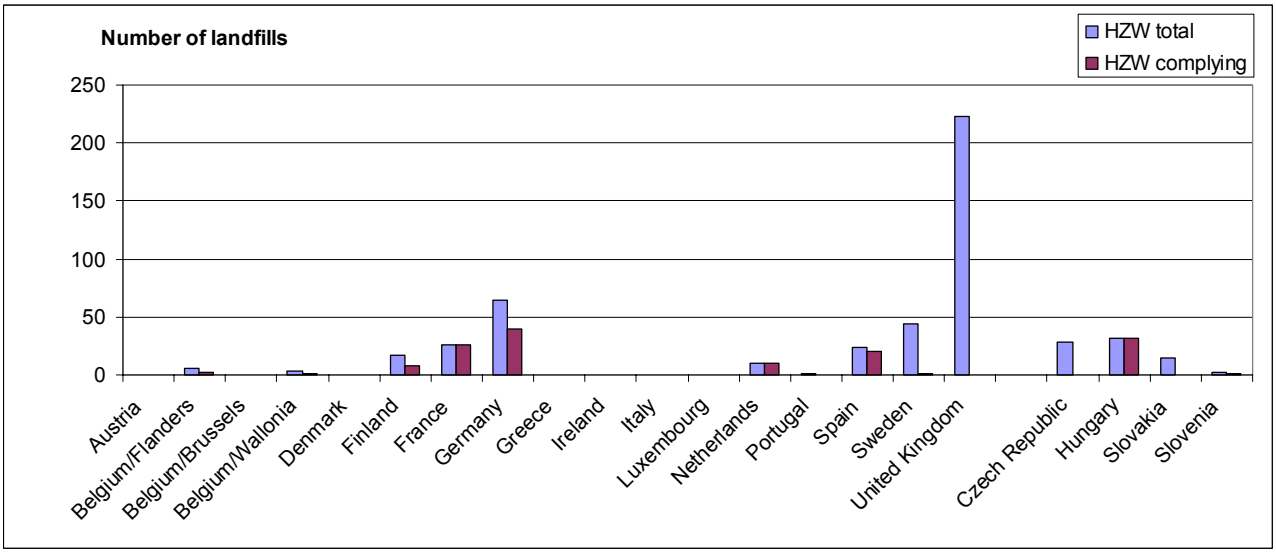


Figure 4b. Landfills for non-hazardous waste; total and complying with the directive

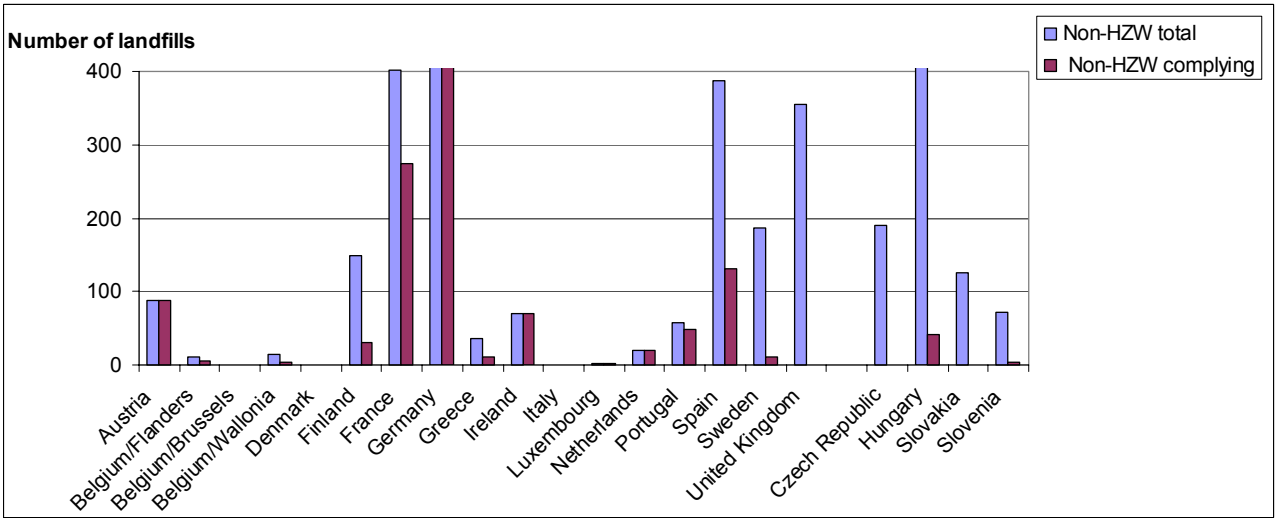


Figure 4c. Landfills for inert waste; total and complying with the directive

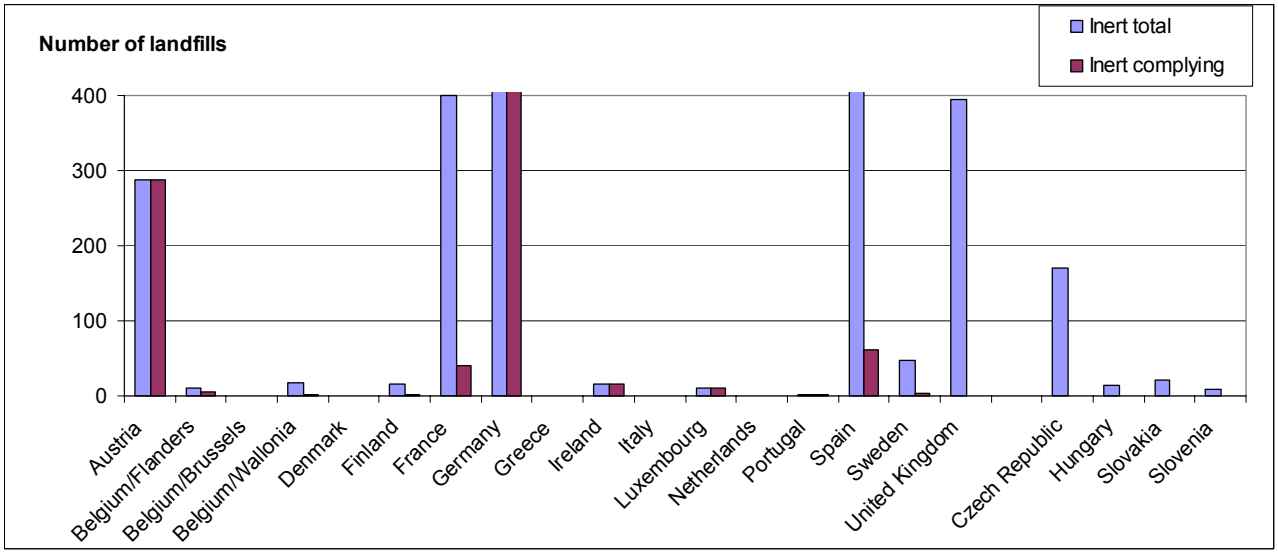


Figure 4d. Landfills for other waste; total and complying with the directive