



COMMISSION OF THE EUROPEAN COMMUNITIES

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**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 and  
Directive 86/278/EEC on sewage sludge**

**FOR THE PERIOD 1995 - 1997**

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## 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 1995 to 1997, especially the implementation of

- Directive 75/442/EEC<sup>1</sup> on waste
- Directive 91/689/EEC<sup>2</sup> on hazardous waste (replaced Directive 78/319/EEC)
- Directive 75/439/EEC<sup>3</sup> on the disposal of waste oils
- Directive 86/278/EEC<sup>4</sup> on the protection of the environment, and in particular of the soil, when sewage sludge is used in agriculture.

It presents the first report according to Article 5 of Directive 91/692/EEC<sup>5</sup> standardising and rationalising reports on the implementation of certain Directives relating to the environment for the period 1995 to 1997. The Commission has already published a report on the implementation of Directives 75/439/EEC, 75/442/EEC, 78/319/EEC and 86/278/EEC for the period 1990 to 1994<sup>6</sup>.

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 on used oils, 75/442/EEC on waste and 86/278/EEC on sewage sludge were adopted by Commission Decision 94/741/EC<sup>7</sup> of 24 October 1994. Though Member States were legally not obliged to send their reports on the implementation of Directive 91/689/EEC, since the corresponding questionnaire was adopted with delay<sup>8</sup>, they were nevertheless invited to do so in order to ensure continuity the previous report.

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. Reports from Member States are the main source of information. The success of this report depends therefor largely on the quality and punctuality of the national information.

Member States had to submit their reports by 30 September 1998. The Austrian, Finish and Danish reports arrived in October 1998. Belgium, France, Germany, Ireland, Luxembourg, the Netherlands, Sweden and the United Kingdom only sent their reports after, sometimes considerable, delay.

Greece, Italy, and Spain did not send any of the requested reports. Portugal has not sent the report on waste, hazardous waste and waste oils and the Netherlands have not sent the report on sewage sludge (status May 1999). For these cases the Commission started procedures under Article 226 EC Treaty.

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<sup>1</sup> OJ L 194, 25.07.1975, p. 47 as amended by Directive 91/156/EEC (OJ L 78, 18.03.1991, p. 32)

<sup>2</sup> OJ L 377, 31.12.1991, p. 20

<sup>3</sup> OJ L 194, 25.07.1975, p. 31 as amended by Directive 87/101/EEC (OJ L 42, 22.12.1986, p. 43)

<sup>4</sup> OJ L 181, 04.07.1986, p. 6

<sup>5</sup> OJ L 377, 23.12.1991, p. 48

<sup>6</sup> COM (97) 23 final of 27 February 1997

<sup>7</sup> OJ L 296, 17.11.1994, p. 42

<sup>8</sup> OJ L 256, 19.09.1997, p. 13

Table 1 provides an overview on the national contributions to this report. Table 2 presents the correspondence between the NUTS (Nomenclature of territorial units for statistics) levels and the national administrative units, which are quoted in the following tables.

### **Co-operation with the European Topic Centre on Waste (ETC/W)**

This is the first time for the waste sector that the report has been worked out in co-operation with the ETC/W which focused mainly on the presentation of the waste data provided in the questionnaires.

The ETC/W was set up in June 1997 by the European Environment Agency to act as a centre of expertise for use by the Agency in support of its mission and, specifically, to undertake part of the Agency's Multi-Annual Work Programme. The ETC/W had already experience and a close co-operation with all Member States of the Agency. This co-operation was being established and developed through EIONET, the establishment, development and co-ordination of a network for collecting, processing and analysis of environmental data (European Environmental Information and Observation Network), and in particular the National Reference Centres for Waste.


The follow up of the co-operation with the ETC/W aims at establishing databases which future reporting. The co-operation between the European Environment Agency and the Commission in reporting matters has now been formalised by virtue of Article 2 of Regulation (EEC) No. 1210/90<sup>9</sup>.

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<sup>9</sup> OJ L 120, 11.5.1990, p. 1 as amended by Regulation No. 933/1999 (OJ L 117, 05.05.1999, p. 1.)

	Austria	Belgium	Denmark	Finland	France	Germany	Greece	Ireland	Italy	Luxembourg	Netherlands	Portugal	Spain	Sweden	United Kingdom
Directive 75/442 on waste	received	received Wallonia Flanders	Received	Received	received	Received		Received		Received	received			received	received
Directive 91/689 on hazardous waste	received	received Wallonia Flanders	Received	Received	received	Some figures given in 75/442		Received		Received no tables	received			received	some figures given in 75/442
Directive 86/278 on sewage sludge	8 Länder excl. Vienna	received Wallonia Flanders	Received	Received	received	Received		Received		Received		Received		received	received
Directive 75/439 on waste oils	received	received Wallonia Flanders	Received	Received	received	Received		received		Received	received			received	received

**Table 1:** Overview of data received from the Member States (status May 1999)

 Data not received

	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	Provincias (4) +Ceuta Mellila	50	Comarras (41)		Municipios	8077
FR	Z.E.A.T +DOM	8	Régions +DOM	22	Départements +DOM	96			Communes	36664
IE	-	1	-	1	Regional Authority Regions	8	Counties/County boroughs	34	DEDs/Wards	3445
IT	Gruppi di regioni	11	Regioni	20	Provincia	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	Cimissaoes de coordenacao regional +Regioes autonomas	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 2:** 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).

## **DIRECTIVE 75/442/EEC ON WASTE, AS AMENDED BY DIRECTIVE 91/156/EEC**

### **I. INTRODUCTION**

Directive 75/442/EEC<sup>10</sup> constitutes the legal framework for Community policy on waste management. After entering into force in 1977 it was amended by Directive 91/156/EEC<sup>11</sup> in order to incorporate the guidelines set out in the Community Strategy for Waste Management in 1989. The review of the Strategy of 30 July 1996<sup>12</sup> confirmed the main elements 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 developed by the European Waste Catalogue (EWC) established by Commission Decision 94/3/EC<sup>13</sup>, 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)
- permission for establishments and undertakings carrying out disposal and recovery operations (Article 9 and 10)
- the polluter-pays-principle (Article 15)
- reporting requirements (Article 16)

The following consolidated report is based on the questionnaire adopted by Commission Decision 94/741/EC<sup>14</sup> of 24 October 1994. According to Directive 91/692/EEC<sup>15</sup> Member States were obliged to submit their reports on the **period 1995 to 1997** by 30 September 1998. Greece, Italy, Portugal and Spain did not send their reports, thus the consolidated report **only** refers to **eleven Member States**. As regards **Belgium**, there is no federal waste law implementing this Directive. Each of the three regions (Walloon, Flemish, Brussels) implement European waste legislation independently. Only the Flemish and Walloon regions sent their reports.

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<sup>10</sup> OJ L 194, 25.07.1975, p. 47

<sup>11</sup> OJ L 78, 18.03.1991, p. 32

<sup>12</sup> COM(96) 399 final, 30.07.1996

<sup>13</sup> OJ L 5, 07.01.1994, p. 15

<sup>14</sup> OJ L 296, 17.11.1994, p. 42

<sup>15</sup> OJ L 377, 23.12.1991, p. 48



In addition to the first part of the questionnaire (INCORPORATION INTO NATIONAL LAW) the implementation of the definition of waste and the European Waste Catalogue has been evaluated for all 15 Member States.

## II. REPORT BASED ON THE ANSWERS TO THE QUESTIONNAIRE (COMMISSION DECISION 94/741/EC)

### INCORPORATION INTO NATIONAL LAW

#### 1. National Law

The eleven Member States, which submitted their reports (**two regions of Belgium, Denmark, Germany, France, Ireland, Luxembourg, the Netherlands, Austria, Finland, Sweden and the United Kingdom**), 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.

#### 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 which the holder discards or intends or is required to discard (Article 1(a), first subparagraph). The Commission, pursuant to Article 1(a), second subparagraph, adopted Decision 94/3/EC, the so-called European Waste Catalogue (EWC).

For a long time now, the lack of convergence of national definitions and the lack of compliance with European Community law has arguably been one of the biggest and most essential problems in the area of waste management. The Commission has identified divergences in Member States’ notions of waste and the establishment of different waste lists as important obstacle in the implementation of European legislation. These obstacles impinge on the double objective that the Community definition on waste serves, namely environmental protection and functioning of the internal market.

Since 1996 most Member States have decided to transpose the Community definition of “waste”, however divergences still exist. These divergences are of different nature and range from very specific details with no major impact in practical terms to great deviations from Community law.

In the opinion of the Commission, three elements have to be transposed into national legislation in order to comply with the Community waste definition, namely the definition of “waste”, Annex I to Council Directive 75/442/EEC, and the EWC.

On that basis, the Commission notes that only five Member States (**Denmark**,<sup>16</sup> **Finland**,<sup>17</sup> **Italy**,<sup>18</sup> **Spain**<sup>19</sup> and **Sweden**<sup>20</sup>) have transposed correctly all the relevant elements of the waste definition.

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<sup>16</sup> Statutory Order from the Ministry of the Environment No. 299 of 30 April 1997 on Waste.

<sup>17</sup> Waste Act 1072/1993. Waste Decree 1390/1993. Ministry of the Environment Decision 867/1996 on the list of most common wastes and of hazardous wastes.

In **Belgium** the Flemish<sup>21</sup> and the Walloon<sup>22</sup> regions have correctly transposed the three elements of the definition, however Brussels legislation<sup>23</sup> has failed to introduce the EWC.

**Austria** has not correctly transposed the Community waste definition. Waste in Austrian legislation is understood to be "[...] movable goods which the owner or holder intends to discard or has discarded or where the qualification and treatment as waste are necessary in view of the public interest. Exceptions from this definition comprise new goods, which are still in use and goods, which are used or recycled at the site of their generation. Specific exemptions are formulated for agriculture waste. Furthermore, a good, qualified as a waste and submitted to a recovery process (old good) shall be considered waste as long as it, or the substances recovered from it, have been submitted to an authorised utilisation or recovery procedure". In addition waste oils do not fall under the definition of waste<sup>24</sup>.

**France** has neither completely transposed the Community waste definition and the relevant Annex I on categories of waste nor introduced the EWC. In French legislation, waste is understood to be "[...] any residue of a production, transformation or utilisation process, any substance, material, product or more generally any movable good which is abandoned or which its holder intends to abandon".<sup>25</sup> It is at least doubtful, whether "abandon" is equivalent to "discard"; furthermore the Directive's requirement that a material which a holder is obliged to discard constitutes waste, lacks in this definition.

**The Netherlands** have failed to transpose the definition of waste, which is defined in Dutch legislation as "all substances, preparations or other products which the holder discards, intends to discard or is required to discard in view of its disposal or recovery".<sup>26</sup> Annex I on categories of waste and the EWC have not been transposed into Dutch legislation either.

**Germany** has transposed the annex on categories of waste and the EWC. However, diverging from the Community definition, German legislation defines waste as "[...] all movable property that falls within one of the groups listed in Annex I and which the owner discards, wishes to discard or must discard. 'Waste for recovery' is waste that is recovered; waste that is not recovered is 'waste for disposal'.<sup>27</sup>

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<sup>18</sup> Legislative Decree No.22, on the implementation of Directive 91/156/CEE on Waste, 91/689/CEE on Hazardous Waste and 94/62/CE on Packaging and Packaging Waste, of 5 February 1997.

<sup>19</sup> Law 10/1998 on Waste, of April 21.

<sup>20</sup> Environment Code (SFS 1998:808) of June 11, 1998 (to enter into force on 1 January 1999). Ordinance (SFS 1998:902) of 26 June 1998.

<sup>21</sup> Decree of 20 April 1994, amending Decree of 2 July 1981 concerning waste management. Order of the Flemish Government establishing the Flemish regulation on the prevention and management of waste (VLAREA) of 17 December 1997.

<sup>22</sup> Decree on Waste, of 27 June 1996. Order of the Walloon Government establishing a Waste Catalogue, of 10 July 1997.

<sup>23</sup> Ordinance on Prevention and Management of Waste, of Mars 7, 1991.

<sup>24</sup> Article 2.1, Waste Management Law of 6 June 1990

<sup>25</sup> Article 1.2, Law No. 75-633 on the elimination of waste and the recuperation of materials, of 15 July 1975 (as amended).

<sup>26</sup> Article 1.1, Environmental Management Act (1993).

<sup>27</sup> Article 3.1, Waste Avoidance, Recycling and Disposal Act of 27 September 1994.

**Greece** has introduced Annex I on categories of waste and the EWC, but failed to transpose the waste definition as such, only defining ‘solid waste’ and doing so by reference to the hazardous waste definition.<sup>28</sup>

**Irish** legislation has transposed literally the Community definition of waste. However, it has included an additional element foreign to the EC definition, *i.e.* a *iuris tantum* presumption that anything that is discarded as being waste shall be presumed to be waste.<sup>29</sup>

**Luxembourg** defines waste as “any substance or object which belongs to the categories of Annex 1 of this law and, in general, any movable good which is abandoned or which its holder has decided to abandon or which he is required to discard. Those products and substances destined to be valorised are considered to be waste in the meaning of the present law until they, as well as the first secondary goods or the energy that results from the valorisation operation, are reintroduced into the economic circuit”.<sup>30</sup> The EWC has not been transposed, but Annex I on categories of waste forms part of Luxembourg's legislation.

**Portugal** has taken into its legislation the definition of waste and the EWC, but has failed to transpose Annex I on categories of waste.<sup>31</sup>

**The United Kingdom** has transposed the definition of waste and Annex I on categories of waste, but has not as yet adopted the EWC.<sup>32</sup>

## 2. 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.

## IMPLEMENTATION OF THE DIRECTIVE

### 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 recovered and disposed of, general requirements, any special arrangements for particular wastes and suitable disposal sites or installations. Article 6 of Directive*

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<sup>28</sup> Decision 69728/824 on Measures and Conditions for the Management of Solid Waste of 17 May 1996.

<sup>29</sup> Article 4.1.a, Waste Management Act, 1996.

<sup>30</sup> Article 3.a, Law on the Prevention and Management of Waste, of 17 June 1994.

<sup>31</sup> Decree-Law 239/97 of September 9, 1997. Regulation No. 818/97 of 5 September 1997.

<sup>32</sup> The Waste Management Licensing Regulations, 1994 (1994 No. 1056). The Waste and Contaminated Land (Northern Ireland) Order 1997, of 26 November 1997. Statutory Instruments of Northern Ireland, 1997 No. 2778 (N.I.19). Gibraltar's Public Health Waste Regulations 1995.

*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. Waste management plans are a key element in the Community's approach to waste.*

Table 2 gives an overview of the existing waste management plans. The submitted plans vary widely in their structure, content and degree of detail. One reason is that these plans are worked out on different national, regional and local levels, another reason that Member States have different levels of experience in waste management planning.

The quality of national waste management plans in the European Union is still unsatisfactory. On the basis of the plans notified to the Commission, a number of infringement procedures have been opened against Member States for non-compliance with the various provisions concerning waste management plans. Greece and Luxembourg have not yet notified a waste management plan at all. For the other Member States, except Austria, the waste management plans notified to the Commission do not cover all types of waste or the whole territory of the Member State concerned. Discussions with Member States revealed an interest in having a European guideline for planning of waste management. The European Topic Centre on Waste is preparing a guideline for waste management plans which will be a useful tool in order to improve and adjust the level of waste management planning for actual and future Member States.

Collaboration between Member States as referred to in Article 7(2) has taken place between Finland, Norway and Sweden concerning final disposal of municipal waste and between the United Kingdom and the Republic of Ireland concerning the incineration of clinical waste in the UK.

## **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 re-use, recycling and energy recovery).*

In **Belgium**, the Flemish region launched three programs to promote waste prevention. The first program is to stimulate projects that aim to identify environmental problems per industrial sector and to produce guidelines. The second program stimulates projects to demonstrate feasibility of preventive measures in at least two companies in the same sector. The third program stimulates waste stream inventories and development of waste prevention measures and plans. The Walloon region referred to the waste management plan “wallon des déchets, Horizon 2010”.

**France** referred to the legal implementation but did not provide details on the practical application.

**Denmark** also confirmed that Article 3 has been implemented through the general legislation on the protection of the environment and referred in addition to national plans on clean technologies and the reuse of waste.

**Germany** enumerated the legal texts dealing with prevention and recycling. Thus the basic obligation to minimise and recover waste is proven during the permission procedure according to § 5(1) of the Federal Immission Control Act. As regards

information local authorities have to inform on products which minimise waste generation and the use of recycled materials, establishments have to nominate a “waste consultant” and specialised establishments may inspect operators in the field of waste management.

In **Ireland** the waste management plans (under Article 7) must include objectives to prevent or minimise the production or harmful nature of waste and specify measures to be undertaken with a view to securing those objectives (Section 22 of the Waste Management Act, 1996). In addition, a person carrying out an agricultural, commercial or industrial activity, including the manufacture of any product, shall have due regard to the need to prevent or minimise the production of waste including the design of the product (Section 28 of the Waste Management Act, 1996). The Minister may specify prevention and minimisation measures.

**Luxembourg** has implemented the measures via Article 6 of the Law on the Prevention and Management of Waste of 17 June 1994. The Ministry of Environment has undertaken the following concrete initiatives:

- pilot project on the separate collection of bio waste
- promotion of individual composting
- separate collection and information campaigns for hazardous household waste
- a taxation concept for household waste (for 15% of the population and with a success of 50% waste reduction)
- classified establishments have to make a plan on waste prevention and waste management.

**The Netherlands** did not reply to this question.

**Austria** notified that details on measures to encourage waste prevention and waste recovery had already been submitted.

**Finland** referred to the legal implementation, without giving further practical details.

**Sweden** only referred to the legislation, which had been notified, without giving further details.

The **United Kingdom** confirmed the implementation without giving new explanations. In the previous report it has been stated that the United Kingdom had transposed the requirement except where Northern Ireland is concerned.

- The Flemish region of **Belgium** and **Luxembourg** started specific programs or actions to support prevention and recovery. **Germany and Ireland** explained how the objectives are implemented in the waste management procedures (permission procedures and waste management plans), whereas the other Member States only confirmed that the requirements have been transposed into national law. It is doubtful whether and how much waste has been prevented; there is even no formula to calculate the success and to make it comparable.

### **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 for disposal.*

As regards **Belgium**, the Flemish region did not notify any such measures. Co-operation with other Member States takes place on a case by case basis, but not in a structured manner. The Walloon region has started co-operation with neighbouring regions during the preparation of the waste management plan Horizon 2010. In Belgium both regions exported 4% of the hazardous waste, out of which 96.3% waste for recycling, 3.4% for incineration with energy recovery and 0.3% for incineration (see figure 2). As regards the disposal of hazardous waste Belgium achieved a degree of self-sufficiency of 99.97%.

**Denmark** referred to the previous report, where it had stated that there are sufficient disposal capacities and that, in particular through the adoption of management plans and co-operation agreements between waste management companies, the optimum use of their capacities and an environmentally sound disposal was envisaged.

**Germany** has taken the following measures: waste management plans which cover the whole territory, co-ordination between the Länder, co-operation between the waste management operators of different Länder and the Länder themselves. Co-operation with other Member States has been taken place between the Land Mecklenburg-Vorpommern in the framework of the MARPOL Convention and between Niedersachsen, Bremen and Dutch Provinces. As regards the degree of self-sufficiency Germany exported in 1995 around 0.3% (1.1 million tonnes) of waste for recovery (85%) and disposal (15%); in 1996 Germany exported around 1.22 million tonnes, 90.8% thereof for recovery. This information was not presented in the tables (see tables 3.1 and 3.2).

According to previous report, **France** wanted especially to organise the transport of waste. For this report it indicated measures for hospital and healthcare waste without explaining the changes for the principle of self-sufficiency. In total France stated that it achieved a degree of self-sufficiency of 99.95%, but referred only to hazardous waste (2000 tonnes out of 4 million tonnes of hazardous waste were exported for disposal). This data was not presented in the table for hazardous waste (see table 3.1).

In **Ireland** the measures to establish an integrated and adequate network of disposal installations have to be part of the local and state waste management plans. Having regard to the principle of producer responsibility, the management of industrial wastes is a matter in the first instance for industry itself. The Minister of Environment may promote or support (financial assistance inclusive) the establishment of desirable waste management facilities. Between 1994 and 1999 under the EU financed Operational Programme for Environmental Services grant assistance of some 15.4 million € has been allocated in respect of the provision of waste recovery and hazardous waste management facilities.

Hazardous waste requiring high temperature incineration may be exported from Ireland to the UK (in the context of the 1996 UK Management Plan for the Export and Import of waste). Due to table 3.2 and figure 2, 23% of the hazardous waste was exported thereof 47% for recycling, 36% for incineration, 11% for landfilling and 6% for other treatment. As regards the disposal of hazardous waste Ireland achieved a degree of self-sufficiency of only 67% (~ 54600 tonnes).

**Luxembourg** listed the available disposal installations inside the country. It exported around 70% of hazardous waste (~ 99000 tonnes) thereof 53% for recycling and 47% for disposal. Due to a re-remediation project, the quantity of exported hazardous waste in 1996 and 1995 doubled and tripled respectively as the contaminated soil was sent for incineration to the Netherlands. As regards the disposal of hazardous waste Luxembourg achieved a degree of self-sufficiency of only 1% (476 tonnes).

**The Netherlands** has included this network in the waste management plans.

**Austria** investigates the existing and necessary disposal capacities regularly (e.g. Bundesabfallwirtschaftsplan 1998). It reached a degree of self-sufficiency of more than 99% due to the total waste generation of 46,485,000 tonnes per year. There were no details on the destination of the 1,278 tonnes per year being exported.

**Finland** laid down the principle of proximity and self-sufficiency in the Waste Act. They have been further specified in the National Waste Plan, which was adopted by the Council of State in June 1998. All exports of waste for final disposal are prohibited, except to other EC or EFTA countries. Finland confirmed that it is almost self-sufficient with regard to the disposal of hazardous and non-hazardous waste with the exception of cases where treatment facilities for specific wastes were not available, co-operation with the neighbours (Sweden, Norway, Estonia) and for testing new disposal methods or other experimental purposes. About 3,000 to 10,000 tonnes of hazardous waste have been imported annually mainly for high-temperature incineration.

**Sweden** has not taken measures in order to establish an integrated and adequate network of disposal installation. However, Sweden has no collaboration and in general terms 100% self-sufficiency as regards waste disposal. In 1996 the waste export was 24 500 tonnes and the import 115,000 tonnes.

In the **United Kingdom** Article 5 (1) was transposed by the national waste strategy for England and Wales (Making Waste Work) and the relevant planning guidance in England, Wales, Scotland and Northern Ireland which was adopted in 1995 and will be reviewed before the end of 1999. In addition, in the UK Waste Management Plan for Exports and Imports of Waste exports of waste for disposal have been prohibited since 1 June 1997. Imports of waste are also prohibited with the exception of waste from the Republic of Ireland and from Portugal for high temperature incineration. Before the prohibition of the export of waste (1995 to 1997) the United Kingdom had reached a rate of self-sufficiency of 98.2 to 98.5%.

- Most Member States reported that they achieved a degree of self-sufficiency for the disposal of waste/hazardous waste of around 99%. Only **Ireland** and **Luxembourg** exported 33% and 99% of the hazardous waste for disposal.

#### **4. Details on waste generation and treatment - Article 7 (1)**

In the questionnaire Member States were asked to provide data on the generation and management of domestic waste, hazardous waste, and other wastes.

As regards the comparability of the figures given by the Member States, the following problems have been identified:

- the figures on incineration as disposal operation and incineration with energy recovery are not completely comparable as Member States use different criteria to distinguish between these operations;
- as regards table 3.1 on domestic waste, some Member States provided figures on municipal waste which may include, in addition to domestic waste, commercial, industrial and institutional waste of a similar nature;
- Ireland provided different figures for hazardous waste in the questionnaires of Directive 75/442/EEC and 91/689/EEC;
- in some cases the sum of all indicated waste operations was bigger than the amount of collected waste; the reasons may be that either the figures are not correct or that the waste is e.g. stored temporarily before being recovered or disposed of.

As regards **domestic/municipal waste** (see table 3.1, figure 1 and 4), data from the OECD environment compendium 1997 were added for Greece, Italy, Portugal and Spain in order to provide a more complete picture throughout European Union. The quantity of domestic waste, which was generated per person per year, differs between 200 and 500 kg. This large scale is probably due to the fact that some Member States provided data for domestic waste as requested and others for municipal waste, which may include similar commercial, industrial and institutional waste.

The percentages of waste recycling differ widely from 0 to 44%. Only three Member States achieved a recycling rate of around 40% whereas three Member States did not recycle at all, which led to a mean recycling rate of 15%. Incineration, regardless of whether with or without energy recovery, became an important part of domestic waste management in eight Member States (15 to 56% and 19% in average). However, the most common handling is still disposal on landfills (average = 60%).

For **hazardous waste** (see table 3.2, figure 2 and 4) the missing figures for Greece, Italy, Portugal and Spain could not be added from other sources. For Ireland the more detailed data in the report on Directive 91/689/EEC was chosen for presentation. It achieved the highest recycling rate of 50%. Three other Member States achieved around 30%, the other less than 20%. Denmark did even not recycle at all. Contrary to the data on domestic waste, the mean rate of landfilling is lower (35%) but therefore another 35% in average was reported as “other treatment” and “not specified”. Belgium, Ireland and Luxembourg exported 4, 23 and 70% of the total hazardous waste.

“**Other wastes**” constitute the biggest part of the generated waste (see table 3.3, figure 3 and 4). It is not possible to provide a clear picture on “other wastes” and their handling throughout the European Union as Member States included different fractions or even did not provide any figures. The reason is probably either that Member States did not know how to reply since there is no specification in the questionnaire or that Member States did not have data in this field. Finland included industrial waste, waste from energy and water supply, construction and demolition waste, mining waste and agricultural waste which led to 12.9 tonnes of “other wastes” generated per person per year. Ireland, in comparison, generated only 1.4 tonnes per person per year.



- The success of waste recycling differs widely between Member States. There are still Member States which do not separately collect domestic waste in order to promote recycling but simply dispose of the waste. Some Member States have a high rate of incineration; but even with energy recovery (for which different criteria are used at national level) incineration is only the second best option as regards recovery. Current legislation and planned initiatives on European level such as on waste oils, batteries, packaging, end-of-life vehicles, electrical and electronic waste, sewage sludge and composting focus especially on separate collection at source and high recycling rates.

## 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 Flemish region of **Belgium, Denmark, Germany, France, the Netherlands Austria, Finland and Sweden** did not exempt establishments and undertakings from any permit requirement.

The Walloon region of **Belgium** has implemented the possibility of exemption into its law but it has not yet entered into force.

**Ireland** has adopted general rules to provide exemptions from the permit requirement in Article 4 and the Second Schedule of the Waste Management (Permit) regulations of 1998.

**Luxembourg** transposed it through Article 11 of the waste legislation of 17 June 1994.

The **United Kingdom** has adopted general rules for granting exemptions for the permit requirements.

- Some Member States implemented the possibility for the exemption from the permit requirement. However, no reason or advantages for the establishment or the competent authorities were presented either no experience with the application.

## 6. Keeping records – Article 14 and Article 4(2) of Directive 91/689/EEC

*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.*

*In addition, Article 4(2) of Directive 91/689/EEC requests that producers of hazardous waste have to keep records. 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.*

As regards **Belgium**, the Flemish region requires records to be kept on the basis of Article 5.2.1.2§4 of Decree Vlarem II. Article 5.2.1.2§6 of this Decree requires that the

operator should be able to report the total production of waste within a short time to the competent authority. Establishments in category 1 of Decree Vlare I are required to designate a responsible environmental co-ordinator, amongst others, for record keeping. Establishments that are required to produce an annual environmental report are required to include the data from the waste registration into the waste part of this report. Article 4.1.4.2 of Decree Valero II requires the operator to store the data for at least 5 years and keep them accessible to the competent authorities. *From this answer it is not clear whether the records contain only the quantities of waste or also the nature, origin, destination etc. as required.*

As regards Article 4(2) of Directive 91/689/EEC, Article 23§1 of the Flemish waste management Decree requires registration and identification of hazardous wastes. Article 5.2.1.2 of Vlare I requires that operators of waste treatment installations keep a register for incoming and treated wastes. This article also specifies the data that is required for the different wastes. Article 17 of the waste management Decree requires producers of industrial wastes to keep a register of the generated wastes. This Article also includes a yearly report for which a standard form is used as required in the Ministerial Decree on reporting of wastes from 19 November 1990. *The requirement for the producer of hazardous waste is only implemented for industrial waste. There is no requirement concerning the transport of hazardous waste.*

As regards Article 14, the Walloon region only requests to keep records for specific waste fractions such as hazardous waste, animal waste, healthcare waste and sewage sludge. As regards Article 4(2) of Directive 91/689/EEC all producers or establishments collecting, treating, recovering and disposing hazardous waste have to keep records. The form of the records is established by “Walloon Office on Waste” and the details on the content of the records are set up by Article 60. *There is no requirement for establishments transporting hazardous waste to keep records.*

In **Denmark** the provisions of Article 14 are implemented through §§ 15 to 19 of the Statutory Order from the Ministry of the Environment No. 299 of 30 April 1997 on waste. Thus establishments listed in its Annex 7 have to establish a register on the main waste and waste management information (covering the type of waste, fraction, origin, quantity and materials which have been recycled, energy-recovered or disposed of). In addition, establishments treating hazardous waste have to register the code number of the EWC. These details have to be submitted to the Environmental Protection Agency (EPA).

As regards Article 4(2) of Directive 91/689/EEC producers of hazardous waste have to report to the Council of the municipality on the type, amount, packaging, composition and characteristics of waste (§ 50 of Statutory Order from the Ministry of the Environment No. 299 of 30 April 1997 on waste). In addition, establishments collecting and transporting hazardous waste at professional level have to keep records on the amount and type of hazardous waste and its producer and place of delivery. These records have to be kept for five years. Establishments which treat hazardous waste have to notify themselves and the information on the waste (inclusive information on recycling and disposal) to the Environmental Protection Agency.

In **Germany** establishments carrying out recovery or disposal operations have to keep records on the details listed in Article 14 (TA-Abfall/TA-Siedlungsabfall). In addition, the waste legislation requires producers (operator of an installation), establishments

which carry out recovery and disposal operations and those collecting and transporting waste to implement “proving procedures” (Nachweisverfahren). This procedure is obligatory for hazardous waste and contains two parts: a pre-control, which focuses on the permissibility of the planned action and a post-control, which checks the action as it is carried out. Producers who generate more than 2000kg hazardous waste or 2000 tonnes waste per year (per fraction) have to draw up a balance sheet of the kind of waste, quantity and the waste management. *Thus Germany introduced a system for keeping records, which is not in line with Article 4(2) of Directive 91/689/EEC.*

In **France**, establishments and undertakings carrying out recovery and disposal operations as well as producers of waste have to keep records. This requirement covers only establishments handling hazardous waste (such as asbestos, lead, chlorinated solvents, used oils and waste resulting from the petroleum industry). *The requirement of keeping records does not seem to apply to establishments carrying out recovery or disposal operations for non-hazardous waste and to those transporting hazardous waste.*

In **Ireland** the Environmental Protection Agency requires licensed waste activities to comply with Guidance Notes on record keeping incorporating standardised formats. But Ireland referred to Waste Management regulations of 1998, which were established after the period in question. As regards Article 4(2) of Directive 91/689/EEC, **Ireland** confirmed the implementation without giving further details. *This information does not allow evaluating the implementation.*

In **Luxembourg** the Community provision has been transposed by Article 14 of the waste legislation of 17 June 1994. The establishments, which have to keep records and which may be exempted are listed in Article 10 and 11 of that law. As regards Article 4(2) of Directive 91/689/EEC, the obligation for establishments carrying out collection, transport, recovery and disposal operations for waste and hazardous waste to keep records is laid down in the Law on the Prevention and Management of waste. The same was established for producers of hazardous waste by Article 4,1 of the Regulation on Hazardous Waste of 11 December 1996. Currently a standard form has not been issued.

In **the Netherlands** requirements for record-keeping are included in Article 8.14 of the Environmental Management Act. According to Article 8.13 of this Act producers can be required to keep records as one of the requirements in their environmental permit. As regards Article 4(2) of Directive 91/689/EEC, **the Netherlands** confirmed the implementation of this requirement. According to the Environmental Management Act establishments are required to notify handing over of hazardous waste and to register receipt of hazardous waste. The use of a tracing form is required during transport. *There is no information whether producers of hazardous waste are required to keep records.*

The **Austrian** waste decree requires establishments, undertakings and producers to keep records on the nature, quantity, origin, and destination of waste. These records have to be kept for seven years. In addition, a “system of accompanying documents” is required for hazardous waste.

In **Finland** business operators which are obliged to obtain a waste permit for their operations, are recommended to supply the supervising authorities with annual summaries of waste records in standard form. As regards Article 4(2) of Directive 91/689/EEC, holders of waste permits, producers of hazardous waste

(households excluded) as well as commercial transporters of hazardous waste shall keep records of the quantity, type, quality and origin of all wastes including the collection, storage, transport, recovery, disposal, delivery place and date (Waste Act, Section 51, paragraph 3). Waste permit holders shall supply annual summaries of waste records on standard forms to the supervising authorities. When delivering hazardous waste for recovery or disposal an identification form containing detailed information on the waste shall be drawn up and retained for three years.

**Sweden** referred to the Swedish environmental code and the Swedish Ordinance on Hazardous Waste, which contains the requirement of keeping records. *It is not possible to evaluate the implementation on this basis.*

**The United Kingdom** referred to the details given for the previous report. Thus the United Kingdom obliges establishments and companies engaged in waste recovery and disposal to keep a record. The producer of waste must, on transfer of waste, complete and keep a transfer document specifying the type and the quantity of waste. They must also keep a copy with a more detailed description of the nature and origin of the waste. This information must be made available at the request of the competent authorities. As regards Article 4(2) of Directive 91/689/EEC, all establishments transporting hazardous waste have to have accompanying documents. The producers of hazardous waste must keep a record of all accompanying documents issued at the time of transfer of waste.

- It is difficult to evaluate the efficiency of the requirement to keep records as Member States implemented the provisions quite differently. However, Belgium, Germany, France and the Netherlands did not implement the aspects of the provisions correctly. Ireland and Sweden gave so little information that it was not possible to evaluate it.

# **Annex I**

N (1)	Austria	Belgium	Denmark	Finland	France	Germany	Greece	Ireland	Italy	Luxembourg	Netherlands	Portugal	Spain	Sweden	UK
Number of authorities or institutions (2)	N0=1 N2=9+9 N4=100	N1=2 N2=5 N4=308	N0 = 1 N3 = 15 N5 = 276	N1=1 N3=13 N5=452	N0=1 N2=26 N3=99	N0=1 N1=16 N2=29 N3=449		N2 = 1 N4 = 34		N0=1	N0=1 N2=12 N4= ±600			N1=1 N2=4 N3=21 N5=289	N1=2 N3=239
Waste management plans	N0	N1	N0 N5	N1 N3	N0 N1 N2	N1 N2		N2 N4		N0	N0 N2 N4			N1 N5	N1 N3
Permits for disposal operations (Article 9)	N0 N2 N4	N1 N2 N4	N3	N3 N5	N1 N2	N2 N3		N2 N4		N0	N0 N2 N4			N2 N3	N1
Permits for recovery operations (Article 10)	N0 N2 N4	N1 N2 N4	N3 N5	N3 N5	N1 N2	N2 N3		N2 N4		N0	N0 N2 N4			N2 N3	N1
Registrations of exemptions from requirements of Article 9 and 10 (Article 11)		N1	N3	N3		N2 N3		N2 N4		N0	N0 N2				N1
Registration of establishments collecting and transporting waste (Article 12)	N2	N1	N5	N3	N2	N3		Not applicable		N0	N0 N2 N4			N3	N1
Comments		(3)	-		(4)										

**Table 1:** Number and competence of **national authorities** in each of the NUTS levels designated pursuant to Article 6 (Questionnaire, Question I, 2)


 Data not received

Notes:

- 1) N is a type of authority and a shortening for NUTS: Nomenclature of territorial units for statistics (Eurostat).
- 2) Number of authorities is given in short for example by: N2=5 is equal to 5 authorities/institutions of type NUTS 2.
- 3) Data only from the Flemish region
- 4) The information from France is adjusted to the Official NUTS, level/nomenclature.


Waste Management Plans		Categories of waste covered			Comments
Country	Plans notified	Domestic waste (yes/no)	Hazardous waste (yes/no)	Others (specify)	
<b>Austria</b>	1 national plan 1998-2001	yes	yes	All non-hazardous waste	
<b>Belgium</b>	Plan wallon des déchets-Horizon 2010 - Wallon Government	yes	yes	packaging waste, batteries, PCB, and 26 categories of other waste.	Infringement due to the packaging chapter
	Plan de prévention et de gestion des déchets 1998-2002, Brussels Government	yes	yes	waste from water streams, inert waste, non hazardous industrial waste	
	Sectorial plans from OVAM 1997-2001, Flanders Government	yes	Yes	All waste, construction waste, green waste	
<b>Denmark</b>	1 national plan 1993-1997 1 plan on cleaner technologies local plans not notified	yes	Yes	All waste for example industrial waste, packaging waste etc.	Infringement due to the packaging chapter A new national plan is being elaborated
<b>Finland</b>	1 national plan 1998-2005 14 regional plans	Yes	Yes	Municipal, industrial, construction, mining and agricultural waste, sewage sludge, contaminated soil.	Infringement due to the coverage of the territory by the plans and the packaging chapter Case to be closed
<b>France</b>	Some regional plans for hazardous waste Some departmental plans for municipal waste	Yes	yes	Some waste streams missing in some plans	Infringement due to the coverage of the territory by the plans, the incompleteness of the plans and the packaging chapter New plans are being elaborated
<b>Germany</b>	Some regional plans	Yes	yes	Construction waste, scrap from cars and electronics, ship waste, hospital waste, road cleaning waste and sludge Waste for recovery are not included in some plans.	Infringement due to the coverage of the territory by the plans, the incompleteness of the plans and the packaging chapter New plans are being elaborated
<b>Greece</b>	No plans notified to the Commission				Infringement due to the coverage of the territory by the plans, the incompleteness of the plans and the packaging chapter A national plan is being elaborated on the basis of regional plans.

**Table 2:** Overview of waste management plans in Member States (Questionnaire, Question II, 1c) continues over next page

 Did not send the report

<b>Ireland</b>					Infringement due to the coverage of the territory by the plans, the incompleteness of the plans and the packaging chapter
	Some local plans notified	Yes (for some plans)	yes	Not all waste types are included in the plans	On the basis of a national and some regional strategies, regional plans for non hazardous waste and 1 national plan for hazardous waste are being elaborated
<b>Italy</b>	Some regional plans	yes	Yes	Not all waste types are included in the plans	Infringement due to the coverage of the territory by the plans, the incompleteness of the plans and the packaging chapter
<b>Luxembourg</b>	No plan notified to the Commission				Infringement due to a total lack of plan
					1 national plan is being elaborated
<b>Netherlands</b>					Infringement due to the packaging chapter
National ten year programme	1 national plan for non hazardous waste 1995-2005 1 national plan for hazardous waste 1997-2007 Regional plans	yes	yes	All waste for example industrial waste	
<b>Portugal</b>	1 national plan			Not all waste types are included in the plan	Infringement due to the coverage of the territory by the plans, the incompleteness of the plans and the packaging chapter
					Sectorial plans are being elaborated
<b>Spain</b>	Some regional plans			Not all waste types are included in the plans	Infringement due to the coverage of the territory by the plans, the incompleteness of the plans and the packaging chapter
					1 national plan for municipal as well as sectorial plans are being elaborated
<b>Sweden</b>					Infringement due to the coverage of the territory by the plans and the packaging chapter
	Some local	yes	yes	All waste	1 national plan and the missing local plans are being elaborated
<b>United Kingdom</b>					Infringement due to the coverage of the territory by the plans, the incompleteness of the plans and the packaging chapter
	Some local and regional plans	yes	yes		On the basis a new strategy, plans are being elaborated for England, Wales, Scotland and Northern Ireland. Regarding plans for waste management sites see the detailed list in the answer from U.K.

**Table 2: Overview of waste management plans in Member States (Questionnaire, Question II, 1c)**

 Did not send the report



Directive 75/442/EEC on waste

<b>Domestic waste</b>	Austria	Belgium	Denmark	Finland	France	Germany	Greece	Ireland	Italy	Luxembourg	Netherlands	Portugal	Spain	Sweden	UK
Total (ton/year)	2.775.000	4.632.562	2.767.000	980.000	26.000.000	39.068.000	3.197.000	1.503.171	25.400.000	207.534	7.945.000	3.480.000	14.296.000	3.200.000	26.500.000
Recycled	1.263.000	1.828.359	777.000	169.669	1.500.000	11.562.000	226.000	117.732		14.952	3.520.000			500.000	1.868.000
Incinerated with energy recovery	431.000	1.088.541	1.545.000	32.013	2.500.000	8.992.000	1.000		1.400.000	115.559	3.220.000		625.000	1.300.000	1.217.000
Incinerated	0	234.795			8.000.000	(2)	(2)		(2)	-	-		(2)	-	1.099.000
Landfill	1.261.000	1.480.867	428.000	560.229	12.200.000	17.904.000	2.970.000	1.383.439	24.000.000	77.023	1.205.000	3.060.000	11.901.000	1.200.000	22.080.000
Other	0	0	16.000	218.089	1.800.000					-		420.000	1.770.000	200.000	236.000
Year		Flanders data from 1997	1996	1997		1997	1992	1995	1995	1997	1997	1994	1994	1994/95	95/96
Comments	Sum is not correct	(1)		(6)		Sum is not correct	(3)		(3+) (4)			(3) (5)	(3) (5)		

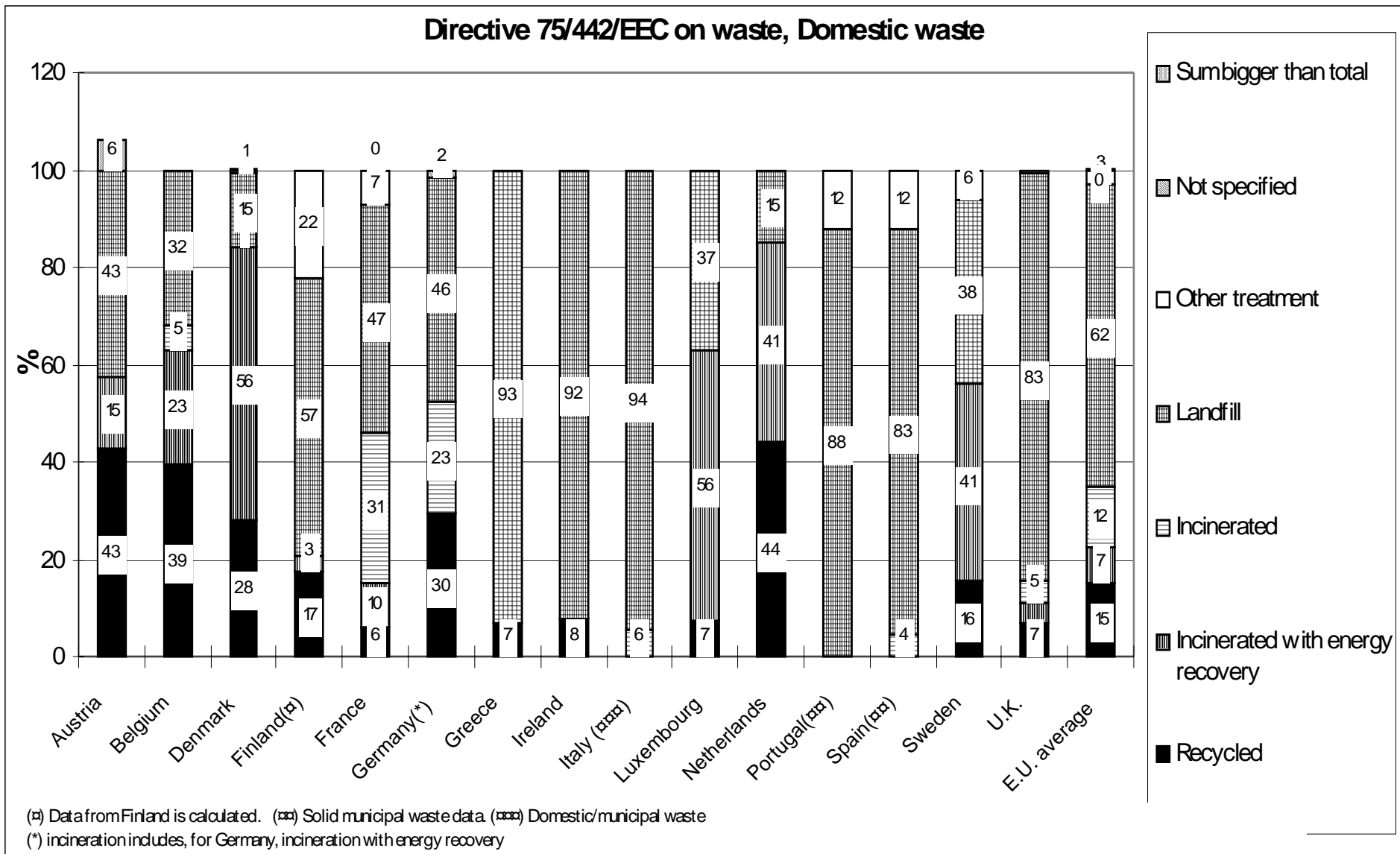
**Table 3.1: Data on domestic waste (Questionnaire, Question II, 4)**

Data not received from questionnaire but from source mentioned in note (3).

n.a.: no answer

Note:


- 1) Data only from Flemish and Walloon region (Brussels not included)
- 2) Includes both waste incinerated and waste incinerated with energy recovery
- 3) Data from OECD Environmental Compendium 1997; 3+) and a letter to the EEA of 16/09/98 from Instituto dos Residuos, Portugal and a letter to the ETC/W of 07/10/98
- 4) This data corresponds to a mean between municipal and domestic wastes
- 5) This data is for municipal waste
- 6) Data is estimated to be 40% of total municipal waste amount



**Figure 1:** Percentages of treatment and disposal types for **domestic waste** (Source: Table 3.1)

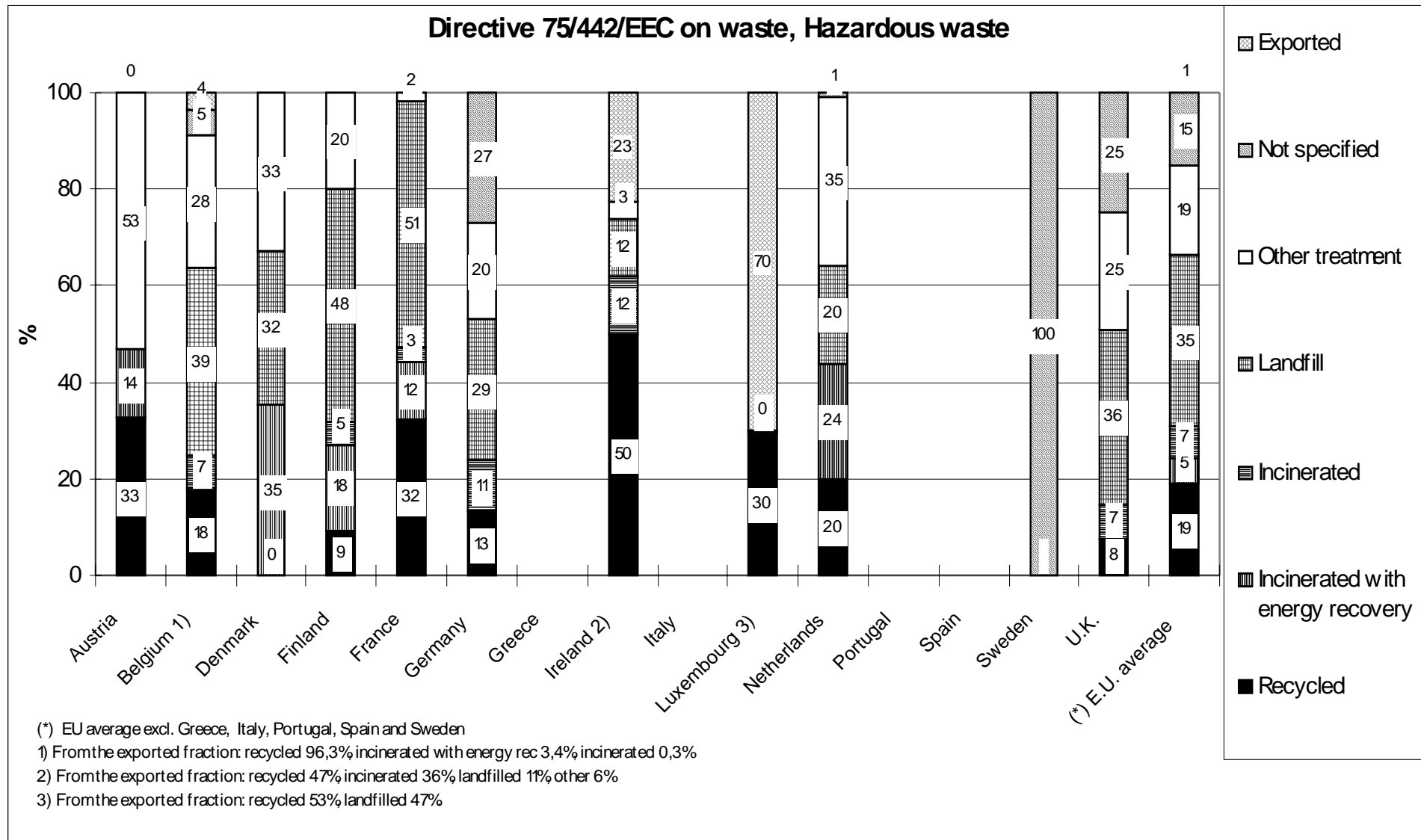
<b>Hazardous waste</b>	Austria	Belgium	Denmark	Finland	France	Germany	Greece	Ireland	Italy	Luxembourg	Netherlands	Portugal	Spain	Sweden	UK
Total (tonnes/year)	760.000	2.034.801	269.000	572.000	5.900.000	9.170.000		229.317		142.039	1.271.000			500.000	2.370.000
Recycled (1)	250.000	359.740	-	53.000	1.900.000	1.207.000		114.918		42.412	254.200			n.a.	179.000
Incinerated with energy recovery(1)	105.000	5.481	95.000	102.000	700.000	967.000				n.a.	305.040			n.a.	
Incinerated(1)	0	140.194	-	28.000	200.000	(3)		27.084		n.a.	-			n.a.	165.000
Landfill(1)	0	786.624	86.000	275.000	3.000.000	2.697.000		27.598		476	254.200			n.a.	861.000
Other(1)	405.000	562.824	88.000	114.000	100.000	1.818.000		7.990		n.a.	444.850			n.a.	582.000
Recycled (2)		73.416						24.051		52.679					
Incinerated with energy recovery(2)		2.610													
Incinerated(2)		231						18.880							
Landfill(2)		0						5.867		46.472					
Other(2)		0						2.929							
Year		1997	1996	1997		1996		1996		1997	1997				1995/96
Comments		(4)(5) Sum not correct for Flanders			(5)	sum not correct		(5)			sum not correct			estimated	Sum not correct

**Table 3.2:** Data on **hazardous waste** (Questionnaire, Question II, 4).

 Data not received      n.a.: no answer

Note:


- 1) Within the Member State
- 2) Outside the Member State
- 3) Includes both waste incinerated and waste incinerated with energy recovery
- 4) Data only from Flemish and Walloon region (Brussels not included)
- 5) Data from answers to questionnaire of Council Directive 91/689/EEC on hazardous waste.



**Figure 2:** Percentages of treatment and disposal types for **hazardous waste** (Source: Table 3.2)

<b>Other waste</b>	Austria	Belgium	Denmark	Finland	France	Germany	Greece	Ireland	Italy	Luxembourg	Netherlands	Portugal	Spain	Sweden	UK
Total (tonnes/year)	42.950.000	42.253.088	9.876.000	65.787.000	n.a.	n.a.		4.888.226		2.520.000	44.740.000			n.a.	221.915.000
Recycled	30.380.000 (2)	27.214.880	7.010.000	25.079.000	15.000	n.a.		835.674		0	35.650.000			n.a.	n.a.
Incinerated with energy recovery	1.940.000	135.860	867.000	3.877.000	n.a.	n.a.				0	2.925.000			n.a.	n.a.
Incinerated	0	2.124.726	-	902.000	135.000	n.a.		35.915		0	-			n.a.	n.a.
Landfill	10.630.000 (1)	5.193.100	2.010.000	8.872.000	n.a.	n.a.		3.600.976		2.520.000	4.600.000			n.a.	n.a.
Other		7.383.327	95.000	6.197.000	n.a.	n.a.		415.661		0	1.560.000			n.a.	n.a.
Year			1996	1997				1995		1997	1997				1994/95
Comments	(2)			(3)							sum not correct				

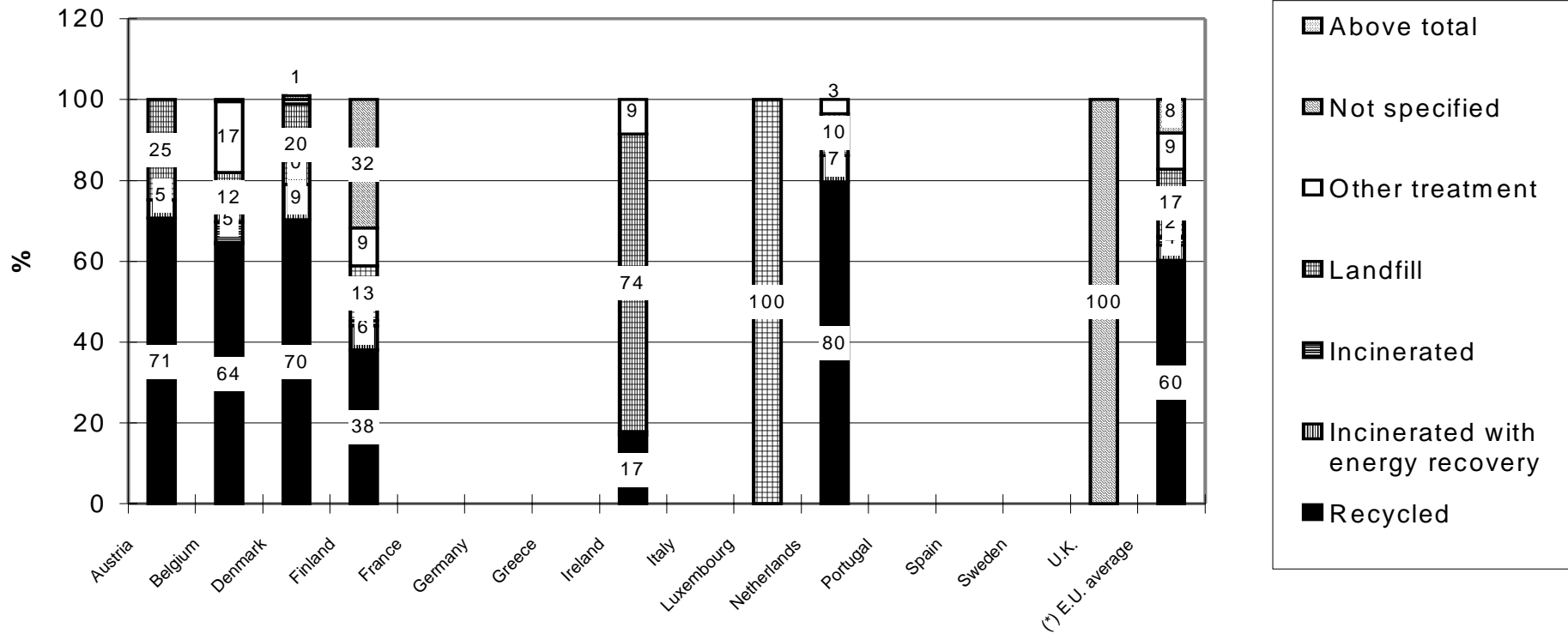
**Table 3.3:** Data on **other waste** (Questionnaire, Question II, 4)  
 Most Member States did not specify which fractions they included in "other waste"  
 (Sludge, industrial waste, waste from energy and water supply, mining waste, agricultural waste, construction waste).

 Data not received      n.a.: no answer

Note:

- 1) Includes both waste on landfill and other waste
- 2) Inclusive 17,8 Mio. tonnes recycled excavated soil
- 3) Inclusive mining and agricultural wastes

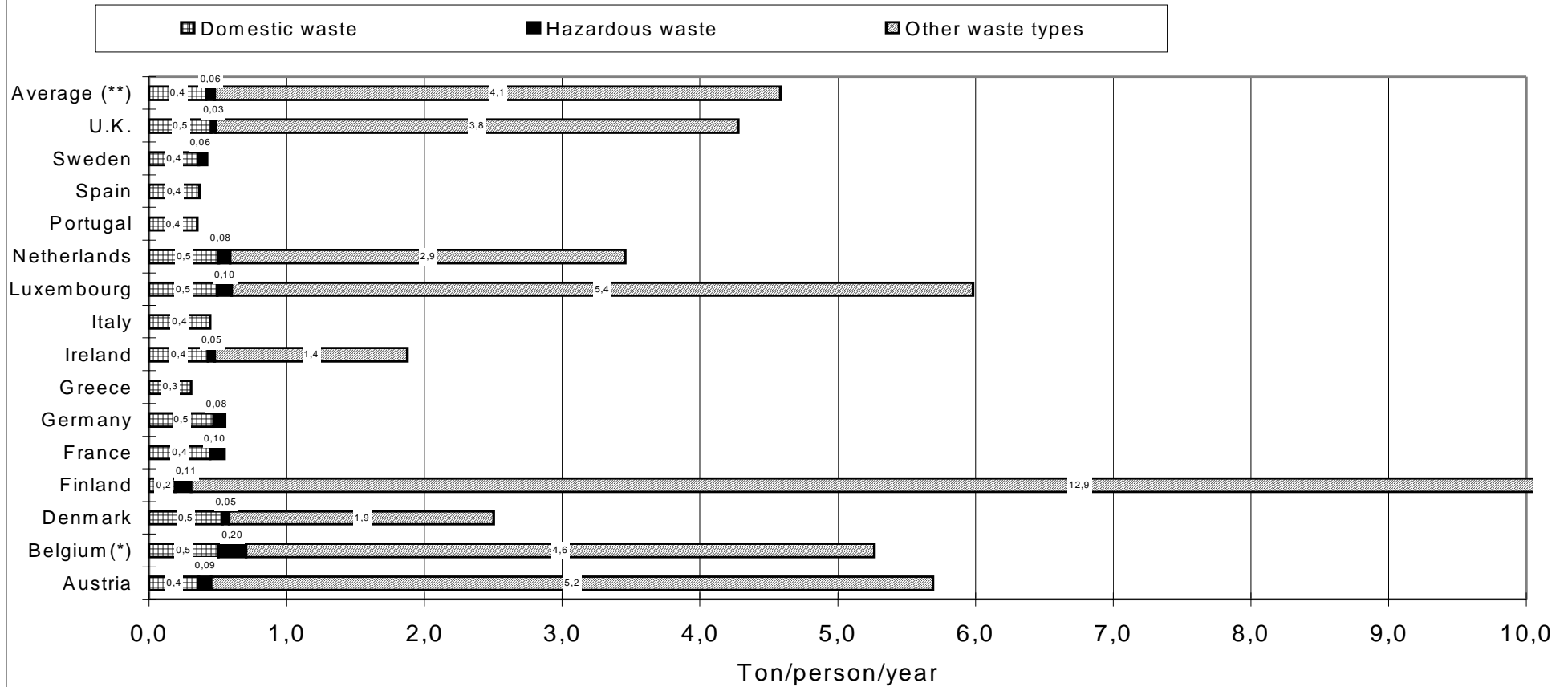
### Directive 75/442/EEC on waste, Other waste types



(\*) EU average excl. France, Germany, Greece, Italy, Portugal, Spain, Sweden and UK.

Figure 3: Percentages of treatment and disposal types for **other waste** (Source: Table 3.3)

### Directive 75/442/EEC on waste - Waste production per person



(\*) Population of Belgium include Flanders and Wallonia but not Brussels

(\*\*) Average for other waste excl. France, Greece, Italy, Portugal, Spain, Germany and Sweden

**Figure 4: Waste production per person per year for all types of waste (Source: Tables 3)**

## DIRECTIVE 91/689/EEC ON HAZARDOUS WASTE

### I. INTRODUCTION

In addition to Directive 75/442/EEC<sup>33</sup>, which constitutes the legal framework for all wastes, Directive 91/689/EEC<sup>34</sup> 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/EC<sup>35</sup>
- 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<sup>36</sup> of 27 May 1997. The Commission asked the Member States to provide information on the implementation of Directive 91/689/EEC in order to continue the previous report for the period 1990 to 1994<sup>37</sup>.

Although there was no legal obligation to report for the **period 1995 to 1997**, **nine Member States (Denmark, France, Ireland, Luxembourg, the Netherlands, Austria, Finland and Sweden)** have submitted their national reports. As regards **Belgium**, there is no federal waste law implementing this Directive. Each of the three regions (Walloon, Flemish, Brussels) implement European waste legislation independently. Only the Flemish and Walloon region sent their reports. Some data and information on hazardous waste could be extracted for Germany and the United Kingdom from the questionnaires of Directive 75/442/EEC.

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<sup>33</sup> See report on Directive 75/442/EEC on waste

<sup>34</sup> OJ L 377, 31.12.1991, p. 20

<sup>35</sup> OJ L 356, 31.12.1994, p. 14

<sup>36</sup> OJ L 256, 19.09.1997, p. 13

<sup>37</sup> COM (97) 23 final of 27 February 1997



In addition to the first part of the questionnaire (INCORPORATION INTO NATIONAL LAW) this report contains an evaluation of the implementation of the definition of hazardous waste and the hazardous waste list for all 15 Member States.

## II. REPORT BASED ON THE ANSWERS TO THE QUESTIONNAIRE (COMMISSION DECISION 97/622/EC)

### INCORPORATION INTO NATIONAL LAW

#### (Question 1 and 2)

The nine 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 on hazardous waste and Council Decision 94/904/EC establishing a list of hazardous waste into national legislation. Only the Walloon region noted that it has not yet submitted the legislation implementing the list of hazardous waste.

#### Definition of “hazardous waste” and the Hazardous Waste List

Article 1(4) of Council Directive 91/689/EEC defines hazardous waste by referring of reference to the List of Hazardous Waste adopted by Council Decision 94/904. Hence, the Commission considers that the transposition of the Hazardous Waste List is essential in the implementation by Member States of the hazardous waste definition. It is also considered necessary to have transposed Annexes I, II and III to Council Directive 91/689.

Eventually, there are two further aspects to be taken into account when assessing the compliance of national legislation with the Community definition of hazardous waste. First, the fact that Member States have taken more stringent measures, i.e. they have included wastes, which have the properties of Annex III and are therefore considered by them to be hazardous. The possibility of introducing new entries to the hazardous waste list is foreseen in Article 1(4), second subparagraph of the Directive, provided they are notified to the Commission, and is in line with Article 176 EC Treaty. The second aspect concerns the fact that hazardous household waste is excluded from the application of the provisions of the Directive. This does not mean, however, that household waste might not be hazardous.

The Commission has concluded that only four Member States, namely **Finland**,<sup>38</sup> **Greece**,<sup>39</sup> **Luxembourg**<sup>40</sup> and **Spain**,<sup>41</sup> have transposed correctly all the relevant elements of the hazardous waste definition.

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<sup>38</sup> Waste Act 1072/1993. Waste Decree 1390/1993. Ministry of the Environment Decision 867/1996 on the list of most common wastes and of hazardous wastes.

<sup>39</sup> Decision 19396/1546 on Measures and Conditions for the Management of Hazardous Waste, of 18 July 1997.

<sup>40</sup> Law on the Prevention and Management of Waste, of 17 June 1994. Regulation on Hazardous Waste, of 11 December 1996.

**Austria** has transposed neither the relevant annexes on hazardous waste nor the Hazardous Waste List. Austrian legislation provides that “dangerous substances are wastes, the treatment of which requires specific prudence and particular measures in view of the public interest, and the normal treatment of which requires supplementary measures or greater prudence than those required for the treatment of domestic waste”.<sup>42</sup>

**The Netherlands** has failed to transpose all the elements of the hazardous waste definition.<sup>43</sup>

In **Belgium** the Walloon<sup>44</sup> and the Brussels<sup>45</sup> regions have correctly transposed all the relevant elements of the hazardous waste definition. However, the Flemish region<sup>46</sup> has not transposed Annexes I and II to Council Directive 91/689.

**Denmark**,<sup>47</sup> **Portugal**<sup>48</sup> and **Sweden**<sup>49</sup> have failed to transpose Annexes I and II to the Directive, whilst providing for the other relevant elements noted above in line with EC Law.

**France**<sup>50</sup> and **Germany**<sup>51</sup> have only transposed the Hazardous Waste List as such, but not the definition as contained in Article 1(4) first subparagraph of the Directive nor Annexes I – III. No new entries to the Hazardous Waste List have been added in the national legislation of these two countries. It is also important to note that French legislation departs from Community terminology (“hazardous wastes”) by referring to “special industrial waste”, whereas German legislation refers to “wastes for special supervision”.

**Ireland** has transposed into its national legislation all the relevant elements of the hazardous waste definition but has failed to introduce the Hazardous Waste List.<sup>52</sup>

**Italian** legislation presents a divergence in the transposition of the hazardous waste definition, as it excludes from it household waste<sup>53</sup> as mentioned, however, domestic waste may be hazardous.

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<sup>41</sup> Law 10/1998 on Waste, of 21 April, Royal Decree 952/1997 modifying Regulation on the implementation of Law 20/1986 of 14 May on Toxic and Hazardous Waste (adopted by Royal Decree 833/1988, of July 20).

<sup>42</sup> Article 2.5, Waste Management Law of 6 June 1990.

<sup>43</sup> Decree on the classification of hazardous waste and waste oils, of 8 December 1997.

<sup>44</sup> Decree on Waste, of 27 June 1996. Order of the Walloon Government establishing a Waste Catalogue, of 10 July 1997.

<sup>45</sup> Ordinance on Prevention and Management of Waste, of 7 Mars 1991. Order establishing a list of hazardous waste, of 9 May 1996.

<sup>46</sup> Decree of 20 April 1994, amending Decree of 2 July 1981 concerning waste management. Order of the Flemish Government establishing the Flemish regulation on the prevention and management of waste (VLAREA) of 17 December 1997.

<sup>47</sup> Statutory Order from the Ministry of the Environment No. 299 of 30 April 1997 on Waste.

<sup>48</sup> Decree-Law 239/97 of 9 September 1997. Regulation No. 818/97 of 5 September 1997.

<sup>49</sup> Ordinance on Hazardous Waste (SFS 1996:971) of 26 September 1996.

<sup>50</sup> Law No. 75-633 on the elimination of waste and the recuperation of materials, of 15 July 1975 (as amended by Law No.92-646, of July 13, 1992). Decree No. 97-517 on the classification of hazardous waste, of 15 May 1997.

<sup>51</sup> Waste Avoidance, Recycling and Disposal Act, of 27 September 1994. Ordinance on the determination of waste for special supervision, 10 September 1996.

<sup>52</sup> Waste Management Act, 1996.

**The United Kingdom's** legislation complies only partially with the definition of hazardous waste. The legislation of England, Scotland and Wales<sup>54</sup> as well as the legislation of Northern Ireland<sup>55</sup> failed to transpose Annexes I and II to the Directive. Furthermore, both legal instruments use incorrect terminology by referring to 'special waste' instead of to "hazardous waste" as in Community legislation. In addition UK legislation excludes household waste from the definition of hazardous waste which is not in line with EC law.

## IMPLEMENTATION OF THE DIRECTIVE

### 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.*

The Flemish region of **Belgium, Denmark, Luxembourg, the Netherlands, Austria, Finland, Sweden and Germany** notified some more wastes as hazardous waste.

The Walloon region of **Belgium, Ireland, France as well as Greece, Italy, Spain, Portugal and the United Kingdom** did not identify other wastes as hazardous waste.

- These notifications are being reviewed by the Commission, assisted in this task by the Committee established by Article 18 of Directive 75/442 EEC with a view to adaptation of the European list of hazardous waste. Until the begin of 1999 the Commission received 471 notifications from Member States. The first adaptation of Decision 91/904/EC, subsequent to the review of 282 of these notifications, is planned for 1999.

### 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. Unfortunately the questionnaire asks whether the Member State distinguishes domestic hazardous waste from non-domestic hazardous waste. The aim of this question is unclear and so are the answers with "yes" or "no".*

As regards **Belgium** the Flemish region included such measures in the Flemish Decree on hazardous household waste. Article 1§1 gives a detailed definition of hazardous wastes from households.

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<sup>53</sup> Legislative Decree No.22, on the implementation of Directive 91/156/CEE on Waste, 91/689/CEE on Hazardous Waste and 94/62/CE on Packaging and Packaging Waste, of 5 February 1997, amended by Legislative Decree of 8 November 1997, No. 389.

<sup>54</sup> Statutory Instrument the Special Waste Regulations 1996, as amended by the Statutory Instrument 1996 No. 2019 The Special Waste (Amended) Regulations 1996

<sup>55</sup> Draft Statutory Rules of Northern Ireland, 1998.

The Walloon region of **Belgium, Denmark and France** answered with “no” without giving further explanations.

**Ireland** has not yet separate collections for hazardous household waste. “Bring” facilities provide for the acceptance of certain wastes.

In **Luxembourg** hazardous wastes generated in households are listed in Chapter 20 (Municipal waste and similar commercial, industrial and institutional wastes including separately collected fractions; see also hazardous waste list) of annex IV of the Regulation on Hazardous Waste of 11 December 1996.

The **Austrian** waste management law defines hazardous waste generated by households as “Problemstoff” (problematic substance). Local authorities have to collect these wastes separately at least twice a year.

In **Finland** municipalities shall organise the recovery and disposal of hazardous waste from household (Waste Act, Section 13). Households are exempted from keeping records on hazardous waste. The provisions of packaging and labelling in addition to specific identification forms only apply after having delivered the hazardous waste to municipalities.

In **Sweden** 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.

In **The Netherlands** a logo for 'Small Chemical Waste' (SCW) is used to distinguish hazardous waste generated by households from other household waste. The SCW Decree requires producers and importers of products that become hazardous waste when discarded to put this logo on their product.

**Italy and the United Kingdom** excluded household waste from the definition of hazardous waste. This is not in line with EC law.

➤ Five Member States (Luxembourg, the Netherlands, Austria, Finland and Sweden) and the Flemish region of Belgium indicated that they have established separate collection for hazardous household waste. Due to the imprecise question there is no information from Denmark, France and the Walloon region of Belgium. Ireland has not yet introduced separate collection. Italy and the United Kingdom exclude household waste from the definition of hazardous waste.

### **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.*

As regards **Belgium** in the Walloon region, the information regarding the discharge of hazardous waste has to be added on the transport form. The operator of the landfill has to file the copies of the transport forms and has to add all related details. In the Flemish region Article 5.2.1.2 of Vlarem II requires operators of installations for the treatment of waste to register the intake and treatment of wastes. Article 5.2.4.1.1§2 of this Decree

indicates that waste can only be accepted in a landfill when origin, characteristics, content and leaching behaviour are known.

In **Denmark** establishments treating hazardous waste have to keep records on the type of waste (no. of waste catalogue). It seems that there is no specific requirement for the sites where discharge of hazardous waste takes place.

In **France** the permission for the operation of a landfill includes the obligation to keep a register on waste acceptance and waste refusal.

**Ireland** confirmed the implementation of Article 2 (1) by section 41 (2) (ix) of the Waste Management Act, 1996.

In **Luxembourg** Article 2 (1) was implemented by Article 3 of the Regulation on Hazardous Waste of 11 December 1996; no further details.

In **the Netherlands** a requirement to identify, weigh and register all hazardous waste in landfills is laid down in the permits of landfills.

**Austria** has provided details of the record requirements for collection and treatment of all wastes and the continued collection of accompanying documents for hazardous waste.

In **Finland** the landfill operator has to record the precise location in the landfill, where hazardous waste is disposed of (Council of State Decision on landfills (861/1997), Section 7, subparagraph 6).

In **Sweden** the records and identification of discharged hazardous waste is part of the procedure of issuing permits for the landfilling activity.

In the **United Kingdom** apart from the accompanying documents that all establishments disposing of (and transporting) hazardous waste must have, the installations involved in this type of operation must keep a record of the site of each deposit of waste (Information from the report on the implementation of Directive 75/442/EEC).

- It seems that Austria and Denmark merged this requirement with the general requirement in Article 14 of Directive 75/442/EEC for establishment and undertakings carrying out recovery and disposal operations.

#### **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).*

As regards **Belgium** the Walloon region transposed the wording of these Articles. The Flemish region transposed this requirement in Article 23§3-5 of the waste management Decree (20 April 1994). Further specific measures are required according to

Articles 5.2.1.7§2, 5.2.2.5.2§1-3 and 5.2.2.6.5§1-3 of Vlarem defining the operational conditions for waste treatment installations.

**Denmark** did not explain the implemented provisions but referred to a letter of 18/7/96 in which Denmark confirmed that this Article has been transposed by § 53 of bekendtgørelse no 581 af 24 June 1996.

In **France** the disposal of specific industrial wastes (listed in the decree of 15 May 1997) together with other waste categories is prohibited. Specific industrial wastes and hazardous wastes are not accepted on a landfill for municipal waste. In addition industrial waste cannot be burned in an incineration plant for municipal waste. In the case of incineration of municipal waste together with specific industrial waste the stricter requirements are relevant.

**Ireland** confirmed the implementation of Article 2 (2) to (4) through the Waste Management Regulation (Article 37 (Licensing) 1997, Article 22 (Hazardous Waste) 1998, Article 8 (Movement of Hazardous Waste) 1998 and Article 18 (1) (Permit) 1998) without giving details.

**Luxembourg** generally prohibited the mixing of waste by Article 7 paragraph 4 of the law on the Prevention and Management of law. More specifically Article 2 (2), (3) and (4) were implemented by Articles 3,2 , 3,3 and 3,4 of 3 of the Regulation on Hazardous Waste of 11 December 1996. The mixing of hazardous waste for safety reasons requires a permit of the Ministry of the environment.

**Austria** prohibits the mixing of hazardous waste with other wastes, substances or waste oils in three cases: when necessary waste inquiry or treatment is hindered, when limit values for waste or installations are only met by this mixing or when the waste is treated in contradiction to § 1 (3). However the common treatment of different wastes in one installation is permitted, when it is permitted for each waste. In addition the common collection of different wastes or wastes which have different concentration of hazardous substances is permitted, when there are no chemical reactions and when the common recycling or treatment is permitted.

In **Finland** the mixing of hazardous wastes with one another or with other wastes or substances is only allowed, when it is necessary for waste recovery or disposal and when it does not cause safety problems. Blending or mixing prior to submission to any disposal operation (D1 to D 12) is considered a disposal operation. Thus the Finnish prohibition of mixing is not as strict as in Directive 91/689/EEC which allows the mixing only for safety reasons. The requirement of separating already mixed waste is in line with Community legislation.

In **Sweden** the requirements of Article 2 (2) to (4) are included in the Swedish Ordinance on Hazardous Waste (SFS 1996:971).

In **the Netherlands** these requirements are included in Article 2, second, third and fourth indent of the Decree on separation and keeping separate hazardous waste (Official Journal 1998, 72) sent to the Commission by letter of 15 September 1998.

- Due to the explanations given, the general prohibition of **mixing hazardous waste** (Article 2 (2) to (4)) is implemented in a less strict manner in France and Austria as they prohibit the mixing only in specific cases, as well as in Finland which allows the

mixing when it is necessary for recovery and disposal and does not cause safety problems.

## **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.*

None of the Member States replying to the questionnaires established general rules to enable exemptions of the permit requirement for establishments, which recover hazardous waste.

## **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.*

As regards **Belgium**, in the Walloon region the producers of hazardous waste are inspected in the context of a general control on the implementation of environmental legislation for classified establishments. These controls are usually carried out at least once a year. In the Flemish region these inspections are carried out by the Administration for Environment, Nature, Land and Water management (AMINAL). The frequency of inspection depends on the priority of the dossier.

In **Denmark** the inspection of producers of hazardous waste is part of the general municipal inspection.

**France** confirmed that every delivery of hazardous waste to a disposal installation is controlled, that special installations are inspected at least once a year and that for waste generation and waste disposal declarations are required once to three times a year.

In **Ireland** the frequency of inspections is determined by individual competent authorities having regard to the nature of the facilities and the wastes concerned (Section 15 (1) (b) of the Waste Management Act 1996).

In **Austria** a producer of waste who generates hazardous waste (at least once a year) has to be registered. Any management of hazardous waste is registered in a federal register. The data is regularly monitored. Inspections are to be done in view of the occasion (inconsistent records, per branches).

In **Luxembourg** officials of the police, the customs authorities and the environmental administration monitor infringements of the general waste legislation as well as the legislation on hazardous waste. The controls are carried out regularly but not in a determinate frequency.

The **Netherlands** confirmed the implementation of this requirement. The frequency depends on the potential risk of the outlets, which is then the basis for the inspection plans of the provinces.

In **Finland** the regional environment centres and the local environmental authorities shall supervise compliance with provisions and regulations. Detailed provisions on inspections and performing inspections are laid down in Section 54 of Waste Act, Section 23 of Waste Decree. The frequency of inspections is on a case by case basis decided by the supervisory authority in accordance with the need for inspections.

In **Sweden** authorities responsible for inspections shall carry out plans for inspections on a yearly basis. These authorities shall also keep records of the activities that require inspections and shall regularly evaluate the results of the inspections.

- From the answers given it can be concluded that the national administrations do not inspect all generators of hazardous waste. Thus they focus on the most important cases.

## **7. Records on Waste – Article 4(2)**

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

The answers were included in the report on Directive 75/442/EEC on waste as the answers were overlapping (see page 17).

## **8. Measures to ensure proper packaging and labelling of hazardous waste – Article 5**

*According to Article 5 (1) hazardous 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.*

As regards **Belgium**, in the Walloon region establishments, which carry out transport, collection, treatment, recovery and disposal operations on hazardous waste need an authorisation, which includes requirements on packaging and labelling. The Flemish region laid down these requirements in Article 23§2 of the waste management Decree, which requires that waste is packed and/or stored properly in accordance with international and European provisions during collection, transport and temporary storage. The Decree of 1 February 1995 on recognition of collectors and registration of transporters includes the requirements for collectors and transporters of hazardous waste.

**Denmark** confirmed the implementation and referred to a letter of 18/7/96 in which Denmark confirmed that Article 5 (1) has been transposed by § 54 of bekendtgørelse no 581 af 24 June 1996.



**France** only describes the provisions for packaging, labelling and transport of hospital and infectious healthcare waste.

**Ireland** confirmed the implementation without giving further details or explanations.

In **Luxembourg** these provisions were implemented by Article 5 of the Regulation on Hazardous Waste of 11 December 1996.

In **Austria**, the proper packaging and labelling is laid down in the “Gefahrgutbeförderungsgesetz”.

In **Finland** hazardous waste shall be collected, packaged and labelled in such a way that appropriate waste management can be organised and that harm to health and the environment is avoided. The name of the waste and the waste holder must be marked on hazardous waste packaging together with any information and warnings necessary for safety and appropriate waste management organisation. These provisions have been further specified in the Council of State Decision. The provisions and regulations concerning the transportation of dangerous substances apply to hazardous wastes, which are being transported.

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

In **the Netherlands** provisions for the transport of dangerous preparations, including hazardous wastes, are included in the Act on transport of dangerous preparations. These rules are set internationally (e.g. ADNR). The storage of hazardous waste requires a permit which includes safety rules (prevention of fires and explosions on the basis of guidelines of the Committee for Prevention of Accidents (guidelines CPR 15-1 and 15-2). It also contains requirements for the protection of soil and groundwater.

➤ As regards the proper packaging and labelling of hazardous waste, **France** confirmed the implementation only for hospital and infectious healthcare waste.

## **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. A “Comparative Study on Plans for the Management of Hazardous Waste” (Final Report of July 1997) was worked out and distributed to the Member States as requested in Article 6 (2).*

The data and information on waste management plans on hazardous waste are included in the report on Directive 75/442/EEC.

## **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 reporting Member States applied Article 7.

### **11. In addition to the questionnaire – Article 8 (3)**

*Article 8(3) requires Member States to send the Commission information for every establishment or undertaking which carries out disposal and/or recovery of hazardous waste principally on behalf of third parties and which is likely to form part of the integrated network referred to in Article 5 of Directive 75/442/EEC. This information should consist of name and address, method used to treat the waste and types and quantities of waste which can be treated and is to be provided on a yearly basis in a format laid down in Decision 96/302/EC<sup>56</sup>. The Commission shall make this information available on request to the competent authorities in the Member States.*

Up to May 1999 the Commission had received information from all Member States except Italy. Only Germany has provided a first update of the information. The other Member States only provided information once.

Not all Member States sent in the complete information or in the right format. The information from Greece only consisted of the name and address of the installations. The information from Germany contained all the required data. However the information as regards the waste that can be treated is given in the form of the LAGA-codes and not according to the European Waste Catalogue. As regards the United Kingdom the information is complete except for the types of wastes treated in the installations in England. In the French contribution the information on treated waste types is also missing. In the Irish and Portuguese information the waste types are not mentioned systematically. As regards Portugal also the information on the treatment method is lacking for some installations. All the other Member States have provided all the information in the required format.

The Commission is considering making the information on the treatment facilities accessible in the form of a database. A possibility would be to provide the information to the European Environment Agency to allow them to include this into their data system or into that of the European Topic Centre on Waste.

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<sup>56</sup> OJ No L 116, 11.5.1996, p. 26.

## **DIRECTIVE 75/439/EEC ON WASTE OILS, AS AMENDED BY DIRECTIVE 87/101/EEC**

### **I. INTRODUCTION**

Directive 75/439/EEC<sup>57</sup> as amended provides measures to ensure that waste oils are collected and disposed of without causing any avoidable damage to man and to the environment.

The main provisions of Directive 75/439/EEC as amended are:

- definition of “waste oil” and waste oil management terminology<sup>58</sup> such as disposal (any treatment/handling), processing (regeneration and combustion), regeneration (refining into base oils), combustion (use as fuel) and collection (Article 1)
- general objective of the waste oils management is to avoid any damage to man or the environment (Article 2)
- hierarchy of waste oils management: priority is given to the processing of waste oils by regeneration; otherwise waste oils have to be burned under environmentally acceptable conditions; safe destruction and controlled storage or tipping when both other options are not feasible (Article 3)
- prohibition of: discharge of waste oils into waters, discharge harmful to the soil and uncontrolled discharge, processing exceeding existing emission levels (Article 4)
- public information and promotional campaigns to ensure appropriate storage and collection as far as possible; undertakings may carry out collection and/or disposal; Member States may decide to allocate the waste oils to any of the types of processing (Article 5)
- permit requirement for undertakings, provisions for processing, provisions for combustion (emission values for plants with a thermal input of 3 MW and more, adequate control for plants with less thermal input) (Articles 6,7,8)
- specific requirements with regard to PCB/PCT (Article 10)
- requirement to keep records, convey of information to competent authorities, periodic inspections, examination of technical development and adaptation of permits (Articles 11, 12, 13)

The following consolidated report is based on the questionnaire adopted by Commission Decision 94/741/EC<sup>59</sup> of 24 October 1994. According to Directive 91/692/EEC<sup>60</sup> Member States were obliged to submit their reports on the **period 1995 to 1997** by 30 September 1998. Greece, Italy, Portugal and Spain did not send their reports, thus the consolidated report **only** refers to **eleven Member States**.

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<sup>57</sup> OJ L 194, 25.07.1975, p. 31 as amended by Directive 87/101/EEC (OJ L 42, 22.12.1986, p. 43)

<sup>58</sup> The terminology of the Directive on waste oils differ from the terminology of Directive 75/442/EEC

<sup>59</sup> OJ L 296, 17.11.1994, p. 42

<sup>60</sup> OJ L 377, 23.12.1991, p. 48

The national contributions are in some points compared with the information given by the study on Economics of Waste Oils Regeneration<sup>61</sup>, which gives an overview on the waste oil management in the fifteen Member States.

## II. REPORT BASED ON THE ANSWERS TO THE QUESTIONNAIRE (COMMISSION DECISION 94/741/EC)

### INCORPORATION INTO NATIONAL LAW

#### 1. National law

The eleven Member States, which submitted their reports (**two regions of Belgium, Denmark, Germany, France, Ireland, Luxembourg, the Netherlands, Austria, Finland, Sweden and the United Kingdom**) confirmed that they have provided the Commission with details of the current laws and regulations in force to incorporate the Directive 75/439/EEC on the disposal of waste oils as amended into national law.

#### 2. Provisions regarding the regeneration of waste oil – 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 ensure that base oils derived 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)).*

As regards **Belgium**, the Walloon region did not take measures according to Article 7. It indicated that waste oils were only partly regenerated in the Walloon region and mainly in the Flemish region, which is contradictory to the data in table 1 as there is no regeneration in the Walloon region and 0.2% in the Flemish region. In the Flemish region such provisions are included in subdivisions 5.2.2.8 and 5.2.3.5 of the Decree Vlarem II.

**Denmark** confirmed that the necessary measures were taken. However, Denmark does not regenerate waste oils.

In **Germany** measures to ensure environmentally sound operation of regeneration are laid down in the waste management law and the Federal Immission Control Act. The requirement of Article 7 (b) has been implemented by the Waste Oil Ordinance of 1987.

**France** did not take measures according to Article 7, but indicated that Article 2 of the Decree of 21 November 1979 gives priority to regeneration.

In **Ireland** the regeneration of waste oils does not take place.

In **Luxembourg** the provisions of Article 7 are laid down in the Grand-Ducal Regulation of 30 November 1989 relating to waste oils. Waste oil regeneration installations are also subject to the provisions of the law of 17 June 1994 concerning the prevention and management of waste under which operating permits are required. Specific operating

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<sup>61</sup> Economics of Waste Oils Regeneration, Coopers & Lybrand, the Hague, 29 January 1997

conditions are laid down in these permits (see previous report). However Luxembourg has no installation which regenerates waste oils where these provisions could be applied.

**The Netherlands** communicated that no waste oil is regenerated.

**Austria** did not implement such provision as regeneration is not carried out due to small quantities.

**Finland** and **Sweden** confirmed the implementation of measures pursuant to Article 7 without giving further details. However, they do not regenerate or just regenerate a tiny fraction of waste oil.

The **United Kingdom** referred to the previous report where Part I and II of the Environmental Protection Act (EPA 1990) and 1991 Regulations on Environmental protection (Procedures and substances) SI No. 472 amended by the 1994 Regulations on permits for waste management (Regulation 14) were mentioned.

➤ Thus the **Flemish region, Denmark, Germany, Luxembourg, Finland, Sweden and the United Kingdom** confirmed the implementation of Article 7 without giving any further details on the kind and quality of the measures whereas the **Walloon region, France, Ireland, the Netherlands and Austria** did not implement the provision. France did not take such measures although it regenerates waste oils.

### 3. More stringent national measures – Article 16

*According to Article 16 Member States may take more stringent measures than provided by the Directive for the purpose of environmental protection.*

As regards **Belgium**, the Walloon region announced that more stringent measures were taken with regard to Article 4 (prohibitions). These measures are more detailed and precise as far as the management of the used oils is concerned. The Flemish region indicated that these measures are included in Article 5.2.2.8.3 and 5.2.3.5.2 of the Decree Vlare II.

**Denmark** indicated the adoption of more stringent measures without giving further details.

In **Germany** more stringent measures for the purpose of environment has been taken especially through the Ordinance on waste incineration plants (17<sup>th</sup> BimschV).

**France** has not taken more stringent measures.

In **Ireland** more stringent measures than those notified to the Commission have not been considered necessary.

In **Luxembourg** the law of 17 June 1994 on the prevention and management of waste gives priority to the regeneration of materials in general and, by deduction of waste oils. The use of waste as a source of energy is conceivable only for the waste which is not suitable for reuse other than heating. The measures have been communicated to the Commission (previous report).

**The Netherlands** stated that some requirements as regards the content of halogenated hydrocarbons and PCBs are included in the definition of used oil. Also some requirements are included as regards the content of halogenated hydrocarbons and PCBs for use as a fuel or for preparation of fuels. These requirements apply to all fuels.

**Austria** indicated that more stringent measures have been taken and that the corresponding legal texts were submitted to the Commission.

**Finland** and **Sweden** confirmed the implementation of more stringent measures without giving further details.

As the **United Kingdom** reported already for the previous report it has not felt the need to take more stringent measures.

- **With the exception of France, Ireland and the United Kingdom** all reporting Member States indicated that they have taken more stringent measures than provided by the Directive for the purpose of environmental protection. These measures differ between stricter priority for regeneration (Luxembourg), stricter emission limit values (Germany), stricter values for the PCB content (the Netherlands); in the other cases, the measures were not specified.

## IMPLEMENTATION OF THE DIRECTIVE

### 1. Waste oils management - Article 2 and 3

*According 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)*

Figure 1 provides an overview on the waste oil management in 1994/1995, which was worked out for the fifteen Member States in the study Economics of Waste Oils Regeneration<sup>62</sup> (further called “the study”) by Coopers & Lybrand. This figure contains the mean rates of waste oil generated (48%) and waste oil collected (74.6%) as well as the percentage share of regeneration (36%) and combustion (64%). As regards waste oil management the Commission considers route D (re-refining) as “regeneration” whereas routes A (untreated oil for energetic use), B (energetic use after limited treatment) and C (re-processing into fuel oil) are considered as “combustion”.

As regards the comparability of the figures given by the Member States for this report the following commitments were made.

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<sup>62</sup> Economics of Waste Oils Regeneration, Coopers & Lybrand, the Hague, 29 January 1997

- The figures were often given without indicating the units or in different units such as tonnes and cubic meters; for the conversion the density of 0.9 ton/m<sup>3</sup> was used
- The figures for waste oil generated differed widely between 33 and 66% of the oil launched on the market. As this value is only an estimate but very basic for the evaluation, the waste oil generated was calculated to be 50% of the oil launched on the market for all Member States in order to get comparable data for this report.

Table 1 contains the figures provided for waste oil management. The share of waste oil management calculated on the bases of the approach that 50% of the oil marketed is generated as waste oil is presented in figure 2. This kind of presentation was chosen in order to show that still a huge amount of waste oil is not collected separately and thus not managed appropriately. Figures for the year 1994/1995 for Greece, Italy, Portugal and Spain were added from the study in order to be able to present an average of waste oil management in 1997 for the fifteen Member States.

Figure 3 provides an overview on the quantity of the oil marketed, waste oil collected and waste oil treated (regenerated, burned and tipped) in 1997 per 1000 inhabitants. Around 50% of the oil marketed are expected to be generated as waste oil.

The two regions of **Belgium** did not submit figures on the oil launched on the market. The figures provided by the Flemish region indicate a collection rate of about 100% whereas the Walloon region achieved a collection rate of about 50%. The waste oil collected is burned (route B). The extremely high quantity of waste oil in Belgium is due to the data provided by the Flemish region, which defines waste oil broader (e.g. inclusive sludge, oil filters, cleaning and packaging material soaked with oil or grease etc.) than the other countries. In addition the figures presented are based on the annual report of all economic operators inclusive waste treatment plants, therefore it is likely that several charges have been reported more than once.

In **Denmark** the collection rate decreased from around 100% in 1995 to 84% in 1997 (on the bases that 50% of the oil on the market is generated as waste oil). All waste oil was burned. Due to the information given in the study, 50% was reprocessed (route C) and 25% each went into route A and B.

**Germany** collected between 83 and 90% of waste oils (on the bases that 50% of the oil on the market is generated as waste oil and not 66% as indicated). Around 51% of the waste oil generated were regenerated (slightly decreasing tendency since 1994) 32% combusted.

The collection rate in **France** increased from 51 and 55% (on the bases that 50% of the oil on the market is generated as waste oil and not 42% as indicated). The percentage of regeneration decreased constantly from 26 to about 18% and thus the combustion increased from 29 to 38%. The previous report has already stated that the regeneration rate was decreasing between 1990 and 1994.

**Ireland** collected between 36 and 39% of waste oils (on the bases that 50% of the oil on the market is generated as waste oil and not 33% as indicated) which was all burned.

**Luxembourg** did not provide data on the quantity of the oil launched on the market. Therefore the waste oil generated was just estimated to be the same as the quantity collected (thus collection rate of 100%). Luxembourg stated that all waste oils were

exported for regeneration. This would be a considerable increase as the previous report stated that 50% were regenerated. There is a contradiction according to the study which concluded that the waste oils were burned by route A and B in 1994/1995.

The collection rate of **the Netherlands** increased from 35% in 1995 to 52% in 1997 (on the bases that 50% of the oil on the market is generated as waste oil and not between 37 and 45% as indicated). 100% of the collected oils were burned.

**Austria** only estimated figures on the oils placed on the market and the waste oils generated. The collection rate decreased from 92% in 1995 to 78% in 1997. 100% of the oils collected are burned.

In 1997 **Finland** collected 97% of the waste oil generated, only 4% were regenerated, 68% burned and 25% temporary stored.

The figures provided by **Sweden** are rough estimates. Thus the collection rate is estimated to be 100% (if the waste oil generation rate is considered to be 50%). The waste oil collected is burned (89% in route B, 11% in route A).

The figures provided by the **United Kingdom** are estimates, according to which the collection rate would range between 94 and 97% of the waste oil generated (on the basis that 50% of the oil on the market is generated as waste oil and not 55% as indicated). 7% were regenerated and 89% burned. The difference between the waste oil regenerated and collected is supposed to be landfilled.

As regards the Member States, which have not submitted a report, the study<sup>63</sup> provided the following information for the year 1994/1995.

In **Greece** only 8% of the waste oil arising was legally collected separately and then regenerated. The residue of 92% of the waste oil was collected illegally and sold untreated as fuel.

**Spain** had a collection rate of 44%; 14% were regenerated and 26% burned (25% route B and 43% route A).

**Italy** achieved in 1994 a collection rate of 58%; 48% were regenerated and 10% burned.

**Portugal** had a collection rate of 25%, thereof 100% were burned (route A)

➤ In order to be comparable with figure 1, figure 2 has to be adapted (factor 50/48 for the collection rate and factor 100/71 for regeneration and combustion). Thus the percentage of separate collection had slightly decreased from 74.6 to 74% (71% x 50/48) from 1994/1995 to 1997. Thereof 24% (17% x 100/71) were regenerated in 1997 contrary to 36% in 1994/1995 whereas the percentage of combustion increased accordingly from 64% to 75% (53% x 100/71).

If one assumes that the waste oil management in Greece, Italy, Portugal and Spain has not considerably improved from 1994 to 1997, then waste oil management throughout the European Union has even worsened between 1994/1995 and 1997.

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<sup>63</sup> Economics of Waste Oils Regeneration, Coopers & Lybrand, the Hague, 29 January 1997



## 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)).*

As regards **Belgium**, the Walloon region indicated that technical, economic and organisational constraints, without specifying these constraints, have limited the regeneration but not the combustion of waste oils and that measures according to Article 3(3) have been taken. The Flemish region did not have any constraints with regard to regeneration and combustion.

In **Denmark** there is so far no technical or economical basis for the regeneration of waste oils; only a study project has started. Waste oils are, following refinement, burnt for district heating. Subsidy is given to private collectors of waste oils in the form of compensation for energy and CO<sub>2</sub> charges when they deliver waste oils to central heating installations.

By setting the economic and organisational framework **Germany** ensured that industry achieved the technical conditions for the regeneration of waste oils. Constraints were not mentioned.

**France** indicated that there are no basic constraints but that it focuses for the following reasons on the combustion of waste oils with energy recovery in cement kilns. There is only one installation for the regeneration of waste oils in France. Furthermore, the producers of base oil did not wish to develop regeneration techniques. There is an economic aspect in favour of combustion as there is currently an overproduction of base oils and the first results of a life cycle analysis showed that combustion of waste oils might be the best solution for the protection of the environment.

In **Ireland** there were no technical, economic or organisational constraints, which prevented it from giving priority to regeneration and combustion. It is not clear for which reason Ireland does not promote regeneration.

At present there are no constraints any more in **Luxembourg** as regards the regeneration and combustion of waste oils. Luxembourg has neither regeneration plants nor combustion plants. The collectors of waste oils have contracts with regeneration plants abroad. The only criterion permitting combustion is that the quality of the used oils and the techniques do not allow regeneration.

**The Netherlands** indicated that the policy of the government in the beginning of the 1980's aimed at the regeneration of waste oil into basic oil in a Central Regeneration Unit (CRU). This failed due to economical reasons. In 1986 this was changed and with the producers of lubricant oil it was tried to set up a CRU to produce fuels on the basis of waste oil (in particular marine diesel oil). A company was licensed to do so, but this company does not yet make use of this licence. The reason is that collectors of oil are not willing to send the oil to this facility but use other outlets abroad. Currently the installation uses a centrifusion technique to produce a fuel or a blend-product for production of fuel.

Incineration of non-treated waste oil hardly occurs. Waste oil also occurs in wiping cloths, bilge water, oil filters and oil separators etc. These wastes are managed as hazardous waste and not as waste oil and are mainly disposed of in incinerators.

**Austria** has argued that the amounts of waste oils are too small for making regeneration economically feasible.

In **Finland** there are no technical, economic and organisational constraints which prevent from giving first priority to regeneration and second priority to combustion.

**Sweden** indicated the following constraints due to the regeneration of waste: marketing problems as regenerated oils have to be labelled unless the base oil is hydrogenated, the need for big quantities in order to get returns on expensive investments and waste from the sulphuric acid process (?) has caused serious problems at a previous plant.

In the **United Kingdom** limited regeneration of waste oil takes place. It requires high levels of investment. The main competition comes from firms, which recover energy from waste oils. In addition the competition between oil companies has also affected the viability of regeneration. There are no constraints mentioned for combustion. Safe destruction, storage or tipping of waste oils requires waste management licences (Waste Management Licensing Regulation 1994). Licence holders are required to manage waste oils in a way which does not pose a threat to the environment and human health (Environmental Protection Act 1990, section 34).

- The main constraints on national level concerning the regeneration seem to be economic aspects such as that a minimum quantity of collected waste oil is needed for an economically profitable regeneration (due to the study<sup>64</sup> 60 000 to 80 000 tonnes per year are needed) and that there is a fierce competition between regeneration and combustion and no stimulating instruments. There are even grounds for the assumption that some Member States do not want to focus on regeneration. Thus France expressed that in its point of view combustion is the environmentally better solution.
- In addition the study<sup>65</sup> identified that the main constraints on European level are that there is no absolute priority for regeneration, no consistency in policy and no co-operation between Member States and that there is a general over-capacity of lubricants and poor competitiveness for regeneration.

### **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.*

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<sup>64</sup> Economics of Waste Oils Regeneration, Coopers & Lybrand, the Hague, 29 January 1997

<sup>65</sup> Economics of Waste Oils Regeneration, Coopers & Lybrand, the Hague, 29 January 1997

As regards **Belgium**, the Walloon region did not carry out specific information campaigns for waste oils but more general campaigns. These campaigns aimed at informing on household waste management and protection of the environment and were implemented by various actions during “green weeks”. The Flemish region did not carry out any public information campaigns.

**Denmark, Ireland and Sweden** did not carry out public information campaigns.

In **Germany** information and the raise of public awareness is the task of the Länder and local authorities. They are obliged to advise the producer of waste oil on the appropriate waste management and facilities. Press releases, contributions in broadcasting and television, publications and expositions were carried out. Traders are obliged to inform the end-user on the appropriate waste oil management and are obliged to take back, which ensured continuing and comprehensive waste oil collection.

In **France** ADEME, the agency for energy and environment carries out permanent actions in order to inform waste oil collectors and professionals in the car sector. The end-users are informed on the collection points for waste oils via a “green telephone number”.

In **Luxembourg** various operations have been set in motion as part of the Superdreckskäsch campaign initiated by the Ministry of the Environment: publicity spots and campaigns on the radio, in newspapers and the cinema along with participation in trade fairs. The campaign for citizens is called “Superdreckskäsch fir Biirger” and for the commercial sector “Superdreckskäsch fir Betriiber”. The quantities of waste oils collected through those two actions increased between 1995 and 1997 not considerably as the actions started already in 1994.

**The Netherlands** mentioned an information campaign including several media on small chemical waste of which waste oil form a part. Also a brochure on how to handle waste oils was produced.

**Austria** carried out public information through communications, speeches, press releases and information sheets.

Some examples of the **Finnish** public information campaigns which were carried out by the Ekokem Oy Ab (national hazardous waste treatment facility):

- together with collectors of used lubrication oils Ekokem has organised campaigns for municipalities to promote the collecting of lubricating oils,
- in 1995 Ekokem organised together with the collectors a campaign about oil separating wells and their wastes,
- numerous articles in professional papers were published on sorting oils,
- Ekokem's leaflets were distributed by local and regional authorities,
- Ekokem organises training occasions in which the employees of companies, municipalities etc. can participate.

The success of these activities is mainly that small businesses establishments have come into the sphere of systematic collection.

In the **United Kingdom** the Oil Care Campaign which started in 1995 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: the Oil

Bank Helpline assists the public to find the nearest oil recycling bank, The Emergency Hotline for reporting pollution incidents, the Oil Care Code a simple guide for domestic and commercial users to prevent oil pollution. The Helpline is advertised through leaflets, in car maintenance manuals and on the majority of cans of oil. The production of a variety of materials is planned for 1999.

➤ **Belgium, Denmark, Ireland and Sweden** did not at all comply with this provision.

#### 4. Details on undertakings collecting waste oils

In question 4 Member States were asked to submit details on undertakings collecting waste oils. The structure of waste oil management as regards the level and number of competent authorities as well as the number of undertakings differ widely between Member States. With the **exception of Denmark** all reporting Member States have established permitting systems.

#### 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).*

The Walloon and Flemish region of **Belgium, Denmark, Germany, Ireland, Luxembourg, Austria, Sweden and the United Kingdom** did not allocate waste oils to any type of processing.

**France** allocated waste oils to controlled regeneration or combustion installations.

**The Netherlands** indicated that 5 companies have a permit for centrifusion of waste oil, given by the provinces. These permits include requirements for the protection of health and the environment and are controlled by the provincial authorities. These installations may also receive other wastes than waste oils.

In addition to the **Finnish** Council of State Decision 101/1997, which states the hierarchy of regeneration, energy recovery and safe disposal for waste oils (national hazardous waste treatment facility, the Ekokem Oy Ab 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.

➤ Due to the national contribution only Finland has applied Article 5(3).

#### 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. As for the undertakings collecting waste oils, the structure of waste oil management as regards the level and number of competent authorities as well as the number of undertakings differ widely between Member States.

- **Ireland and the Netherlands** did not give permits according to Article 6 as they do not consider processed waste oil as “waste”. This is not in line with EU legislation and there is no explanation why at least the undertaking processing waste oil shall not get a permit. This might be due to a misunderstanding that “disposal” in the context of waste oil does not mean incineration without energy recovery or landfilling.

## 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.*

Table 2 provides an overview on the emission limit values set on European and national level for combustion plants with a thermal input of more than 3 MW. The Directive provides two options for certain substances and Member States have to lay down which of these options apply in their countries.

**Ireland and the Netherlands** did not implement the limit values, which is due to their consideration that processed waste oil used as a fuel is not a “waste” any more, which is not in line with the Directive.

The limit values provided by **France** are in line with the Directive.

**Sweden** did not answer the question.

**Austria, Denmark, Finland and Germany** implemented stricter limit values. **Austria** determined limit values for additional substances.

The limit values for sulphur dioxide and dust, which had to be set by Member States, vary between 50 and 1700 mg/Nm<sup>3</sup> for sulphur dioxide and between 10 and 100 mg/Nm<sup>3</sup> for dust.

Only **Austria, Belgium, Denmark, Germany and the United Kingdom** set also or the same emission limit values for combustion plants with a thermal input of less than 3 MW.

The number and level of authorities supervising the combustion of waste oils differ between Member States.

- **Ireland and the Netherlands** in any case and maybe France and Sweden do not comply with the provisions concerning emission limit values for the combustion of waste oil.

## 8. Quantity limits for keeping records on waste oils – Article 11

*According to Article 11 each Member State has to specify the quantity of waste oils (which must be below 500 litres per year) which oblige any establishment (producing,*

*collecting and/or disposing of waste oil) to keep records. These records have to be conveyed on request to the competent authorities.*

**Denmark and France** did not specify a minimum quantity. This may either mean that there is no obligation of keeping records or that the obligation is independent from any quantity of waste oil.

In the Walloon region of **Belgium, Austria, Finland and the United Kingdom** all establishments handling with waste oil (minimum quantity = 0) have to keep records.

**Luxembourg** answered that a minimum quantity is set in the hazardous waste legislation, without further specifying this.

The Flemish region of **Belgium and Ireland** set a minimum quantity of 500 litres, **Germany** of 100 litres of waste oil.

**The Netherlands** indicated that they do not require the producers of waste oils to keep a register. This is neither in line with this Directive nor with Article 4(2) of Directive 91/689/EEC on hazardous waste.

#### **9. and 10. 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.*

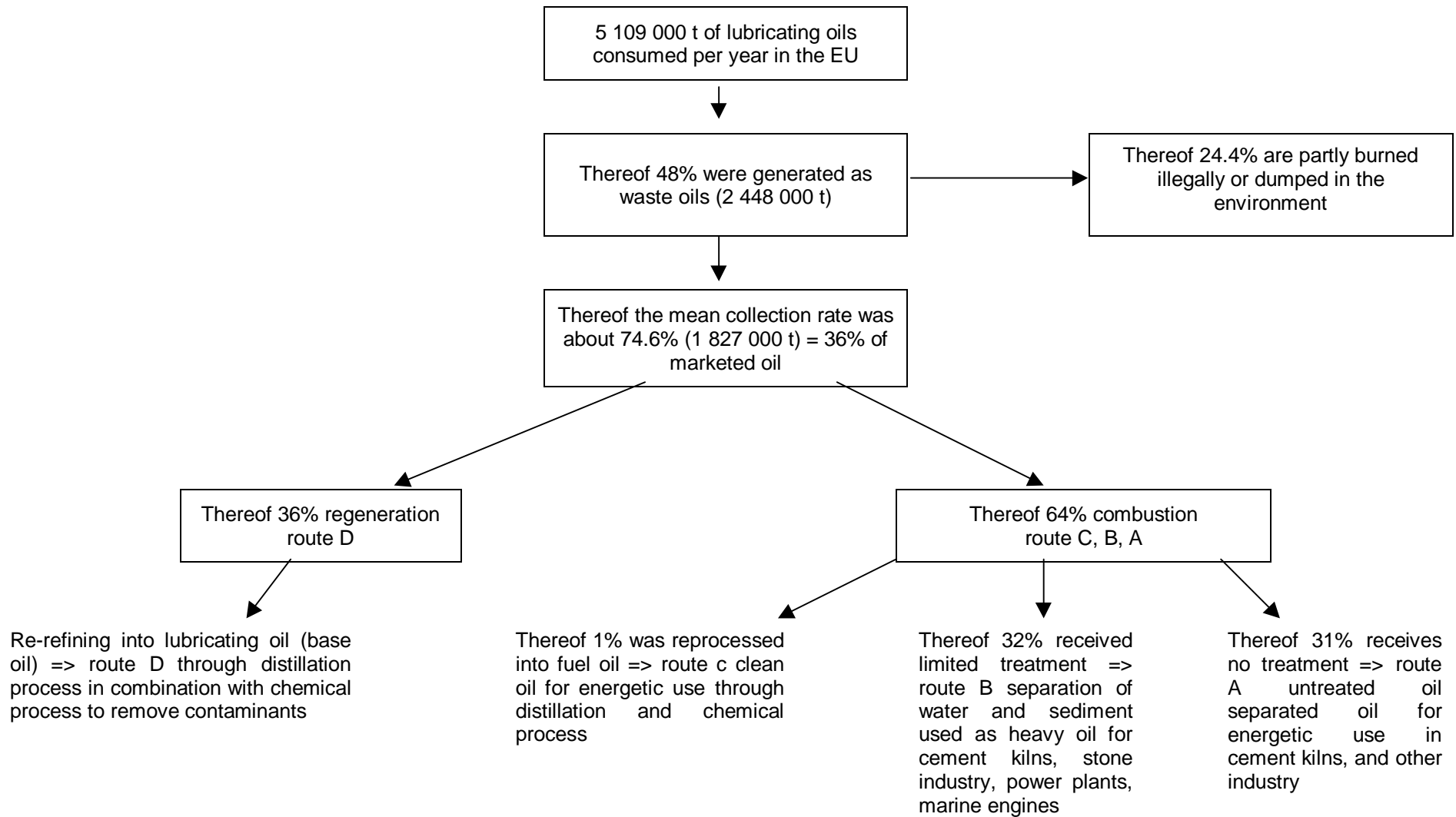
No indemnities were granted in the Walloon and Flemish region of **Belgium, Denmark, Germany, Ireland, Luxembourg, Austria, Sweden and the United Kingdom.**

In order to cover the costs of collection, a tax has been created in **France**. This fiscal tool concerning waste oils has been integrated in a more horizontal fiscal instrument on polluting activities.

**The Netherlands** indicated that a monthly maximum fee is set on the basis of costs en revenues after treatment. Collectors are not allowed to charge producers a higher fee than this maximum fee. The real fee is between 0.04 – 0.07 € per litre covering collection and treatment. Separation of the fees for collection and treatment is not possible since the collectors also perform the treatment.

In **Finland** indemnities are granted for collection and disposal operations. The average amount of indemnities, which were paid to Ekokem Oy Ab are about 1.7 to 2.54 Mio € per year (~ 2.04 Mio € in 1997). Pursuant to Waste Oil Charge Act 894/1986 producers and importers are obliged to pay a charge of ~ 0.04 € per kilogram for lubricating oils and greases.

## **Annex II**



**Figure 1:** Overview of the waste oil management in the 15 Member States in 1994/1995

(Source: Economics of Waste Oils Regeneration, Coopers & Lybrand, the Hague, 29 January 1997)



Directive 75/439 on waste oils

Waste oil (tonnes/year)	Austria			Belgium			Denmark			Finland		
	1995	1996	1997	1995	1996	1997	1995	1996	1997	1995	1996	1997
Total oil marketed/sold where available	86.000 (*)	86.000 (*)	86.000 (*)	n.a	n.a	n.a	79.200 (3)	79.000 (3)	86.400 (3)	103.000	92.000	97.000
Total waste oils generated, of which:	45.000 (*)	45.000 (*)	45.000 (*)	n.a.	n.a.	229.975	-	-	-	55.000-60.000	55.000-60.000	50.000
Quantity collected	39.500	38.000	33.700	186.480	173.140	202.457	41.120	37.676	36.337	n.a.	n.a.	47.000
Quantity regenerated	-	-	-	500	500	500	0	0	0	n.a.	n.a.	2.000
Quantity combusted	41.800 (1)	38.500 (1)	37.400 (1)	185.980 (4)	172.640 (4)	201.957 (4)	31.995 (6)	29.525 (6)	29.327 (6)	n.a.	n.a.	33.000
Quantity tipped (including permanent storage)	-	-	-	n.a	n.a	n.a	0	0	0	n.a.	n.a.	12.000 (5)
Comment	(*) estimated			(2)	(2)	(2)						

**Table 1:** Data on **waste oil** (Questionnaire, Question II, 1c), continues over next page

Notes:

- 1) Difference in time between collection and combustion.
- 2) Data include Wallonia and Flanders but not Brussels.
- 3) Oil incl. water
- 4) Approximately 40-60% of the quantity is combusted in Wallonia but generated outside Wallonia.
- 5) Temporary storage
- 6) Estimated calculation as pure oil

Directive 75/439 on waste oils

Waste oil (tonnes/year)	France			Germany			Greece	Ireland			Italy	Luxembourg		
	1995	1996	1997	1995	1996	1997	1994/95	1995	1996	1997	1994/95	1995	1996	1997
Total oil marketed/sold where available	858.290	860.090	874.629	1.170.500	1.128.500	1.168.000	120.000	40.500	42.120	42.300	625.000			
Total waste oils generated, of which:	386.000	368.200	373.000	770.200	735.500	760.300	60.000	13.230	14.040	14.130	208.000	2.248	2.709	3.477
Quantity collected	223.450	236.700	242.000	518.000	510.000	485.000	5.000	7.200	7.920	8.280	180.000	2.248	2.709	3.477
Quantity regenerated	110.729	104.917	80.813	334.000	323.000	298.000	5.000	n.a.	n.a.	n.a.	150.000	2.028	2.449	3.477
Quantity combusted	124.196	140.040	168.571	184.000	187.000	187.000	0	6.120	6.570	7.200	30.000	216	260	0
Quantity tipped (including permanent storage)				(1)	(1)	(1)	0				0	3,75	0	0
Comment							(2)	(3)	(3)	(3)	(2)	(4)	(4)	(4)

**Table 1:** Data on waste oil (Questionnaire, Question II, 1c), continues over next page

Data not received from questionnaire but from source mentioned in note (2).      n.a.: no answer

Notes:

- 1) Waste oil will only be stored in very small amounts.
- 2) Economics of Waste Oils Regeneration, Coopers & Lybrand, the Hague, 29 January 1997.
- 3) For the conversion from m<sup>3</sup> to tonne, oil density of 0.9 ton/m<sup>3</sup> was used.
- 4) Luxembourg exported all waste oils for regeneration

Directive 75/439 on waste oils

Waste oil (tonnes/year)	Netherlands			Portugal	Spain	Sweden			United Kingdom		
	1995	1996	1997	1994/95	1994/95	1995	1996	1997	1995	1996	1997
Total oil marketed/sold where available	210.000	228.000	187.000	89.000	500.000	144.000	144.000	144.000	895.000	864.329	872.378
Total waste oils generated, of which:	85.000	85.000	85.000	45.000	250.000	n.a.	n.a.	n.a.	492.250	471.550	476.637
Quantity collected	37.000	52.000	49.000	13.000	110.000	72.000 (4)	72.000 (4)	72.000 (4)	422.000	422.000	422.000
Quantity regenerated	-	-	-	0	35.000	n.a.	n.a.	n.a.	32.000	32.000	32.000
Quantity combusted	37.000	52.000	49.000	13.000	65.000	58.500 (4) (6)	58.500 (4) (6)	58.500 (4) (6)	390.000 (1)	390.000 (1)	390.000 (1)
Quantity tipped (including permanent storage)	-	-	-	0	0	n.a.	n.a.	n.a.	70.250	49.550	54.637
Comment				(5)	(5)	(2) (3)	(2) (3)	(2) (3)	(4)	(4)	(4)

**Table 1: Data on waste oil** (Questionnaire, Question II, 1c)

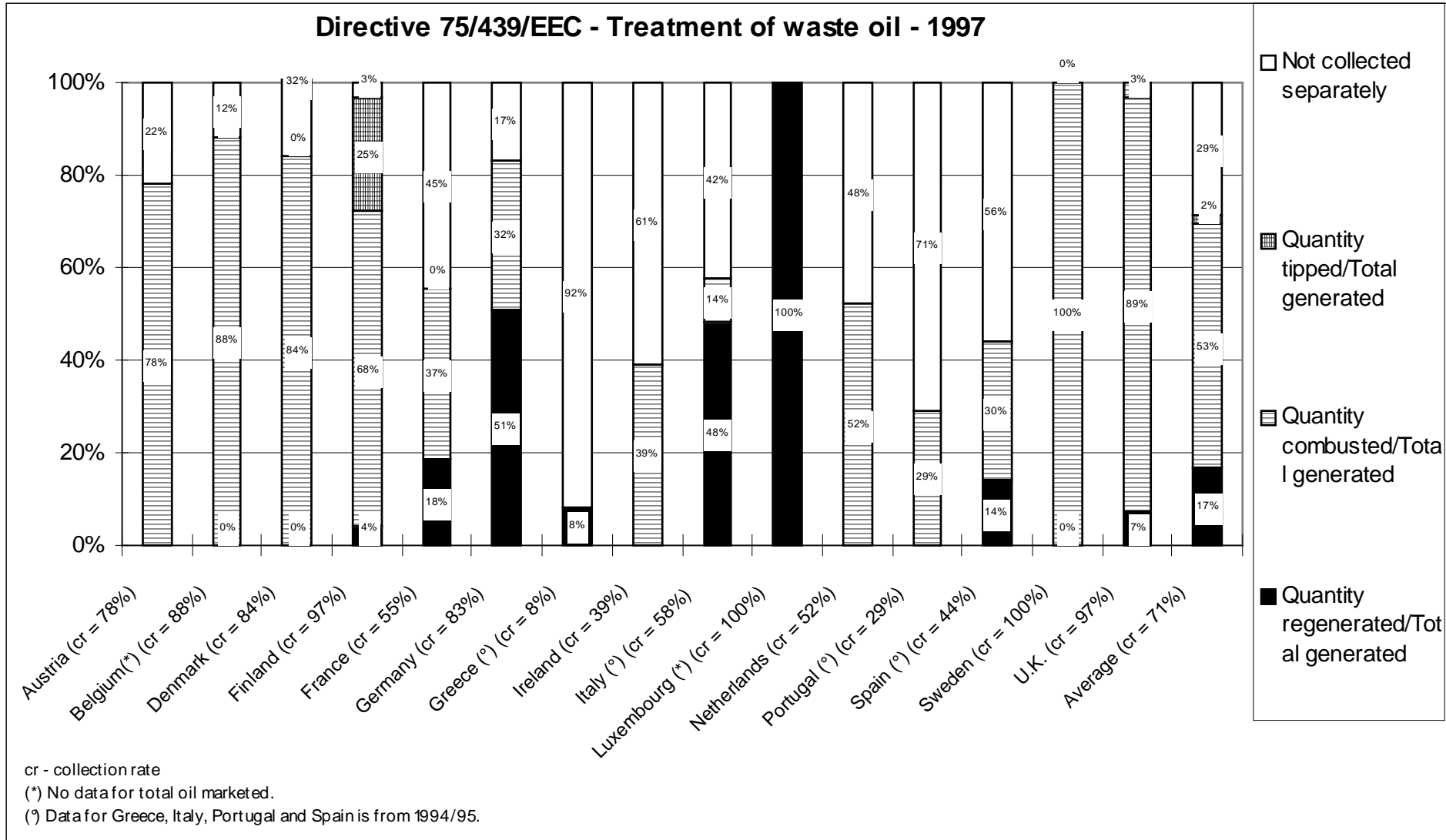
Data not received from questionnaire but from source mentioned in note (5).

n.a.: no answer

Notes:

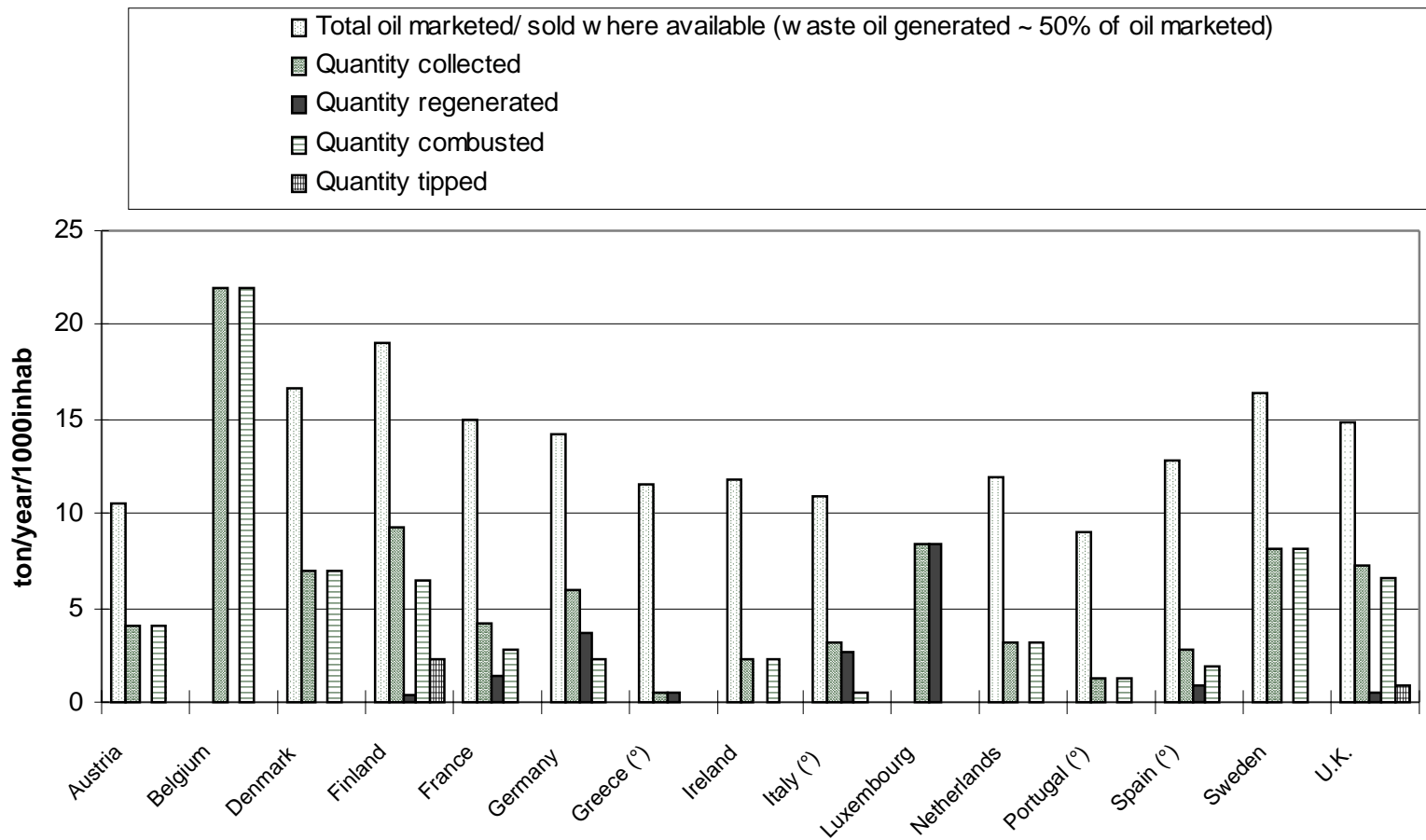
- 1) Combusted after treatment.
- 2) The figures must be handled with care, the waste oil can have oil content of 2 to 98%
- 3) Conversion from m<sup>3</sup> to tonne, oil density of 0.9 ton/m<sup>3</sup> was used
- 4) Waste quantities are estimated
- 5) Economics of Waste Oils Regeneration, Coopers & Lybrand, the Hague, 29 January 1997.
- 6) Quantity of pre-treated oil (wastes and sediments are removed)

### Directive 75/439/EEC - Treatment of waste oil - 1997



**Figure 2** - Percentages of **waste oil** management on the basis that 50% of the oil marketed is generated as waste oil (Source: Table 1)

### Directive 75/439/EEC - waste oil per 1000 inhabitants - 1997



(°) Data for Greece, Italy, Portugal and Spain is from 1994/95

Figure 3 - Quantities of oil marketed and different treatments in tonne per year, per 1000 inhabitants (Source: Table 1)

Limit values (mg/Nm <sup>3</sup> )	Directive 75/439/EEC > 3 MW		Austria		Belgium		Denmark	Finland	France	Germany	Ireland	Luxembourg	Netherlands	Sweden	United Kingdom		
	option 1	Option 2	>3MW	< 3MW	>3MW	< 3MW	>3MW and <3MW	> 5 MW		>3MW and <3MW	(2)		(5)		>3MW	< 3MW	
- Cd	0,5	0,5	0,1	0,1	0,5	}10	0,1	0,2	0,5	0,05		0,5		n.a.	0,5		
- Ni	1	1	-	-	1		0,1	1	1	0,5		1		n.a.	1		
- Cr	}1,5	}5	}5	-	}1,5		}1,5	}5	}5	0,5	1,5		1,5		n.a.	1,5	
- Cu				0,5						n.a.							
- V				0,5						n.a.							
- Pb	5		-	-	5	1			0,5		5		n.a.	5	5 (8)		
- Cl	100	100	30 (3)	30 (3)	100 (HCl)	100	100	100(HCl)	100	60(HCl)		100		n.a.	100		
- F	5	5		-	5 (HF)	5	5	5(HF)	5	4(HF)		5		n.a.	5		
- SO <sub>2</sub>	(4)		200-350	-	300 (1)	300	900	1700	-	50				n.a.			
- Dust, total	(4)		30	30	100 (1)	200	50	100	-	10				n.a.	100		
Pb+Zn+Cr			4	4	-		-	-	-	-	-	-	-	-	-	-	
CO			65	65	-		-	-	-	-	-	-	-	-	-	-	
organic C			30	30	-		-	-	-	-	-	-	-	-	-	-	
2,3,7,8-TCDD			0,1	-	-		-	-	-	-	-	-	-	-	-	-	

**Table 2: Limit Values** set for the substances listed in the Annex of the Directive (Questionnaire, Question II, 7a)

The Directive gives two options : option 1: Cr, Cu and V = 1.5 mg/Nm<sup>3</sup> and Pb = 5 mg/Nm<sup>3</sup> or option 2: Cr, Cu, V and Pb = 5 mg/Nm<sup>3</sup>

Data not received from Greece, Italy, Portugal and Spain

n.a.: no answer

Notes:

- 1) Only applies to Flanders
- 2) No national limits have been established.
- 3) When mixed combustion is effectuated the limit value is 20 mg/Nm<sup>3</sup>.
- 4) Currently no limit values on European level. Member States were required to set limit values.
- 5) Processed waste oil is not considered to be “waste” (lower emission limit values apply).
- 6) Does not apply to burners < 0,4MW that burn waste oil generated on site.

## DIRECTIVE 86/278/EEC ON SEWAGE SLUDGE

### I. INTRODUCTION

Directive 86/278/EEC<sup>66</sup> *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);
- reporting requirements (Article 17).

Article 17 of the Directive stipulates that Member States have to draw up every four years, and for the first time five years after the notification of the Directive, a consolidated report on the use of sludge in agriculture.

The Directive having been notified on 17 June 1986, Member States had to draw up their first report, covering the years 1987-1990, by 17 June 1991. Six Member States, namely Belgium, Denmark, Germany, Spain, France and the United Kingdom, submitted their reports in 1991/92. The Commission did not consider it worthwhile publishing such an incomplete and highly disparate information with no uniform format.

A second report pursuant to Article 17 of the Directive 86/278/EEC, covering the years 1991-1994, should have been submitted by 17 June 1995. Five Member States, namely Belgium,

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<sup>66</sup> OJ L 181, 4.7.86, p. 6.

Spain, France, Portugal and the United Kingdom, submitted reports. The Commission published a consolidated report<sup>67</sup> on 27 February 1997.

Article 5 of Council Directive 91/692/EEC<sup>68</sup> *standardising and rationalising reports on the implementation of certain Directives relating to the environment* has modified Article 17 of Directive 86/278/EEC. Member States are now asked to draw up a report every three years, and the first report shall cover the period 1995-1997. Commission Decision 94/741/EC of 24 October 1994, pursuant to Article 6 of Directive 91/692/EEC, has established the format of a questionnaire to be followed by Member States when reporting to the Commission. The same format is followed in this consolidated report.

**Belgium** (Flemish and Walloon Regions), **Denmark**, **Germany**, **Finland**, **France**, **Ireland**, **Luxembourg**, **Portugal**, **Sweden** and the **United Kingdom** have sent in their reports. This consolidated report is based on those contributions. Despite many reminders by the Commission services, **Greece**, **Italy**, the **Netherlands** and **Spain** did not send their reports (status May 1999). **Austria** has sent the reports for the nine *Länder*. The Commission has invited the Austrian authorities to merge these regional reports into a national one. This national report is not yet available (status October 1999).

## II. REPORT BASED ON THE ANSWERS TO THE QUESTIONNAIRE (COMMISSION DECISION 94/741/EC)

### INCORPORATION INTO NATIONAL LAW

#### 1. National Law

The previous consolidated report, relative to the period 1991-1994, mentioned some cases of incomplete or not correct transposition of the Directive by some Member States. In light of the information received up to the end of 1998, all those cases have been addressed to the satisfaction of the Commission.

In particular, the **Wallonia Region** (Belgium) has adopted an Arrêté on 12 January 1995 which regulates the use of sewage sludge and septic tank sludge according to the provisions of the Directive. Following observations from the Commission, **France** has adopted the Décret n° 97-1133 of 8 December 1997 and the Arrêté of 8 January 1998 which complete the transposition of the Directive to the satisfaction of the Commission. **Ireland** has notified on 12 June 1998 the adoption of Statutory Instrument No. 148 of 1998, Waste Management (Use of Sewage Sludge in Agriculture) Regulations, which slightly modifies and repeals Statutory Instrument No. 183 of 1991, European Communities (Use of Sewage Sludge in Agriculture) Regulations. **Portugal** has transmitted the two decrees (Portaria) No. 176/96 and 177/96 of 3 October 1996 implementing the Decreto-Lei No. 446/91 of 22 November 1991 which complete the transposition of the Directive in Portuguese law.

As regards the three new Member States that were not part of the Community before 1994, **Austria** has a federal structure and sludge management is competence of the different *Länder*. The Commission has been notified of the implementing measures of six out of nine *Länder* (Burgenland, Kärnten, Niederösterreich, Oberösterreich, Steiermark and Vorarlberg). **Finland**

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<sup>67</sup> COM (97) 23 final.

<sup>68</sup> OJ L 377, 31.12.91, p.48.



has notified Council of State Decision No. 282 of 14 April 1994 on the use of sewage sludge in agriculture. **Sweden** has transposed the Directive through the Order containing regulations on protection of the environment, and in particular of the soil, when sewage sludge is used in agriculture SNFS 1994:2 of 30 May 1994. The assessment of the compliance with the Directive for these Member States has not yet been completed.

## IMPLEMENTATION OF THE DIRECTIVE

### 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 **Belgium** the Wallonia Region requires that the use in agriculture of septic tank sludge matches 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 and **Denmark** have not given any information on this point.

In **Finland, Luxembourg, Portugal, Sweden** and in the **United Kingdom** septic tank sludge is subject to the same provisions as sewage sludge.

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

In **Ireland** septic tank sludge may be used on grassland provided that the grassland is not grazed in the following six months.

### 2. Concentration limit values for heavy metals in soil, sludge and maximum annual loads – Article 5

*Member States shall 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 to lay down maximum quantities of sludge and limit values for heavy metals in the sludge in accordance with Annex I B (Article 5(2a)). They have also 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(2b)).*

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

In the Flemish Region the concentration limits for mercury and zinc in soils on which sludge can be applied are not in compliance with Annex I A of the Directive.

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

**As regards Annex 1B and the maximum quantities of sludge (dry matter) applicable to soil – Article 5 (2a)**

In **Belgium** the Wallonia 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 is limited to 4 tonnes every two years for arable land and 2 tonnes every two years for grazing land.

In **Denmark** 10 tonnes of sludge may be applied per hectare per year.

In **Germany** up to 5 tonnes per hectare in a three-year period may be used.

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

In **Luxembourg** 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 permit to increase this amount.

**Finland, France, 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).

**Less stringent limit values for concentrations of heavy metals permitted on land for growing crops intended exclusively for animal consumption – Annex I A, footnote 1**

Less stringent values are not permitted in **Belgium**, in **Denmark**, in **Finland**, in **France**, in **Germany**, in **Ireland**, in **Luxembourg** and in **Sweden**.

In **Portugal** the limits for soils with a pH higher than 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 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 this sites (estimated) is 2 516 hectares.

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

Less stringent values are not permitted in **Belgium**, **Denmark**, **France**, **Germany**, **Ireland**, **Luxembourg** and **Sweden**.

No information on this point in the report from **Finland**.

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

### **Less stringent limit values for the annual quantities of heavy metals introduced into the soils intended for fodder crops – Annex I C, footnote 1**

Less stringent values are not permitted in **Belgium, Denmark, Finland, France, Germany, Ireland, Luxembourg, Portugal** and **Sweden**.

The **United Kingdom** reports 10 sites where the normal limits for all 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 area of these sites (estimated) is 2 516 hectares.

### **3. 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 the Wallonia Region of **Belgium** sludge is digested, aerobically stabilised, mechanically dried, thermally dried or conditioned with lime or polyelectrolites. No information on this point from the Flemish Region.

In **Denmark** sludge is digested in a heat digestion chamber or in a bioreactor, stabilised by aeration, composted (in controlled conditions for two weeks at a temperature of 55°C) conditioned with lime or pasteurised at a temperature of 70°C for one hour.

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

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

In **Germany** different technologies are applied such as anaerobic digestion, aerobic stabilisation, lime conditioning etc. Normally a combination of these techniques is used for sludge treatment.

In **Ireland** sludge is either dewatered on filter tables and stored for 6 months, or undergoes anaerobic digestion.

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

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

**As regards the 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 the Wallonia Region of **Belgium** 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 5 000 population equivalent (pe), up to one analysis per month for plants larger than 100 000 pe. No information on this point from the Flemish Region.

In **Denmark, Ireland, Portugal** 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 population equivalent (pe), up to one analysis per month for plants larger than 100 000 pe. These frequencies can be relaxed when the quality of the incoming water does not change in time.

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

In **Germany** the same frequency of the Directive applies although in single cases the frequency can be up to six times a year.

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

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

**As regards specific conditions for authorising injection or working into the soil of untreated sludge – Article 6 (a)**

In the Wallonia Region of **Belgium** untreated sludge has to be directly incorporated into the soil after spreading. Treated sludge must be incorporated within 24 hours. No information on this point from the Flemish Region.

No specific rules in **Denmark, in Ireland, in the United Kingdom,**

In **Finland, Germany** and in **Luxembourg** it is forbidden to spread untreated sludge on land.

In **France** only septic tank sludge and sludge coming from small waste water plants (less than 200 pe) can be spread on land untreated.

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.

#### **4. 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 (but depending on circumstances) before grazing and/or harvesting,- on soil in which fruit and vegetable crops are growing (except fruit trees) and - on grounds where fruits or vegetable grow in direct contact with the soil (and which are eaten raw) ten months preceding the harvest.*

In the Wallonia Region of **Belgium** six weeks have to elapse before allowing grazing on grassland or on animal food crops. It is forbidden to spread sludge in forests and in nature protection areas. No information on this point from the Flemish Region.

In **Denmark** it is forbidden to use sludge on grassland for one year before it is grazed, and on forage crops before harvest.

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 hygienised sludge.

In **Germany** sludge cannot be used on grassland. It has to be carefully ploughed in before sowing forage crops, green maize and silage maize.

In **Ireland**, in **Portugal** and in the **United Kingdom** the same minimal provisions of the Directive, i.e. three weeks before grazing or harvesting, apply.

In **Luxembourg** the delay is one month.

In **Sweden** the length of the period is 10 months.

#### **5. 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.*

In the Wallonia Region of **Belgium** it is prohibited to spread sludge on soils with a pH below 6. No information on this point from the Flemish Region.

No specific rules in **Denmark**, in **Ireland** and in **Sweden**.

In **Finland** sludge may 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) 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 dm) and zinc (150 mg/kg dm) for soils with a pH between 5 and 6. Sludge cannot be spread on soils with a pH below 5.

In **Luxembourg** if the pH of the soil is below 6 the pH of sludge must be consistently above 7. In general sludge conditioned with lime is used in these cases (pH higher than 12).

In **Portugal** reduced limits are authorised when the pH is below 5.5 (see Table 1 in this report).

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.

## **6. 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 Wallonia Region of **Belgium, Denmark, Finland, France, Ireland, Luxembourg, Sweden** and the **United Kingdom** only pH and heavy metals have to be analysed.

In the Flemish Region soil is additionally analysed for dry matter, organic matter, nitrogen, phosphate, EOX and mineral oil. The competent authority may decide on further analyses relating to monocyclical aromatic hydrocarbons, polycyclical aromatic hydrocarbons and other organic substances.

In **Germany** phosphate, potassium and magnesium have to be analysed as well.

In **Portugal** nitrogen and phosphorous have to be analysed as well.

## **As regards the minimum frequency of soil analysis – Annex II B, paragraph 2**

Every ten years in the Wallonia Region of **Belgium**, in **Ireland**, in **France** and in **Germany**, every twenty years in the **United Kingdom**, when ten tonnes of dry matter are spread per hectare in the Flemish Region.

No information on this point from **Denmark** and **Portugal**.

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** soils have to be analysed prior to any sludge spreading operation.

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.

#### **7. 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 4 and 5 and figure 3 present the data received by the Commission.

#### **8. 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 in the Wallonia Region of **Belgium, Denmark, France, Sweden** and the **United Kingdom**.

This point is not mentioned in the report of the Flemish Region and of **Portugal**.

In **Finland** exemptions are made for waste water treatment plants with less than 5 000 pe. Some 450 plants are concerned by this measure.

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

In **Ireland** there is a general exemption for plants below 5 000 pe.

## **Annex III**



Directive 86/278/EEC on sewage sludge

	86/278/EEC	A	B		D	DK	E	F	FIN	EL	I
	6<pH<7		Flanders	Wallonia							
<b>Cadmium (Cd)</b>	1 – 3		1.2	2	1.5	0.5		2	0.5		
<b>Chromium (Cr)</b>	-		78	100	100	30		150	200		
<b>Copper (Cu)</b>	50 – 140		109	50	60	40		100	100		
<b>Mercury (Hg)</b>	1 – 1.5		5.3	1	1	0.5		1	0.2		
<b>Nickel (Ni)</b>	30 – 75		55	50	50	15		50	60		
<b>Lead (Pb)</b>	50 – 300		120	100	100	40		100	60		
<b>Zinc (Zn)</b>	150 – 300		330	200	200	100		300	150		
			As 27								

	86/278/EEC	IRL	L	NL	P			S	UK			
	6<pH<7				PH<5.5	5.5<pH<7	pH>7		5<pH<5.5	5.5<pH<6	6≤pH≤7	pH>7
<b>Cadmium (Cd)</b>	1 – 3	1	1 - 3		1	3	4	0.4	3	3	3	3
<b>Chromium (Cr)</b>	-	-	100 - 200		50	200	300	60	-	-	-	-
<b>Copper (Cu)</b>	50 – 140	50	50 - 140		50	100	200	40	80	100	135	200
<b>Mercury (Hg)</b>	1 - 1.5	1	1 - 1.5		1	1.5	2	0.3	1	1	1	1
<b>Nickel (Ni)</b>	30 – 75	30	30 - 75		30	75	110	30	50	60	75	110
<b>Lead (Pb)</b>	50 – 300	50	50 - 300		50	300	450	40	300	300	300	300
<b>Zinc (Zn)</b>	150 – 300	150	150 - 300		150	300	450	100 - 150	200	250	300	450

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


 Data not received

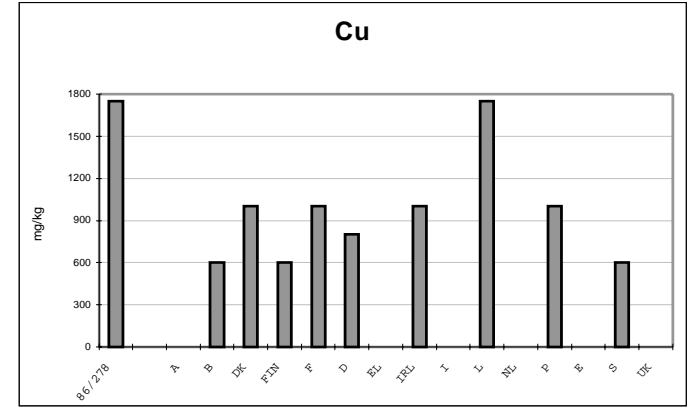
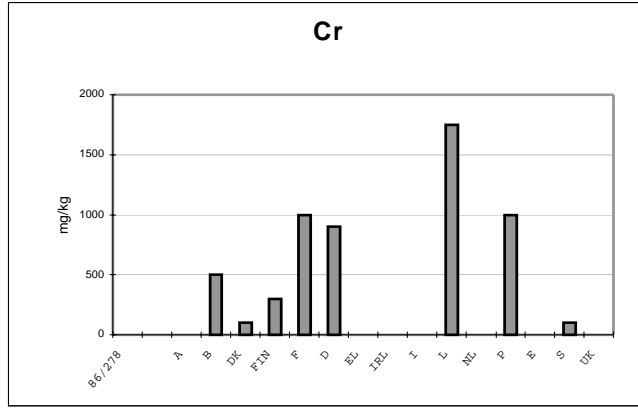
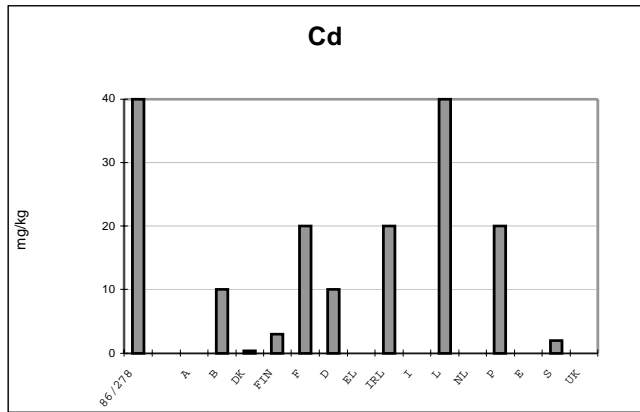
Directive 86/278/EEC on sewage sludge

	86/278/EEC	A	B		D	DK	E	F	FIN
	Annex 1 B		Flanders	Wallonia					
<b>Cd</b>	20 – 40		6	10	10	0.4		20	3
<b>Cr</b>	-		250	500	900	100		1 000	300
<b>Cu</b>	1000 – 1750		750*	600	800	1 000		1 000	600
<b>Hg</b>	16 – 25		5	10	8	0.8		10	2
<b>Ni</b>	300 – 400		100*	100	200	30		200	100
<b>Pb</b>	750 – 1200		300	500	900	120		800	150
<b>Zn</b>	2500 – 4000		2 500*	2 000	2 500	4 000		3 000	1500
			As 150						

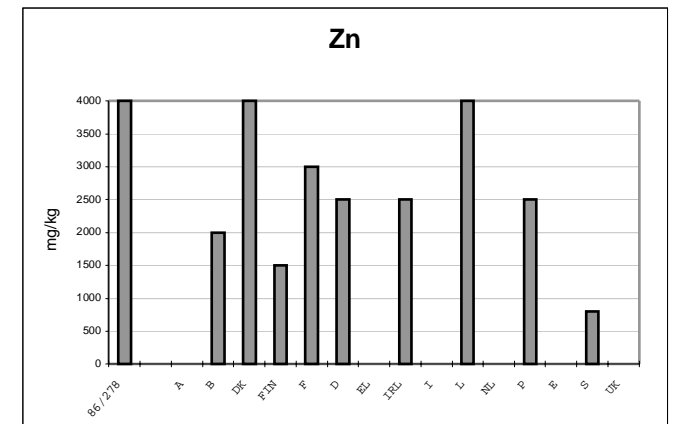
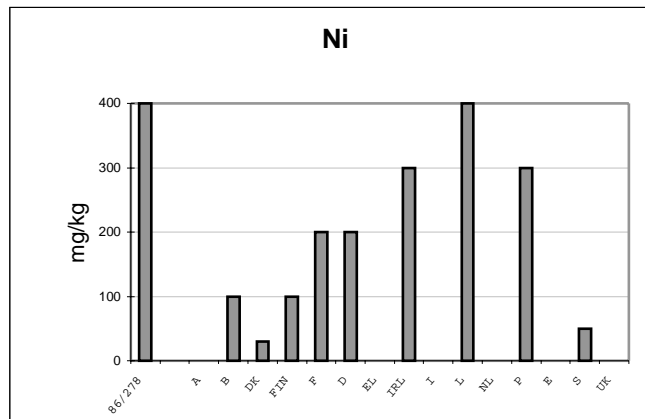
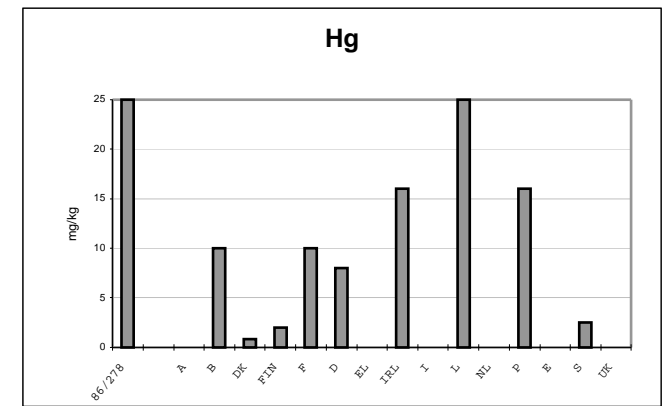
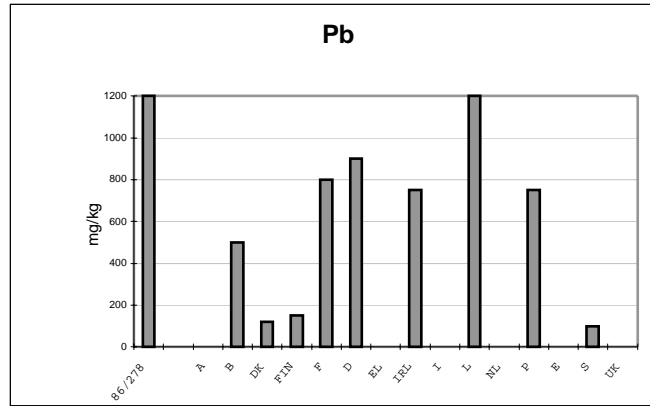
	86/278/EEC	EL	I	IRL	L	NL	P	S	UK
	Annex 1 B								
<b>Cd</b>	20 – 40			20	20 – 40		20	2	-
<b>Cr</b>	-			-	1 000 – 1 750		1 000	100	-
<b>Cu</b>	1000 – 1750			1 000	1 000 – 1 750		1 000	600	-
<b>Hg</b>	16 – 25			16	16 – 25		16	2.5	-
<b>Ni</b>	300 – 400			300	300 – 400		300	50	-
<b>Pb</b>	750 – 1200			750	750 – 1 200		750	100	-
<b>Zn</b>	2500 – 4000			2 500	2 500 – 4 000		2 500	800	-

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

 Data not received



**Figure 1 - Concentration limit values for heavy metals in sludge.**  
(Source: Table 2)



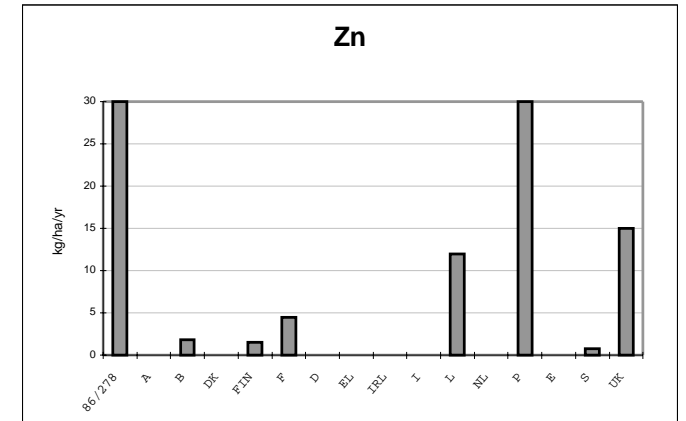
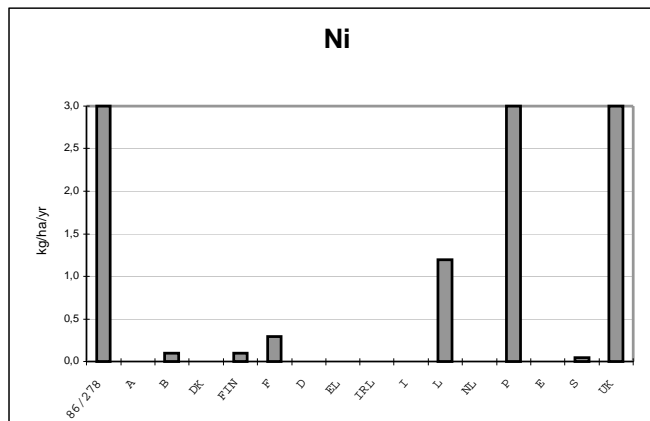
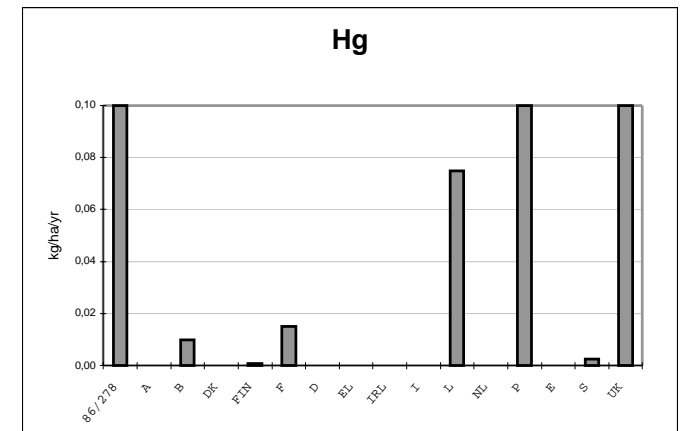
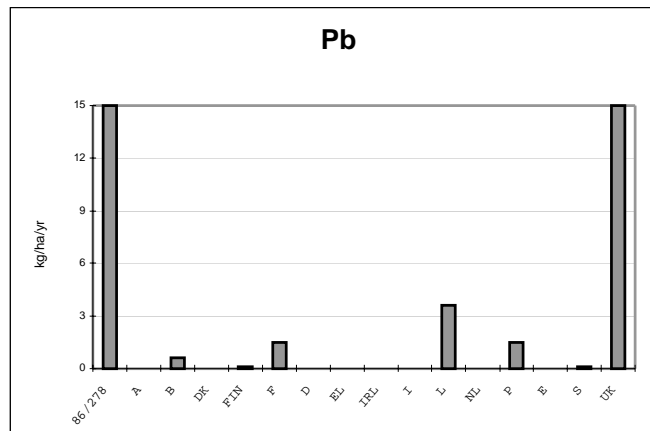
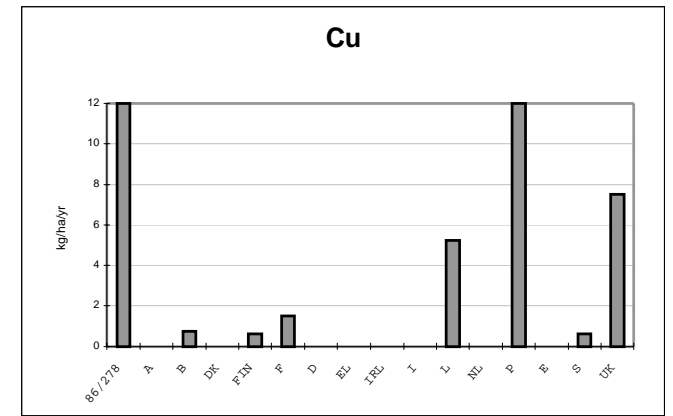
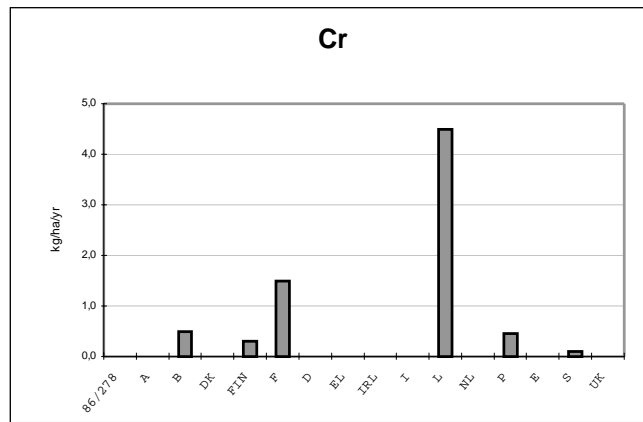
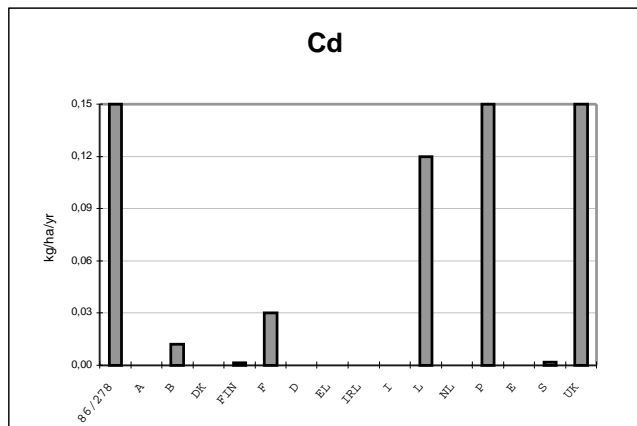
Directive 86/278/EEC on sewage sludge

	86/278/EEC	A	B		D	DK	E	F	FIN
	Annex 1 C		Flanders	Wallonia					
<b>Cd</b>	150		12	-	-	-		30	1.5
<b>Cr</b>	-		500	-	-	-		1 500	300
<b>Cu</b>	12000		750	-	-	-		1 500	600
<b>Hg</b>	100		10	-	-	-		15	1
<b>Ni</b>	3000		100	-	-	-		300	100
<b>Pb</b>	15000		600	-	-	-		1 500	100
<b>Zn</b>	30000		1800	-	-	-		4 500	1500
			As 300						

	86/278/EEC	EL	I	IRL	L	NL	P	S	UK
	Annex 1 C								
<b>Cd</b>	150			-	120		150	1.75	150
<b>Cr</b>	-			-	4 500		450	100	-
<b>Cu</b>	12000			-	5 250		1 200	600	7 500
<b>Hg</b>	100			-	75		100	2.5	100
<b>Ni</b>	3000			-	1 200		3 000	50	3 000
<b>Pb</b>	15000			-	3 600		1 500	100	15 000
<b>Zn</b>	30000			-	12 000		30 000	800	15 000

**Table 3:** Maximum annual average load of heavy metals to **agricultural land** (g/ha/y)

 Data not received



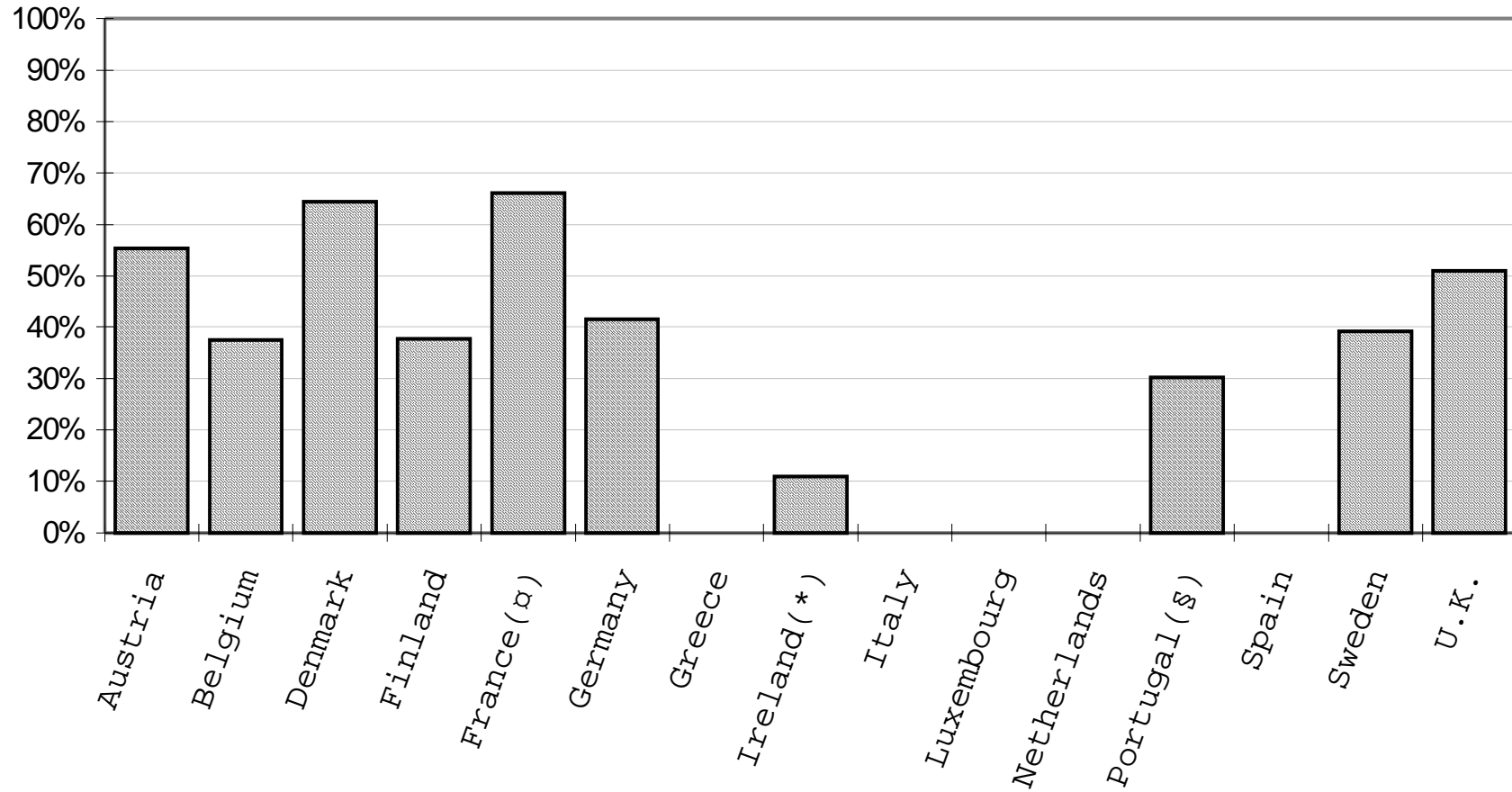
**Figure 2 – Maximum annual average load** (Source: Table 3)

Member State		Sludge produced			Sludge used in agriculture						Surface covered		
		1995	1996	1997	1995	%	1996	%	1997	%	1995	1996	1997
A	Austria												
B	Wallonia Region	14 311	15 200	-	10 687	75%	12 230	80%	-		-	-	-
	Flemish Region	73 325	65 230	69 850	9 750	13%	17 860	27%	23 363	33%	1 625	2 680	3 900
D	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
E	Spain												
EL	Greece												
F	France	750 000	-	820 000	494 000	66%	-		544 000	66%	-	-	-
FIN	Finland	141 000	130 000	136 000	47 000	33%	49 000	38%	53 000	39%	-	-	-
I	Italy												
IRL	Ireland	-	-	38 290	-		-		4 174	11%	-	-	-
L	Luxembourg	-	-	-	-		-		-		-	-	-
NL	Netherlands												
P	Portugal	145 855 (estimate)		245 172 (estimate for 1998)	44 000	30%			74 000 (estimate for 1998)	30%			
S	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 cultivated area)	21 000 ha/year (0.8% of total cultivated 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%	-	-	-

**Table 4:** Total sludge production and quantities used in agriculture (t dry matter)

 Data not received

**Directive 86/278/EEC - Sludge used in agriculture**




(α) Average data from 1996 and 1997. (\*) Value from 1997. (§) Average data from 1995 and 1998.

**Figure 3** - Percentage of **sludge used in agriculture** per total sludge produced in wastewater plants. (Source: Table 4)

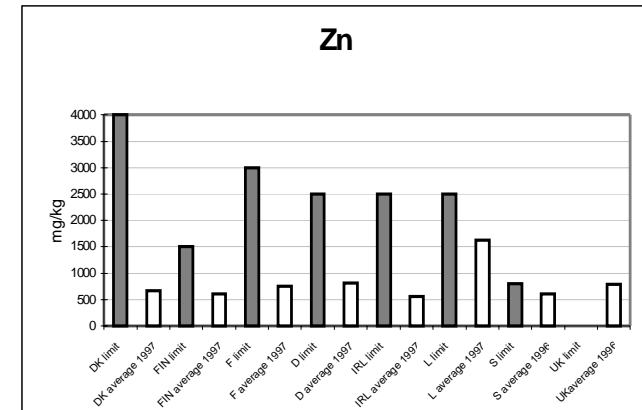
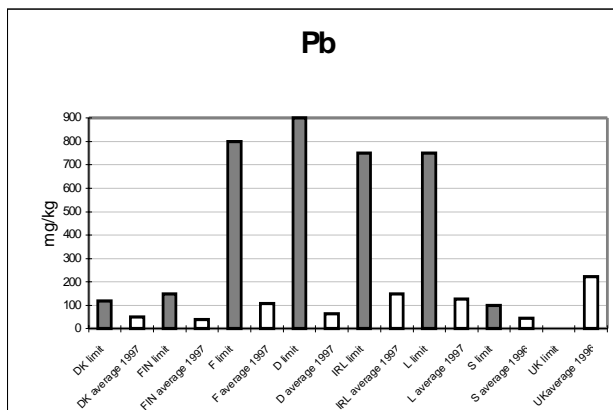
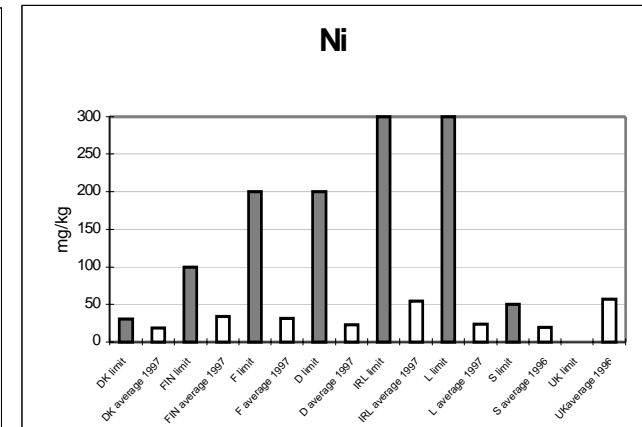
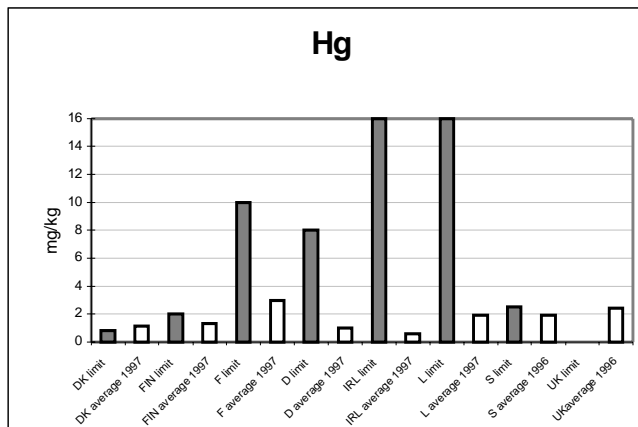
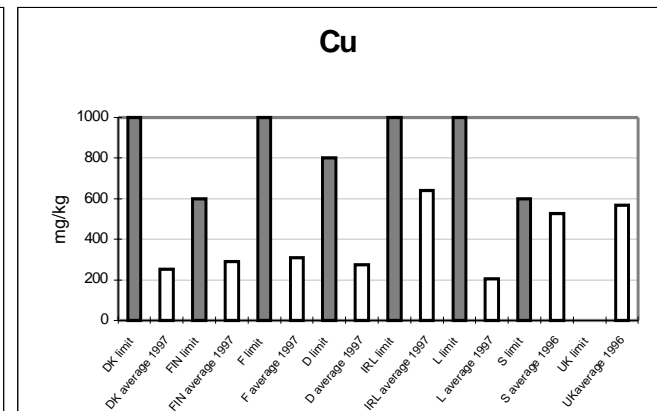
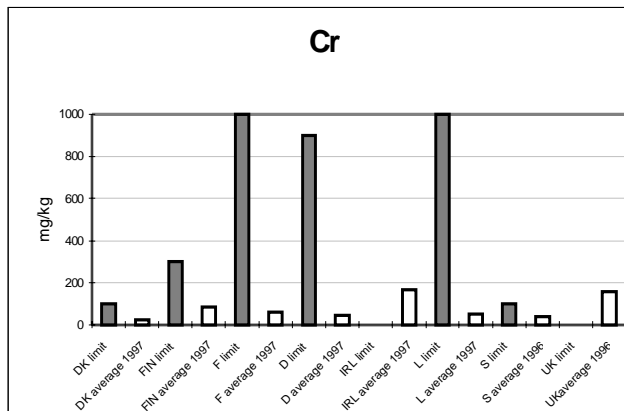
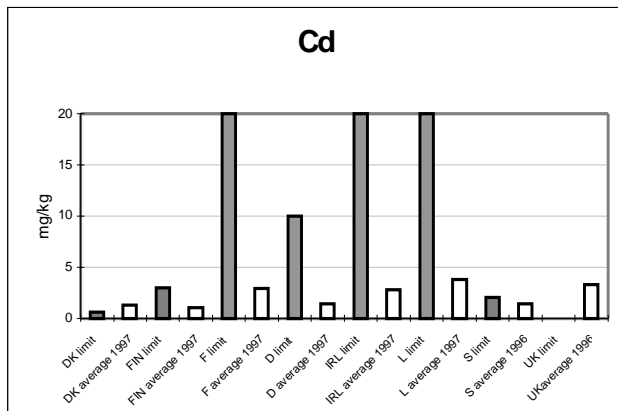
	86/278/EEC	A		D			DK			E	F			FIN		
		Flanders	Wallonia	1995	1996	1997	1995	1996	1997		1995	1996	1997	1995	1996	1997
<b>Cd</b>	20 – 40	n. a.	n. a.	1.5	1.5	1.4	1.5	1.45	1.31		5.3	-	2.9	1.3	0.7	1.04
<b>Cr</b>	-	n. a.	n. a.	52	52	46	34	40.3	24.8		80	-	58.8	82	91	84
<b>Cu</b>	1000 – 1750	n. a.	n. a.	277	273	274	298	303.5	250.3		334	-	309	283	291	290
<b>Hg</b>	16 – 25	n. a.	n. a.	1.3	1.2	1	1.4	1.35	1.11		2.7	-	3	1.6	1.4	1.3
<b>Ni</b>	300 – 400	n. a.	n. a.	24	23	23	25.7	24.35	18.4		39	-	31.9	41	48	34
<b>Pb</b>	750 – 1200	n. a.	n. a.	73	67	63	72	57.37	50.4		133	-	106.7	47	43	39
<b>Zn</b>	2500 – 4000	n. a.	n. a.	863	831	809	878	775.5	678		921	-	754.2	575	636	606
<b>N</b>		n. a.	n. a.	34 290	35 460	34 833	40 500	43 700	43 775		40 000	-	40 000	28 000	31 600	32 000
<b>P</b>		n. a.	n. a.	21 140	21 930	20 750	31 000	31 600	30 230		45 000	-	45 000	20 000	26 000	28 000
											estimate		estimate			

	86/278/EEC	EL	I	IRL	L			NL	P	S			UK		
				1997	1995	1996	1997			1995	1996	1997	1995	1996	1997
<b>Cd</b>	20 – 40			2.8	-	-	3.8		n. a.	1.6	1.4	-	3.77	3.3	-
<b>Cr</b>	-			165	-	-	51		n. a.	37.7	39	-	162	157	-
<b>Cu</b>	1000 – 1750			641	-	-	206		n. a.	517	526	-	555	568	-
<b>Hg</b>	16 – 25			0.6	-	-	1.9		n. a.	1.8	1.9	-	2.59	2.4	-
<b>Ni</b>	300 – 400			54	-	-	24		n. a.	19.6	19	-	60	57	-
<b>Pb</b>	750 – 1200			150	-	-	128		n. a.	52.4	44	-	222	221	-
<b>Zn</b>	2500 – 4000			562	-	-	1628		n. a.	638	603	-	764	792	-
<b>N</b>				27 558	-	-	30 300		n. a.	36 000	36 000	-	46 176	43 395	-
<b>P</b>				10 386	-	-	45 700*		n. a.	30 600	29 800	-	26 244	22 394	-
							*P <sub>2</sub> O <sub>5</sub>								

**Table 5: Average heavy metal concentrations in sludge (mg/kg dry matter)**

 Data not received





**Figure 4 - Average heavy metal concentration in sludge.** (Source: Table 5)

## CONCLUSION

The aim of this report is to provide the Council, the European Parliament, the Member States and the interested public with information on the progress made in implementing Directives 75/442/EEC, 91/689/EEC, 75/439/EEC and 86/278/EEC.

These four Directives for which reports have been worked out in the framework of Directive 91/692/EEC on reporting are quite different in their content and structure. Directives 75/442/EEC and 91/689/EEC constitute general and basic provisions for all wastes and hazardous wastes whereas Directives 75/439/EEC and 86/278/EEC contain requirements for specific waste streams – waste oil and sewage sludge – which differ due to the different types and problems of waste.

Whereas the answers to the questionnaires were evaluated and summarised Directive by Directive the conclusion tries to provide a consolidated horizontal view on the Directives and their implementation.

### Waste definition

Definitions and especially the definition of “**waste**”, “**hazardous waste**” and the waste management terminology such as “recycling, recovery and disposal” constitute the basis for the European waste management policy and the functioning of the internal market in this field.

As regards the definition of “waste” and the European Waste Catalogue (EWC), only five Member States (Denmark, Spain, Italy, Finland and Sweden) have transposed it correctly into national law. Four Member States (Greece, Spain, Luxembourg and Finland) have correctly implemented the definition of hazardous waste and the hazardous waste list. Thus only Spain and Finland took correctly over the European waste definitions.

According to Article 1(4) second indent Member States can notify any other waste they consider displaying “hazardous” properties listed in Annex III. Until the beginning of 1999 the Commission received 471 notifications. It is planned to adapt the hazardous waste list in this regard and to merge it for practical reasons with the EWC. According to Article 1(5) hazardous waste from households is exempted from the provisions of Directive 91/689/EEC. Italy and the United Kingdom even excluded household waste from the definition of hazardous waste, which is not in line with EC law.

**Waste oil** is classified as hazardous waste (in chapter 12 and 13 of the hazardous waste list). The waste terminology in Directive 75/439/EEC on waste oils (such as disposal, processing, regeneration and combustion) differs from the framework Directives and the Waste Management Strategy. Thus “disposal of waste oil” means any treatment (processing, destruction, storage and tipping) whereas “disposal of waste” means operations listed in Annex II A such as incineration without energy recovery or landfilling. This difference should be adjusted as it seems to have caused confusion at least in question 6 where details on undertakings which “dispose of waste oils” were requested. In addition, Ireland and the Netherlands consider processed waste oils not as “waste” but as a fuel and thus do not apply the Directive as regards emission limit values.

Directive 86/278/EEC defines the “use” of **sewage sludge** as “the spreading of sludge on the soil or any other application of sludge on and in the soil”. This definition, combined with the provisions in Directive 86/278/EEC, implies that the use of sewage sludge in agriculture has to be regarded as a recovery operation as defined in Annex II B of Directive 75/442/EEC (R10: Land treatment resulting in benefit to agriculture).

### **Hierarchy of principles**

The hierarchy of principles – waste prevention, recycling, energy recovery and safe disposal - is laid down in Article 3 and 4 of Directive 75/442/EEC and was confirmed in the Community Strategy for Waste Management 1996. Article 3 of Directive 75/439/EEC contains the hierarchy of – regeneration, combustion and safe destruction/tipping – for waste oils.

As regards the application of Directive 75/442/EEC on **waste** question 2 and 4 asked for the measures to encourage prevention and recovery and the details on waste generation and treatment. It is doubtful whether and how much waste has been prevented between 1995 and 1997; there is even no formula to calculate the success and to make it comparable. Only the Flemish region of Belgium and Luxembourg started specific programs or actions to support these objectives. Germany and Ireland explained how the objectives are implemented in the waste management procedures, whereas the other Member States only confirmed that the requirements have been transposed into national law.

The success of waste recycling differs widely between Member States. The mean recycling rate for domestic waste for the fifteen Member States is 15% (in Member States it varies between 0 and 44%). The mean recycling rate for hazardous waste (from eleven Member States) is about 19% and on “other waste” 60%. This last has to be considered carefully since the data was only provided by eight Member States which did not report on the same waste fractions.

As there are no precise criteria on European level to distinguish between incineration with and without energy recovery, both operation have to be considered together. As regards household waste Denmark and Luxembourg incinerated 56%, whereas the mean rate of incineration is about 19%. Incineration is even with energy recovery only the second best option as regards recovery. Current and future initiatives on European level will have to focus on separate collection at source and high recycling rates.

Landfilling is still the most common way for handling household waste (average = 62%). It seems to be less important for hazardous waste (35%) and “other waste” (17%). The rate of self-sufficiency for the disposal of waste lies in most Member States by more than 99% whereas Ireland and Luxembourg exported 36% and 99% of the hazardous waste for disposal.

As regards the appropriate management of **waste oil**, the success of separate collection is an important factor. The higher the collection rate the smaller the quantity of waste oil which is just dumped in landfills or even poured on the soil or down the drain which causes high risks for human health and the environment. The average collection rate (based on the assessment that half of the oil marketed is generated as waste oil) is about 71%, which means that 29% is not handled appropriately.

The hierarchy of principles for waste oils management – regeneration, combustion and safe destruction/tipping is still not implemented. Among the reporting eleven Member States only

Germany, France and Luxembourg confirmed that a considerable part of the collected waste oil is regenerated (~ 60%, 50 to 30%, 100%). However the percentage of regeneration is decreasing in Germany, very much decreasing in France and as regards Luxembourg the ideal of 100% was not checked and might be due to different interpretation of “regeneration”.

The previous report already concluded, that the Directive on waste oils had only been partly implemented and that Member States had refrained from giving effective priority to regeneration over burning of waste oils. For the period 1995 to 1997 even a decrease has to be reported especially with view to the priority of regeneration.

The main constraints seem to be economic aspects such as that a minimum quantity of collected waste oil is needed for an economically profitable regeneration and that there are no stimulating instruments in order to support regeneration against the fierce competition of waste oil combustion. But Member States give also the impression that they do not wish to focus on regeneration. Thus France has expressed that in its point of view combustion is the most environmentally sound solution.

As regards **sewage sludge**, its use on agricultural soils as fertiliser is held as the best environmental option provided that it does not pose any threat to the environment as well as to animal and human health. Directive 86/278/EEC seeks to regulate the spreading on land of sewage sludge on agricultural soils in such a way as to prevent environmental drawbacks. Indeed, there are no reported cases of human, animal or crop contamination due to the use of sludge on agricultural soils following the provisions of the Directive. 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.

Other sludge management options exist, although none is without drawbacks. Sludge can be landfilled – indeed, in many Member States that is the main disposal route. However, the organic matter in the sludge, in an environment such as that of a landfill where there is a lack of oxygen, decomposes. This decomposition produces landfill gases such as methane and carbon dioxide, both of which are greenhouse gases. Not to mention the foul odours and the highly contaminated leachate that is produced and that can contaminate ground water. Sludge can be incinerated. Apart from the costs which are high and bound to increase even more because of the adoption of more sophisticated flue gas cleaning processes, the incineration poses the problems of the handling of residues, the production of carbon dioxide and the utter destruction of the organic matter and nutrients of the sludge.

The waste hierarchy seeks to put waste avoidance and reuse at the front of the waste management options. In the case of waste water treatment it is not possible at present to have an effective cleaning process without the production of sludge. The second best option is therefore reuse. The use on agricultural soils is the natural outlet for sewage sludge because of the closing of the nutrient cycles. In many Member States, though, there is an ever increasing suspicion for the use of wastes on agricultural soils in general and sludge in particular. In the case of sludge this suspicion is not based on scientific evidence but it is fed by the rather large number of food scares occurred in the past years in the agro-food sector. Despite the fact that these food scares had nothing to do with the use of sludge on agricultural soils, the association human faecal matter-food crops is perceived as potentially dangerous and people react accordingly.

The figures provided by those Member States which have sent the report to the Commission show that only four Member States reuse more than 50% of the sludge produced in

agriculture. Five reuse between 30 and 50% and one as little as 11%. It is not realistic to expect a recycling rate of 100% because the safety of all types of sludge cannot be guaranteed. It needs to be documented whether the quantities of sludge beneficially reused could be increased. Especially in the Southern regions of Europe where the soil has a great need of organic matter in order to combat erosion and desertification, reuse of sludge is an option that should be carefully evaluated.

### **Waste management planning**

According to Article 7 (1) of Directive 75/442/EEC and Article 6 of Directive 91/689/EEC (as well as Article 14 of Directive 94/62/EC on packaging and packaging waste) the competent authorities shall draw up waste management plans which shall contain the type, quantity and origin of waste to be recovered and disposed of as well as general requirements, any special arrangements for particular wastes and suitable disposal sites or installations. Waste oils and sewage sludge should of course be part of these plans.

Waste management plans are a key element in the Community's waste management strategy. The implementation and application of these plans is however still dissatisfactory. Greece and Luxembourg have not yet notified a waste management plan. All other Member States, except Austria, notified waste management plans to the Commission which do not cover all types of waste or the whole of the territory of the Member States. A number of infringement procedures have been opened against Member States for non-compliance with the various provisions. A guideline addressed to the competent authorities is now planned in order to improve the quality of waste management planning.

### **Waste statistics**

Reliable waste statistics allow on the one hand the formulation of realistic objectives for waste management planning and on the other hand the assessment of the current situation which is the aim of this report.

In order to enable the comparability and the evaluation of the data, it has to be ensured that Member States use a common approach on the definition of waste, the waste lists, and the waste management terminology, which is not yet the case. In this regard the following problems had been identified:

- The terms domestic waste (waste from households) and municipal waste (collected by municipalities) are often used as a synonym. However, municipal waste may include, in addition to domestic waste, similar commercial, industrial and institutional waste.
- The data on incineration as disposal operation and on incineration with energy recovery have to be considered together since precise criteria to distinguish both operations have not yet been set on European level.
- Member States use different approaches to assess the quantity of waste oil generated (between 33% and 66% of the marketed oil).

Obviously most Member States have not yet established complete databases on waste generation and waste management. Information is especially lacking on "other waste", which constitute all wastes which are not domestic or hazardous wastes.

In January 1999 the Commission has submitted a Proposal for a Regulation on waste management statistics to the Council and the European Parliament (COM (1999) 31 final). This Regulation aims at establishing a Community framework for statistics, with common definitions and classifications. This Regulation, when implemented, should contribute to improving the availability and comparability of waste statistics. However, it should be mentioned that full implementation of the Regulation would require 3 years after its adoption.

## **Records**

The requirement of keeping records on waste and the waste management constitute the basis for the waste statistics.

Article 14 of Directive 75/442/EEC requires that establishments and undertakings carrying out recovery and disposal operations have to keep records on the **waste** and the waste management. In addition, Article 4(2) of Directive 91/689/EEC requests producers of hazardous waste and establishments transporting **hazardous waste** to keep records. Further the Directive requires in Article 2(1) specific records on the disposal (landfilling) of hazardous waste.

Belgium, Germany, France and the Netherlands did not implement all the aspects of the provisions correctly. Ireland and Sweden gave so little information that it was not possible to evaluate. As regards the records concerning the disposal of hazardous waste it seems that Austria and Denmark merged it with the general requirement in Article 14 of the Framework Directive.

Article 11 of Directive 75/439/EEC specifies for **waste oils** that Member States can set a minimum quantity (not above 500 litres), above which establishments producing, collecting and/or handling waste oils are obliged to keep records. The limits were set from 0 to 500 litres. The Netherlands does not require records from producer of waste oils. It is not clear, whether Denmark and France, which did not set limits, require records from 0 litres onwards or not at all.

Article 10 of Directive 86/278/EEC requests up-to-date records on the generation and use of **sewage sludge** as well as the characteristics of the sludge, the recipients and the place of use. The Commission notes that some Member States do not report the data requested for sludge production as well as quantities used in agriculture and others give only estimates.

The four Directives require that these records have to be made available on the request of the competent authorities. The disadvantage of this provision is that the records are not automatically available for the competent authorities. Once they are needed for statistics or similar tasks, it takes a long time to collect the data. Some Member States such as the Flemish region of Belgium, Denmark and Finland require that annual reports have to be submitted to the competent authorities. These reports could then provide the basis for waste statistics.

## **Control of waste management**

First of all Member States have to establish or designate **competent authorities** to be responsible for the implementation of the control of waste management. Table 1 of the Annex to Directive 75/442/EEC provides a general overview on the competencies of the national authorities. Tables 2, 3.1, 3.2 and 4.2 of the Annex to Directive 75/439/EEC provide details

on the responsibilities in the sector of waste oil. The competencies differ largely between Member States which is due to the general differences in the administrative structure. Thus the use of this information is limited unless more details such as addresses, covered area etc. are provided in order to promote transparency and to facilitate the collection of waste information.

The Directives on waste contain various instruments in order to control appropriate waste management such as **permits and periodic inspections**.

### Permits

According to Article 9, 10 and 12 of Directive 75/442/EEC on **waste**, establishments and undertakings carrying out recovery or disposal operations must obtain a permit from the competent authorities. Establishments collecting and transporting waste have to be registered with the competent authorities. Article 11 provides the conditions for exemptions of the permit requirement which are tightened by Article 3 of Directive 91/689/EEC for **hazardous waste**. None of the reporting Member States established general rules in order to enable exemptions from the permit requirement as regards hazardous waste. Some Member States transposed the possibility for the exemption of the framework Directive but none of them provided experience of application.

Article 6 of Directive 75/439/EEC requires that undertakings which dispose of **waste oils** (thus process, destroy, store or tip) must obtain a permit. All reporting Member States with the exception of Denmark established also a permitting system for undertakings collecting waste oils.

Directive 86/278/EEC provides general rules for the use of **sewage sludge**; there is no permit requirement.

### Inspections

Appropriate periodic inspections are generally required in Article 13 of Directive 75/442/EEC for all establishments handling **waste** (inclusive collection, transport, recovery and disposal). Article 4(1) of Directive 91/689/EEC widens the inspections on producers of **hazardous waste**.

Article 13 of Directive 75/439/EEC only requires inspections for undertakings which dispose of **waste oils** (thus process, destroy, store or tip). Therefore the general provisions of the Framework Directives apply in addition for undertakings collecting and transporting waste oil as well as for producer of waste oil.

Only the inspections of producers of hazardous waste were part of the questionnaire. The national administrations do not have the capacities to inspect all producers of hazardous waste. Thus they focus on the most important cases.

Directive 86/278/EEC on **sewage sludge** does not require periodic inspections.

## Measures to ensure safe recovery and disposal

According to Article 4 of Directive 75/442/EEC on **waste** Member States have to take the necessary measures to ensure that waste is recovered and disposed of without endangering human health and without using processes or methods which could harm the environment.

Safe waste management is also the objective of Article 2(2) to (4), which prohibits the mixing of **hazardous waste** and Article 5(1) of Directive 91/689/EEC, which requires proper packaging and labelling of hazardous waste. Most reporting Member States transposed these provisions at least in the legal texts with the exception of France, Austria and Finland, which softened the prohibition of the mixing of hazardous waste. France has in addition implemented the proper packaging and labelling only for hospital and infectious healthcare waste.

Article 7 and 8 of Directive 75/439/EEC specifies the general provision of the framework Directive for **waste oil**. Thus Member States have to take the necessary measures to ensure that the operation of regeneration of waste oils does not cause avoidable damage to the environment. The Walloon region of Belgium, Ireland, the Netherlands and Austria have not transposed the provision since they do not regenerate waste oil. France has not even implemented the provision although it regenerates waste oil.

According to Article 8 Member States have to ensure that the emission values for combustion plants with a thermal input of more than 3 MW are being observed. Ireland and the Netherlands did not apply the emission limit values as they consider that processed waste oils are not “waste” any more. For France and Sweden it is doubtful, whether they comply with the Directive. Four Member States (Austria, Denmark, Finland and Germany) implemented even stricter emission limit values. Austria added limit values for other parameters. It is planned that in future the emission limit values are part of the Directive on the incineration of waste.

Limit values represent the most important part of the Directive 86/278/EEC **on sewage sludge**. Thus concentration limit values for heavy metals in soil, in sludge are regulated in addition to the annual average load of heavy metals to agricultural land.

Member States have made large use of the possibility granted to them by Article 12 of the Directive which states that “where conditions so demand, Member States may take more stringent measures than those provided for in this Directive”. Member States have very often adopted stricter limits for the concentration values for heavy metals in sludge than those provided for in Annex I B of the Directive. There is a large variation among the limits and a difference of a factor 100 is not uncommon. This despite the fact that the actual average concentrations for heavy metals are roughly the same across the Community. It is legitimate the question of what are the scientific bases for such a wide range of values.

It appears from the figures in Table 5 that sludge quality has – on average – greatly improved from the situation of a few years ago. At the same time, the ranges of concentrations provided for in Annex I B of the Directive do not reflect the actual low level of contamination of the sludge (at least of the sludge reused in agriculture). This raises the issue of how to prevent the reuse in agriculture of sludge of very poor quality. Indeed, actions undertaken in Member States demonstrate that it is possible to prevent sludge contamination at source, thereby avoiding the spreading of heavy metals into the environment.



The Directive does not provide for concentration limits for organic compounds. Some Member States have notified the Commission of a certain number of compounds for which threshold limits have been set<sup>69</sup>. However, the Commission notes that different kinds of compounds have been regulated, raising once more the question of the bases of such an approach.

This variety of regulations, although compatible with the Directive and the Treaty, is sometimes regarded as hindering the efforts made by the national authorities for ensuring that the general public does not lose its confidence in sludge reuse in agriculture.

### **Infringement procedures**

The Commission started procedures under Article 226 EC Treaty for those Member States which have not fulfilled their obligation to report on the implementation of waste legislation.

The following tables contain the pending **infringement procedures** according to the implementation of Directives 75/442/EEC, 91/689/EEC and 75/439/EEC. At present there is no pending infringement procedure as regards the implementation of Directive 86/278/EEC on sewage sludge.

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<sup>69</sup> For example, total halogenated compounds (AOX) as well as dioxins and furanes (PCCD/F) are regulated in Austria and in Germany; PCBs are regulated in Germany, France and Sweden; PAHs in Denmark, France and Sweden, etc.

	Austria	Belgium	Denmark	Finland	France	Germany	Greece	Ireland	Italy	Luxem- bourg	Nether- lands	Portugal	Spain	Sweden	UK
<b>75/442/EEC</b>															
Bad application: various provisions of the Directive		FN					Court RO FN	FN	Court FN			FN	FN		
Bad application: waste management plans			FN		Court	RO	RO	Court	Court	RO		FN	RO	RO	RO
Failure to submit reports							FN		FN			FN	FN		
<b>91/689/EEC</b>															
Non-conformity Bad application: Article 8(3)					FN		RO	FN	RO Court						FN
Bad application: waste management plans			FN		Court	RO	RO	Court	Court	RO			RO	RO	RO
<b>75/439/EEC</b>															
Non-conformity						Judgement (1)			FN			Court	FN		
Failure to submit reports							FN		FN			FN	FN		
<b>86/278/EEC</b>															
Failure to submit reports							FN		FN		FN		FN		

**Table:** Infringement procedures – status October 1999

FN = Letter of Formal Notice, RO = Reasoned Opinion, Court = Seizure of/Proceedings before the Court of Justice

(1) Judgement of the court on 9/9/99 in case C-102/97, Commission versus Germany

## Prospect

The progress made in implementing **Directives 75/442/EEC, 91/689/EEC and 75/439/EEC** is not yet satisfactory. The number of infringement procedures reflects well the current stage of play. As regards the Directives on waste and hazardous waste there is still a lot of work to be done on harmonising definitions and lists and establishing reliable waste databases in order to ensure effective waste management planning due to the hierarchy of principles.

As regards Directive **75/439/EEC**, Member States are not likely to be more active in promoting the regeneration of waste oils in future. The recent events in Belgium concerning contamination by dioxin of the animal feed chain, resulting in widespread contamination of food from animal origin, highlights the importance of correct enforcement of the waste legislation, in particular the Directive **75/439/EEC** on the disposal of waste oils. New approaches and instruments are needed on European level in order to improve separate collection and appropriate waste oil management respecting the priorities as well as measures to avoid danger for human health and the environment.

The Commission notes that there are no major problems in the formal transposition of the **Directive 86/278/EEC** on sewage sludge into national law. The Directive has been quite successful in preventing crop contamination by pathogens because of the use of sludge on agricultural soils. However, few Member States have a reuse rate above 50% despite the fact that the quality of sludge in terms of heavy metals and nutrients would allow a larger exploitation of its positive effects.

It should not be forgotten that, according to information submitted to the Commission<sup>70</sup>, an increase of about 40% of sludge production is foreseen by the year 2005. It is expected that the agricultural outlet will be put under stress by this increase in quantities. It is crucial that the reuse of sludge on agricultural soils is not unnecessarily hampered. At the same time, it is even more crucial that the legislative frame put in place at Community level for sludge management is effective in protecting the environment, and in particular the soil, from long term pollution.

Under this respect and in order to ensure consumers' confidence in the reuse of sludge on agricultural soils, the Commission plans to undertake a comprehensive review of the provisions contained in the Directive. These provisions will be assessed in the light of the scientific research carried out since the adoption of the Directive. This review will aim at ensuring a high level of environmental protection. The general public will be reassured about the fact that sludge reuse on agricultural soils – if carried out according to the rules of best practice and following the provisions of the Directive – does not present unacceptable risks for human health and the environment. Furthermore, the Commission will examine the need for clear and transparent criteria for analytical controls carried out on sludge used in agriculture, in order to avoid that contaminants are spread into the environment or recycled on crops for human consumption. The definition of sewage sludge will also be looked upon so that a coherent interpretation is adopted throughout all sectors of legislation.

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<sup>70</sup> See the report on the *Implementation of Council Directive 91/271/EEC of 21 May 1991 concerning urban waste water treatment, as amended by Commission Directive 98/15/EC of 27 February 1998*, COM (98) 775 final of 15.01.99.

## **Future reports and questionnaires**

At present the questionnaires and thus the report on the implementation of waste legislation is a mixture between the legal transposition and the practical implementation of Community legislation. However, this approach should be reconsidered. Indeed, it does not seem to be opportune to establish reports on the application of Community waste legislation every three years, which, to a large extent, informs on the legal transposition of Community waste directives into national law. Further, the legal conformity of the national law should be checked once after having transposed Community law or again after the amendment of the national law; in contrast, the reports should much more focus on the experience made by the application in practice. For this reason the questionnaires of Commission Decision 94/741/EC of 24 October 1994 and 97/622/EC of 27 May 1997 might have to be adapted. In addition, Annex VI of Directive 91/692/EEC should be adapted in order to comply with current and partly amended Community waste legislation.

The reports on the implementation of Community law present an important tool for the Commission's task to act as the guardian of the EC Treaty. However, it has to be noticed that the reports are mainly based on contributions from Member States themselves. This obviously limits the possibility to identify omissions of applications or weaknesses and lacunes of existing Community waste legislation.