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REPORT FROM THE COMMISSION

**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**

**Summary of the measures implemented by the Member States and  
assessment of the information received pursuant to Articles 17 and  
13 of the Directive**

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## 1. INTRODUCTION

Council Directive 91/271/EEC of 21 May 1991 concerning urban waste water treatment,<sup>1</sup> as amended by Commission Directive 98/15/EC of 27 February 1998,<sup>2</sup> is a cornerstone of Community legislation on water. Its objective is to protect the environment from the adverse effects of discharges of urban waste water from agglomerations and biodegradable industrial waste water from the agri-foodstuffs sector by requiring Member States to ensure that such water is collected and treated.

As provided for in Article 17 of the Directive, the purpose of this report by the Commission is to review and assess the information received from the Member States on programmes for the implementation of the Directive. This information should have been communicated to the Commission by 30 June 1994 at the latest. Because of delays attributable to a number of Member States, it is only now that the Commission is able to publish this first report.

Chapter 4.5 of the report also presents the conclusions of the comparison of Member States' regulations on discharges of biodegradable industrial waste water, in accordance with Article 13 of the Directive. For the same reasons as above, these conclusions are being published four years later than stipulated by the Directive.

More generally, seven years after the adoption of the Directive by the Council and at the first major milestone in its practical application, this report describes the position on 15 July 1998 regarding the initial phase of the implementation of the Directive, namely its transposition by the Member States, i.e. the implementation of the laws, regulations and administrative provisions aimed at incorporating the requirements of the Directive into national law.

This first phase has now been completed in 14 Member States. However, in some, the transposition arrangements or the implementation programme are not in accordance with the provisions of the Directive. Infringement proceedings have been initiated against certain Member States for failing to transpose the Directive properly, if at all. The identification of the receiving waters (sensitive areas, less sensitive areas) which determines the level of their treatment and the forward investment programmes needed to comply with the Directive, with their financial implications, including information given by the Member States on a number of major agglomerations (Brussels, Milan) which cannot be equipped with treatment facilities within the prescribed time, are the main features of this first phase of implementation.

## 2. POLLUTION CAUSED BY URBAN WASTE WATER

Urban waste water is defined by the Directive as domestic waste water or the mixture of domestic waste water with industrial waste water and/or run-off rainwater.

The main forms of pollution having adverse effects on human health and the environment that such untreated or insufficiently treated water may cause are as follows:

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<sup>1</sup> OJ L 135, 30.5.1991, p.40.

<sup>2</sup> OJ L 67, 7.3.1998, p.29.

- discharges of nitrogen in its various forms: organic nitrogen, ammoniacal nitrogen, nitrites and nitrates. Nitrogen discharged into the environment originates mainly from urban water and agricultural activities. Nitrates from urban sources and agriculture represent a major public health problem in that they pollute catchment areas used for drinking water supplies.<sup>3</sup> Ammoniacal nitrogen is particularly toxic to the aquatic fauna. Nitrates are also the main cause of eutrophication problems in certain waters, causing an ecological imbalance due to excessive algae growth. Some of these can release toxins, which can affect humans consuming shellfish. Eutrophication is a cause for concern in certain coastal areas of the North Sea or the Mediterranean for example; the appearance of toxic algae in the Seine Estuary or on the French Atlantic Coast, which appears to be linked to discharges of nitrates from agricultural and urban sources, regularly makes mussels or other shellfish unfit for consumption;
- discharges of phosphorus which, in spite of the reduction in the use of phosphates in detergents and washing powders, are responsible for cases of eutrophication, particularly in fresh waters or estuaries, such as the Po delta;
- a reduction in the amount of oxygen in water as a result of the decomposition of the organic matter contained in waste water, endangering aquatic life through asphyxiation and disrupting the ecological balance of the water; the Dobbris assessment states<sup>4</sup> that where the population density in catchment areas increases, the oxygen levels of rivers decrease and that as a result around one-quarter of European rivers are classified as of mediocre or poor quality in terms of their oxygen content; the quality of certain estuarine and coastal waters is also affected. However, there are signs of an improvement in this quality due to, among other things, better methods of collecting and treating urban waste water, as can be seen from the second assessment of Europe's environment recently carried out by the European Environment Agency;<sup>5</sup>
- discharges of pathogenic micro-organisms of faecal origin (bacteria, viruses, parasites) contained in urban waste water which could pose a health risk through contamination of drinking water supplies, waters used for bathing or other water sports and shellfish waters; the Commission report on the quality of bathing waters published in May 1998 explains the cycle of contamination of bathing waters by organisms of faecal origin contained in urban waste water;
- discharges of hazardous, toxic and bioaccumulable substances (chemical compounds, heavy metals, hydrocarbons, etc.) from connected industries but also domestic activities (detergents, paints, solvents, etc.) posing a potential risk to aquatic life and human health. Such discharges are regulated by Council Directive 76/464/EEC<sup>6</sup> of 4 May 1976;

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<sup>3</sup> See Commission report on the implementation of Council Directive 91/676/EEC concerning the protection of waters against pollution caused by nitrates from agricultural sources - 1998.

<sup>4</sup> Stanner, D. and Bourdeau, P., Ed., *Europe's Environment - The Dobbris Assessment*, EEA, 1995.

<sup>5</sup> *Europe's Environment : The Second Assessment* - EEA, 1998.

<sup>6</sup> OJ L 129, 18.5.1976, p.23.

- the adverse effects of waste water on the special protection areas under the amended Council Directive 79/409/EEC<sup>7</sup> of 2 April 1979 on the conservation of wild birds and on the natural habitats and species referred to in Council Directive 92/43/EEC<sup>8</sup> of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (NATURA 2000 network);
- loss of value in terms of appearance and appeal to tourists of freshwater areas or coastal waters polluted by urban waste water.

### 3. PRINCIPLES OF THE DIRECTIVE

The objective of the Directive is to help overcome the pollution problems referred to above through treatment of discharges which is appropriate for the environment to be protected and the use of the water whose quality is to be preserved.

To achieve this, the Directive requires Member States to:

- provide for prior regulations or specific authorisations for all discharges into the natural environment of waste water from urban waste water treatment plants and plants belonging to the food industry, as well as all discharges of industrial waste water into collecting systems and urban waste water treatment plants;
- ensure that systems for the collection and treatment of urban waste water are provided for all agglomerations of more than 2000 population equivalents (p.e.)<sup>9</sup> The basic rules for the level of treatment is secondary treatment,<sup>10</sup> i.e. biological. However, the treatment has to be more stringent (secondary plus tertiary<sup>11</sup> treatment) for discharges in areas identified as sensitive by the Member States and in the relevant catchment areas. The treatment may be less stringent (primary treatment<sup>12</sup>), under certain conditions and with the agreement of the Commission or the Council for discharges in coastal waters or estuaries identified by the Member States as being less sensitive. The time limit for implementation of the Directive is 31/12/1998, 31/12/2000 or 31/12/2005, depending on the size of the agglomeration and the sensitivity of the receiving body, as shown in Table 1;

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<sup>7</sup> OJ L 103, 25.4.1979, p.1.

<sup>8</sup> OJ L 206, 22.7.1992, p.7.

<sup>9</sup> The population equivalent is a unit of measurement of organic biodegradable pollution representing the average load of that pollution produced by one person in one day; in the Directive it is fixed at 60 grammes of BOD5 (five-day biochemical oxygen demand) per day.

<sup>10</sup> Secondary treatment: treatment by a process generally involving biological treatment with a secondary settlement or equivalent process.

<sup>11</sup> Tertiary treatment: treatment (additional to secondary treatment) of the nitrogen (nitrification - denitrification) and/or phosphorus and/or of any other pollutant affecting the quality or a specific use of the water: microbiological pollution, colour, etc.

<sup>12</sup> Primary treatment: treatment by a physical and/or chemical process involving settlement of suspended solids or other equivalent processes.

- ensure that by 31/12/2000, biodegradable industrial waste water from plants belonging to the industrial sector listed in the Directive which are not connected to the urban systems respect, before discharge into receiving waters, the established conditions, in respect of all discharges from plants representing 4000 p.e. or more:
- ensure that by 31/12/1998 general rules or registration or authorisation procedures are in place to provide a long term solution to the final disposal of sludge from treatment plants and ensure that by the same date the disposal of sludge to surface waters is phased out;
- ensure that discharges of urban waste water and their effects are monitored;
- establish implementation programmes and publish two yearly situation reports to inform the public.

**Table 1: deadlines<sup>13</sup> and types of treatment**

<b>Size of agglomeration</b>	<b>Less than 2.000 p.e.</b>	<b>Between 2.000 and 10.000 p.e.</b>	<b>Between 10.000 and 15.000 p.e.</b>	<b>Between 15.000 and 150.000 p.e.</b>	<b>More than 150.000 p.e.</b>
<b>Type of area</b>					
<b>Sensitive area</b>	If collection 2005 appropriate treatment <sup>14</sup>	Collection 2005 secondary* treatment	Collection 1998 more stringent treatment	Collection 1998 more stringent treatment	Collection 1998 more stringent treatment
<b>Normal area<sup>15</sup></b>	If collection 2005 appropriate treatment	Collection 2005 secondary* treatment	Collection 2005 secondary treatment	Collection 2000 secondary treatment	Collection 2000 secondary treatment
<b>Less sensitive area (coastal waters)<sup>16</sup></b>	If collection 2005 appropriate treatment	Collection 2005 appropriate treatment	Collection 2005 secondary or primary treatment	Collection 2000 secondary or primary treatment	Collection 2000 secondary treatment

\* appropriate treatment if discharges into coastal water

Commission Directive 98/15/EC of 27 February 1998 amending the original Directive as regards certain provisions of Annex I, and more specifically Table 2 of that annex, is intended for its part to clarify the part of that table relating to the rules for total nitrogen, and in particular the amendment (3) which allows the use of daily averages instead of annual averages for the total nitrogen concentrations in order to avoid differences of interpretation between Member States. This Directive must be transposed by 30 September 1998 at the latest.

#### **4. PROGRESS OF THE IMPLEMENTATION OF THE DIRECTIVE**

Table 2 summarises the deadlines and progress by the Member States in transposing the main requirements of the first phase of implementation of the Directive.

<sup>13</sup> Only the year is indicated in the table; the deadline is the last day of that year.

<sup>14</sup> Appropriate treatment : treatment by any process and/or collecting system which allow, as regards the waters receiving the discharges, the agreed quality objectives to be met as well as the relevant provisions of Directive 91/271/EEC and other Community Directives.

<sup>15</sup> Normal area: body of water not identified as sensitive or less sensitive.

<sup>16</sup> For the sake of clarity, the case of less sensitive areas in estuaries, where the possibility of primary treatment is limited to agglomerations of less than 10 000 p.e., is not included in the table.

The Directive has to be implemented at the same rate in all Member States. Derogations have been granted to Austria, Finland and Sweden, which joined the European Union on 1 January 1995.

The grey boxes in the table represent cases where the Directive has not been transposed or has not been transposed properly according to the current interpretation by the Commission.

Table 2: progress of implementation on 15/07/98

	Legal transposition Article 19	Identification of sensitive areas Article 5	Regulation of discharges of industrial waste water into urban waste water systems Article 11	Regulation of discharges of industrial waste water into receiving waters Article 13	Transmission of implementation programme Article 17
Deadline >	30.06.1993	31.12.1993	31.12.1993	31.12.1993	30.06.1994
Belgium	1992-1995	1992-1994	1985-1993	1992-1993	1995-1996 (not in conformity)
Denmark	1994	1994 (Article 5.8)	1994	1994	1994
Germany	1992-1998	1992-1998	1992-1998	1992-1998	1994
Greece	1997 (not in conformity)	No	1997	1997	1998
Spain	1995-1996	1998	Verification underway	Verification underway	1994
France	1994	1994	1976-1993	1976-1993	1994
Ireland	1994	1994	1994	1994	1995
Italy	No	No	No	No	No
Luxembourg	1994	1994 (Article 5.8)	1994	1994	1996
Netherlands	1996	1996 (Article 5.8)	1996	1996	1994
Austria	1994 (not in conformity)	1996 and 1998 (no sensitive areas)	1959-1995	1959-1995 (not in conformity)	1996
Portugal	1997	1997	1990-1994	1990-1994	1998
Finland	1994	1994 (Article 5.8)	1994	1994	1997
Sweden	1994	1994 (Article 5.8)	1969-1970	1969-1995	1995
United Kingdom	1994-1996	1994-1995	1972-1991	1972-1991	1994 and 1998



#### **4.1. Transposition into national law**

Under Article 19, Member States had to bring into force the laws, regulations and administrative provisions necessary to comply with the Directive by 30 June 1993 at the latest, i.e. some two years after its notification.

Today, five years after that deadline, Italy has still not transposed the Directive. The other Member States have done so with varying delays (see Table 2). Transposition is not in conformity in the case of Greece and Austria.

The Commission is currently verifying conformity in the case of Germany, Sweden and the United Kingdom.

#### **4.2. Identification of sensitive (and less sensitive) areas**

Under Article 5, Member States were required to identify sensitive areas by 31/12/93 at the latest, on the basis of the criteria set out in Annex II. There are three criteria:

- fresh water bodies, estuaries and coastal waters which are eutrophic<sup>17</sup> or which could become eutrophic if protective action is not taken;
- surface fresh waters intended for the abstraction of drinking water where the nitrate content is, or could become, more than 50mg/l;
- areas where further treatment is necessary to meet the requirements of Council Directives such as those referred to in Chapter 2 of this report (quality of surface waters, fishing waters, bathing waters, shellfish waters, conservation of wild birds and natural habitats, etc.).

One of these criteria is sufficient to designate a body of water as sensitive.

The identification of a body of water as a sensitive area means that, for all agglomerations with more than 10.000 p.e. whose discharges are made into this area and into the relevant catchment areas contributing to the pollution of that area, collection and treatment systems which are more stringent than secondary treatment must be operational by 31 December 1998 at the latest. These conditions concerning treatment do not apply for a sensitive area where it can be proved that the minimum reduction in the total nitrogen and phosphorus load is at least 75% for each of the two parameters.

Member States must review the identification of sensitive areas every four years.

Under paragraph 8 of Article 5, a Member State is not obliged to identify sensitive areas if it applies more stringent treatment throughout its territory.

As Table 2 shows, five Member States have made use of this possibility: Denmark, Luxembourg, Netherlands, Finland and Sweden.

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<sup>17</sup> Subject to eutrophication.

Seven other Member States (Belgium, Germany, Spain, France, Ireland, Portugal and the United Kingdom) have for their part identified certain bodies of water on their territory as sensitive areas but have still not reviewed this initial identification<sup>18</sup>. The Commission is currently verifying whether the identification criteria have been respected in these seven Member States.

It should be noted that France has not identified sensitive areas in its overseas departments.

Austria considered that there is no sensitive area on its territory, which is also being verified. Greece and Italy have still not formally identified sensitive areas.

Map 1 gives an overview of the current situation concerning the identification of sensitive areas and the relevant catchment areas<sup>19</sup>. Those Member States, which used paragraph 8 of Article 5, appear on this map entirely as the catchment areas of sensitive areas since the requirements are the same. Not all the relevant catchment areas of sensitive areas appear on the map for Belgium (Wallonia), Ireland, Portugal and the United Kingdom because those Member States did not transmit the necessary information requested by the Commission in 1997 as regards these catchment areas and the agglomerations contained therein whose discharges contribute to the pollution of sensitive areas.

Table 4 which summarises the information available on implementation programmes shows the number of agglomerations and the number of population equivalents concerned in the sensitive areas in each Member State, including Greece although that Member State has not formally identified those areas in accordance with its obligations.

#### **4.3. Less sensitive areas**

Unlike the identification of sensitive areas, which is an obligation, the identification of less sensitive areas is a possibility given to Member States for certain coastal waters and estuaries which could meet the morphological, hydrological or hydraulic conditions allowing them to receive discharges of urban waste water which has undergone less stringent treatment than secondary treatment (primary treatment) without adverse effects on the environment.

Only two Member States have used this possibility: the United Kingdom and Portugal (see Map 1). Table 4 shows discharges into less sensitive areas in Greece and Spain as well but these two Member States have not formally identified such areas. The Commission is currently verifying whether the criteria for identifying less sensitive areas have been respected.

It should be borne in mind that each case of treatment which is less stringent than secondary treatment before discharge into a less sensitive area must be the subject

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<sup>18</sup> The United Kingdom informed the Commission in September 1998 of its identification of 47 new sensitive areas in England and Wales.

<sup>19</sup> This map does not take account of sensitive areas in Spain whose list was transmitted too late to the Commission (2/7/98) nor those identified by the United Kingdom in its review.

of a request for a derogation: the Member States must present comprehensive studies to the Commission indicating that such discharges would not adversely affect the environment (Article 6(2)) and, in circumstances which should remain exceptional for agglomerations of more than 150.000 p.e., demonstrating that more advanced treatment will not produce any environmental benefits (Article 8(5)). The Commission has to examine these studies and take appropriate measures after submitting the proposal to the Committee provided for in Article 18 and, if necessary, the Council.

#### **4.4. Discharges of industrial waste water into urban waste water systems**

Article 11 lays down that, before 31 December 1993, the discharge of industrial waste water into collecting systems and urban waste water treatment plants must be subject to prior regulations and/or specific authorisations by the competent authorities or appropriate bodies in order to avoid the adverse effects that such discharges could have.

Accordingly, such discharges of industrial waste water must not affect the health of staff working in urban systems nor damage the systems themselves, nor must they affect the quality of the discharge after treatment and the quality of the sludge arising from treatment.

Table 2 shows that, with the exception of Italy, the Member States have taken measures to transpose this obligation. The Commission is currently verifying whether the measures in certain Member States are in conformity.

#### **4.5. Discharge of industrial waste water into receiving waters (Article 13)**

Article 13 lays down that, by 31 December 2000, biodegradable industrial waste water from plants belonging to the industrial sectors listed in Annex III to the Directive (sectors of the food industry) which does not enter urban waste water treatment plants before discharge to receiving waters shall before discharge respect conditions established in prior regulations and/or specific authorisations, which had to be established by the competent authority or appropriate body by 31 December 1993 in respect of all discharges from plants representing 4.000 p.e. or more.

In accordance with paragraph 3 of that article, the Commission asked an external consultant in 1996<sup>20</sup> to carry out a comparison of Member States' requirements.<sup>21</sup>

After examining the requirements for discharges in each Member State and listing the corresponding regulations, the study concludes that:

- with the exception of Spain, the provisions of the Member States are consistent with the deadline of 31 December 2000;

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<sup>20</sup> Article 13 states that the Commission shall carry out this comparison by 31/12/1994 but because of the delay in transposition of the provisions by many Member States, it was unable to do this until 1996.

<sup>21</sup> Study of the implementation of Article 13 of Directive 91/271/EEC concerning urban waste water treatment. Haskoning – December 1996

- only a few Member States have taken into consideration the threshold of 4.000 p.e., most of them stipulate in their laws that all discharges of industrial waste water must, whatever their size, be subject to prior regulations and/or specific authorisations;
- as regards the stipulation in paragraph 2 of Article 13 that requirements should be appropriate to the nature of the industry concerned, only Austria, Germany, France and Flanders in Belgium have incorporated into their laws emission standards which vary according to the nature of the industry; the United Kingdom, Finland, Ireland, the Netherlands, Denmark, Sweden and Luxembourg have for their part opted to determine emission standards on a case-by-case basis for each industrial site, taking account of the principle of the best available technologies when issuing discharge authorisations. In Greece, Italy and Portugal, national legislation does not define emission standards in relation to the industry concerned and the authorisations issued are not based on the principle of best available technologies. Spain has still not completed the process of transposing the provisions of Article 13.

In conclusion, the Commission considers that nine Member States have adopted provisions which are in accordance with Article 13 of the Directive. Austrian legislation is deemed to be not in conformity on this point in that it does not cover all the industrial sectors specified in the Directive. Italy has not transposed the Directive. Checks are in progress regarding Greece, Portugal, Belgium and Spain.

#### **4.6. Implementation programmes**

Article 17 lays down that Member States had to establish an implementation programme by 31 December 1993 and provide the Commission with information on the programme by 30 June 1994. The format for the presentation of this programme was the subject of a Commission decision of 28 July 1993.<sup>22</sup>

If necessary, Member States must provide the Commission by 30 June every two years with an update of this information.

The implementation programme represents the planning, between 1993 and 2005, of the investments needed for the collection and treatment of urban waste water in each Member State to achieve compliance with the Directive.

By 15 July 1998, only Italy had still not submitted its implementation programme; it merely informed the Commission in January 1998 about the situation and projects of the Milan agglomeration, which currently has no treatment plant, and which according to the local authorities will not be able to meet the deadlines laid down in the Directive. Certain other Member States forwarded their programme with a delay of several years (up to four years for Portugal and Greece), which explains why the Commission has had to wait until now to review and assess the information transmitted. The result of this process is contained in Chapter 7 of this report.

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<sup>22</sup> Commission Decision 93/481/EEC of 28 July 1993 concerning formats for the presentation of national programmes as foreseen by Article 17 of Council Directive 91/271/EEC (OJ L 226, 7.9.1993, p.23)

Only the United Kingdom has provided (April 1998) an update of the implementation programme.

Belgium forwarded an implementation programme, which does not conform to the Directive as regards the deadlines laid down for completing systems for the collection and treatment of urban waste water in the Brussels, agglomeration.<sup>23</sup>

#### **4.7. Situation reports**

Article 16 lays down that every two years the relevant authorities or bodies must publish a situation report on the disposal of urban waste water and sludge in their areas and that these reports must be transmitted to the Commission as soon as they are published.

The main objective of this report, which may be drawn up by areas (there may be several reports for each Member State), is to give regular information to the public on the situation, on a particular reference date, with regard to the disposal of urban waste water and sludge.

The first situation reports were to be published by 30 June 1995, and thereafter every two years. To date, the Commission has received only seven reports.

In order to facilitate the preparation of these reports and enable the Commission to compare the information that they contain, the committee provided for in Article 18 instructed a group of experts in 1997 to prepare a proposal for the format of the report. The group of experts also has the task of proposing a model questionnaire, which will provide the Commission with information on the monitoring of discharges and the disposal of sludge, as provided for in Article 15. The group is due to present the results of its work to the committee by the end of 1998.

Table 3 below sets out the reference dates for situation reports and implementation programmes, deadlines for the publication and transmission to the Commission of situation reports and the deadlines for drawing up implementation programmes and forwarding them to the Commission. This table refers to a single reference date for the two documents which for the first is that indicated in the decision of 28 July 1993 (31/12/1992). The flexibility afforded by Article 17 regarding the establishment and transmission of the programmes also allows Member States to combine the two documents and transmit them on the date fixed by Article 16.

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<sup>23</sup> The Belgian authorities have indicated that all the installations for the collection and treatment of urban waste water in the Brussels agglomeration will be operational only by 2005 whereas the deadline laid down by the Directive is 31 December 1998.

**Table 3: situation reports (Article 16) and implementation programme (Article 17)**

Reference date Situation on ...	Date of publication of situation reports (Article 16) and transmission to the Commission	Date of establishment of implementation programme (Article 17)	Date of transmission of programme to Commission (Article 17)
31/12/92	---	31/12/93	30/06/94
31/12/94	30/06/95	31/12/95 *	30/06/96 *
31/12/96	30/06/97	31/12/97 *	30/06/98 *
31/12/98	30/06/99	31/12/99 *	30/06/2000 *
31/12/2000 etc.	30/06/2001	31/12/2001 *	30/06/2002 *

\* if necessary

## 5. INFRINGEMENT PROCEDURES

Under Article 169 of the Treaty establishing the European Community, the Commission may initiate an infringement procedure against Member States, which have failed to fulfil their obligations under the Directive.

Infringement procedures have been initiated against Member States whose non-fulfilment of their obligations under the Directive has been established; of these, mention may be made of the most advanced procedure, that concerning the failure of Italy to transpose the Directive (Judgement of the European Court of Justice of 12.12.1996 - further reasoned opinion issued under Article 171 of the Treaty).

## 6. REVIEW AND ASSESSMENT OF IMPLEMENTATION PROGRAMMES

The main information contained in the implementation programmes received from 14 Member States (no information received from Italy) is summarised in the following tables and graphs. It should be borne in mind that all the figures are estimates made by the Member States.

### 6.1. Number of agglomerations and organic loads

Table 4 below shows that the 14 Member States contain 17.351 agglomerations of more than 2.000 p.e., representing a total organic load of some 424 million p.e.

**Table 4: number of agglomerations and organic loads expressed in population equivalents (p.e.) – situation 1992 - 1995<sup>24</sup>**

Member State	Population (1000 hab.)	Normal areas		Sensitive areas		Less sensitive areas		Total	
		agglomer.	1000 p.e.	agglomer.	1000 p.e.	agglomer.	1000 p.e.	agglomer.	1000 p.e.
Belgium	10.131	119	1.775	245	7.389	0	0	364	9.164
Denmark	5.216	0	0	382	8.393	0	0	382	8.393
Germany	81.533	1.172	27.397	3.650	79.143	0	0	4.822	106.540
Greece	10.442	169	6.189	60	2.101	86	1.913	315	10.203
Spain	39.170	2.611	47.263	253	4.659	356	22.517	3.220	74.439
France	58.027	2.359	49.927	1.137	20.583	0	0	3.496	70.510
Ireland	3.577	137	3.748	9	170	0	0	146	3.918
Luxembourg	407	0	0	42	914	0	0	42	914
Netherlands	15.423	0	0	414	17.218	0	0	414	17.218
Austria	8.040	703	18.569	0	0	0	0	703	18.569
Portugal	9.912	598	12.651	114	1.814	34	1.806	746	16.271
Finland	5.099	0	0	201	4.007	0	0	201	4.007
Sweden	8.816	0	0	454	7.496	0	0	454	7.496
United Kingdom	58.276	1.764	61.816	127	4.187	155	10.523	2.046	76.526
<b>Total</b>	<b>314.069</b>	<b>9.632</b>	<b>229.335</b>	<b>7.088</b>	<b>158.073</b>	<b>631</b>	<b>36.759</b>	<b>17.351</b>	<b>424.361</b>

The differences between the total organic load expressed in population equivalents (p.e.) and the population of the Member States are due mainly to the following:

- the organic load takes account only of the population of agglomerations of more than 2.000 p.e. for which the Directive requires the collection and treatment of urban waste water, but does not include agglomerations of less than 2.000 p.e. and isolated dwellings which are more inclined to have individual treatment systems;

<sup>24</sup> The reference year for the data in this table varies, according to the Member States, between 1992 and 1995.

- the organic load of agglomerations of more than 2.000 p.e. includes, in addition to the load from the permanent population:

- the load originating from the non-permanent population associated with tourism,<sup>25</sup> the hotel trade, etc.;

- the load of industrial waste water connected to urban waste water systems;

- the load of run-off water also entering those systems.

The breakdown of these agglomerations and this load between the various types of discharge areas (sensitive, normal, less sensitive) is based on the identification of areas carried out by the Member States. Overall, in the 14 Member States taken as a whole, discharges in sensitive areas and the relevant catchment areas represent 37% of the organic load, discharges in less sensitive areas represent 9% and those in so called normal areas 54%. This breakdown varies significantly from one Member State to another.

Apart from Portugal and the United Kingdom which have formally identified less sensitive areas, Spain and Greece have also included less sensitive areas in their programme although they have not formally identified such areas. The derogation for treatment, which is less stringent than secondary treatment before discharge in less sensitive areas can of course be, considered only where such areas have been formally identified.

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<sup>25</sup> For example, the Commission is to verify why Greece, in spite of its highly developed tourism industry, does not have an organic load expressed in p.e. which is more than the number of its inhabitants.



## 6.2. Forecasts of the development in collection and treatment capacity

**Table 5: Forecasts of the development in the capacity of collecting systems**

Member State	1992	1995	1998	2000	2005	Increase	
	1000 p.e.	1000 p.e.	1000 p.e.	1000 p.e.	1000 p.e.	1000 p.e.	%
Belgium <sup>26</sup>	1.721	1.721	1.810	1.898	2.201	480	28%
Denmark	12.133	12.133	12.133	12.133	12.133	0	0%
Germany	114.084	114.230	121.756	124.589	127.055	12.971	11%
Greece	7.278	7.465	8.170	8.708	8.708	1.430	20%
Spain	35.001	41.456	52.836	62.890	74.439	39.438	113%
France	55.780	61.192	65.893	68.648	70.508	14.728	26%
Ireland	878	1.020	1.196	3.862	3.918	3.040	346%
Luxembourg	914	937	969	969	969	55	6%
Netherlands	21.780	21.780	21.780	21.780	21.780	0	0%
Austria	16.571	16.571	17.906	18.997	19.467	2.896	17%
Portugal	9.367	9.657	13.188	16.235	16.462	7.095	76%
Finland	3.395	3.461	3.576	3.576	3.576	181	5%
Sweden	13.044	13.044	13.044	13.044	13.044	0	0%
United Kingdom	76.526	76.322	76.957	75.635	75.604	-922	-1%
<b>Total</b>	<b>368.472</b>	<b>380.989</b>	<b>411.214</b>	<b>432.964</b>	<b>449.864</b>	<b>81.392</b>	<b>22%</b>

Table 5 summarises developments between 1992 and 2005, as programmed by the Member States, in the capacity, in organic load, of collecting systems which are considered to conform to the provisions of the Directive. The last two columns indicate the increase in this capacity in p.e. and in percentage terms between the initial situation before implementation in 1992 and the final situation after the implementation of the Directive in 2005. It may be noted that very sharp increases in this collection capacity are planned in Ireland, Spain or Portugal whereas no increase in capacity, which was deemed sufficient at the time of adoption of the

<sup>26</sup> Data relating only to the Walloon region.

Directive, is foreseen in Denmark, the Netherlands, Sweden and the United Kingdom.

Overall, the capacity of collecting systems in the Member States in 2005 would be greater than or equal to the initial organic load, with the exception of Greece and Finland where it would be less than the organic load to be collected as shown in Table 4.

The information received from Belgium is incomplete.

**Table 6: Development in the capacity of treatment plants**

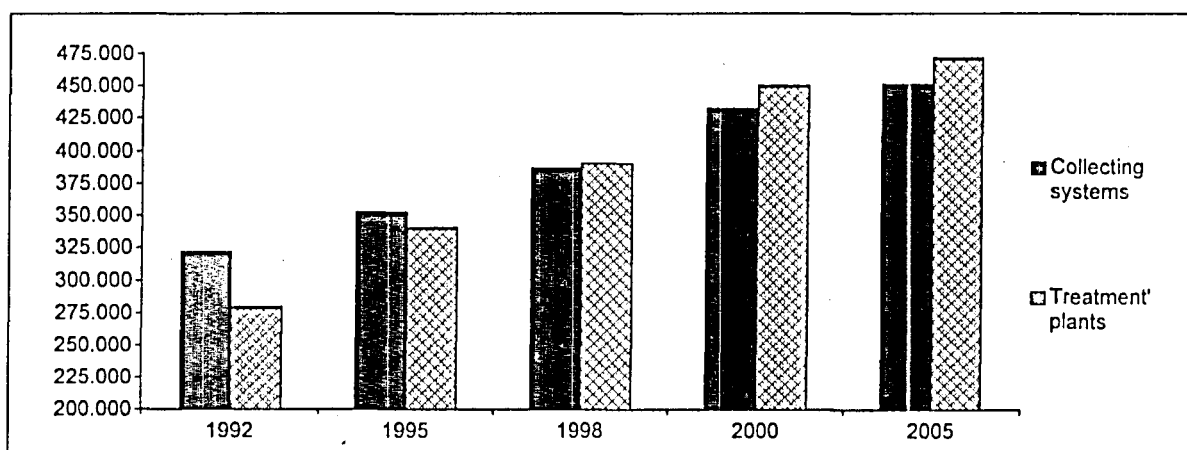
Member State	1992	1995	1998	2000	2005	Increase	
	1000 p.e.	1000 p.e.	1000 p.e.	1000 p.e.	1000 p.e.	1000 p.e.	%
Belgium	5.499	6.836	7.770	8.300	9.919	4.420	80%
Denmark	5.950	9.246	9.246	9.246	9.246	3.296	55%
Germany	111.456	131.403	141.221	142.022	143.831	32.375	29%
Greece	2.058	2.785	5.028	8.624	8.637	6.579	320%
Spain	23.872	30.152	45.713	60.862	73.754	49.882	209%
France	40.333	51.188	60.761	66.924	69.378	29.045	72%
Ireland	483	550	698	3.641	3.810	3.327	689%
Luxembourg	777	808	939	948	969	192	25%
Netherlands	21.396	21.705	22.053	22.053	22.053	657	3%
Austria	14.413	14.413	16.945	18.864	19.467	5.054	35%
Portugal	5.731	6.660	11.194	15.873	16.387	10.656	186%
Finland	3.598	3.772	3.905	3.925	3.935	337	9%
Sweden	13.038	13.038	13.038	13.038	13.038	0	0%
United Kingdom	29.335	46.841	50.964	74.233	75.323	45.988	157%
<b>Total</b>	<b>277.939</b>	<b>339.397</b>	<b>389.475</b>	<b>448.553</b>	<b>469.747</b>	<b>191.808</b>	<b>69%</b>

On the same lines as the previous table, Table 6 above shows the development between 1992 and 2005 of the capacity of treatment plants considered to conform to the provisions of the Directive. It will be seen that the forecast increase in treatment capacity is significant in all Member States with the exception of the Netherlands, Finland and Sweden, which announced very high capacity from the outset.

By the implementation deadline, the capacity of treatment plants would be sufficient to treat the organic load as mentioned in Table 4. However, an anomaly has been observed for Greece where the final capacity of plants is less than the organic load indicated in Table 4. Overall, for the 14 Member States as a whole, the final treatment capacity is 10% above the organic load, but this figure may reach 28% in the Netherlands, 35% in Germany and as much as 74% in Sweden.

Graph 1 below represents the planned development of global capacity of collecting and treatment systems for all 14 Member States. The capacity of collecting systems should increase by 22% over the 13 years of implementation of the Directive; treatment capacity should increase by 69%.

**Graph 1: Planned development of collecting systems and treatment plants (1000 p.e.)**



### 6.3. Destination of sludge from treatment plants

The treatment of urban waste water produces sludge.

Table 7 and graph 2 show the quantities of sludge that are expected to be produced over the period of implementation of the Directive as well as the planned destination of that sludge.

For all the 13 Member States, which have provided information, the quantity of sludge, produced would therefore increase from 5.5 million tonnes of dry matter in 1992 to 8.3 million tonnes in 2005. Of note is the increase in the proportion due to be re-used for agriculture and soil and of that for incineration as well as the slight reduction in the anticipated amount for disposal. The quantity of sludge re-used would represent at the end of the implementation period 53% of the total quantity of sludge produced.

In general, the Commission considers that re-use of sludge should be encouraged since it represents a long term solution provided that the quality of the sludge re-used is compatible with public health and environmental protection requirements.

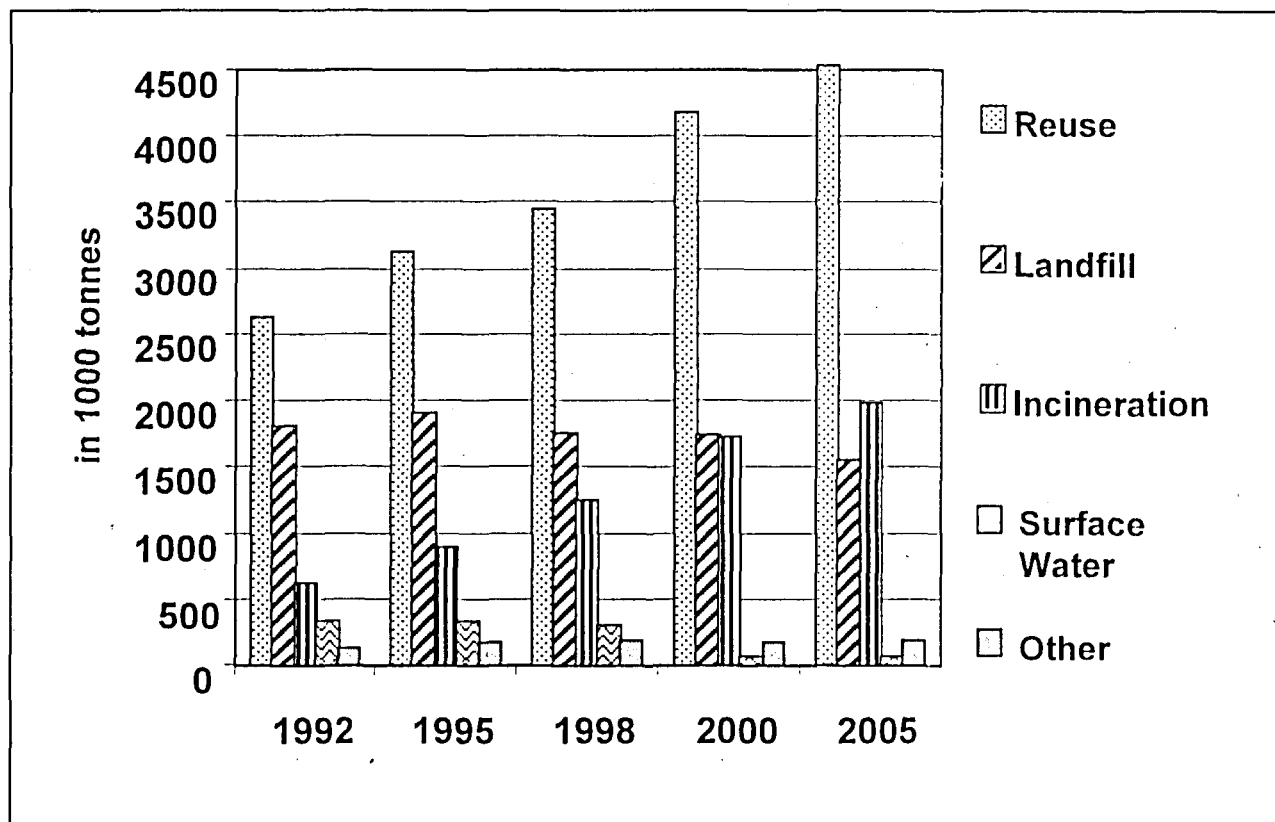
Discharges of sludge to surface waters are carried out in Spain, Ireland and the United Kingdom. Spain is planning to continue this type of discharge beyond 1998, which is contrary to the provisions of the Directive.

**Table 7: Forecasts of the destination of sludge from treatment plants (in thousands of tonnes of dry matter per year)<sup>27</sup>**

Year	Disposal	B	DK	D	GR	E	F	IRL	L	NL	A	P	FIN	UK	Total
1992	Surface Water	-	-	-	-	38	-	14	-	-	-	-	-	282	334
	Reuse.	17	110	1.018	1	275	402	4	5	134	63	38	87	472	2.626
	Landfill	34	25	846	65	180	131	16	4	177	58	75	63	130	1.804
	Incineration	-	40	274	-	35	110	-	-	12	66	-	-	90	627
	Not Specified	8	-	70	-	-	-	3	-	1	3	13	-	24	122
	<b>Total</b>	<b>59</b>	<b>175</b>	<b>2.208</b>	<b>66</b>	<b>528</b>	<b>643</b>	<b>37</b>	<b>9</b>	<b>324</b>	<b>190</b>	<b>126</b>	<b>150</b>	<b>998</b>	<b>5.513</b>
1995	Surface Water	-	-	-	-	54	-	15	-	-	-	-	-	267	336
	Reuse.	22	120	1.151	1	390	489	7	7	95	63	44	86	648	3.123
	Landfill	39	25	857	65	257	114	14	3	192	58	88	72	114	1.898
	Incineration	-	40	411	-	50	161	-	-	56	66	-	-	110	894
	Not Specified	17	-	93	-	-	-	4	-	23	3	15	-	19	174
	<b>Total</b>	<b>78</b>	<b>185</b>	<b>2.512</b>	<b>66</b>	<b>751</b>	<b>764</b>	<b>40</b>	<b>10</b>	<b>366</b>	<b>190</b>	<b>147</b>	<b>158</b>	<b>1.158</b>	<b>6.425</b>
1998	Surface Water	-	-	-	-	57	-	-	-	-	-	-	-	240	297
	Reuse.	33	125	1.270	4	410	572	25	9	100	68	74	85	672	3.447
	Landfill	37	25	744	82	268	92	17	1	108	58	147	65	118	1.762
	Incineration	11	50	558	-	52	214	-	3	150	66	-	-	144	1.248
	Not Specified	32	-	89	-	-	-	1	-	23	4	25	-	19	193
	<b>Total</b>	<b>113</b>	<b>200</b>	<b>2.661</b>	<b>86</b>	<b>787</b>	<b>878</b>	<b>43</b>	<b>13</b>	<b>381</b>	<b>196</b>	<b>246</b>	<b>150</b>	<b>1.193</b>	<b>6.947</b>
2000	Surface Water	-	-	-	-	57	-	-	-	-	-	-	-	-	57
	Reuse.	40	125	1.334	6	578	640	65	9	110	68	104	90	1.014	4.183
	Landfill	43	25	608	90	360	71	35	1	68	58	209	60	111	1.739
	Incineration	11	50	732	-	74	269	-	3	200	66	-	-	326	1.731
	Not Specified	37	-	62	-	-	-	-	-	23	4	35	-	19	198
	<b>Total</b>	<b>131</b>	<b>200</b>	<b>2.736</b>	<b>96</b>	<b>1.069</b>	<b>980</b>	<b>100</b>	<b>13</b>	<b>401</b>	<b>196</b>	<b>348</b>	<b>150</b>	<b>1.470</b>	<b>7.890</b>
2005	Surface Water	-	-	-	-	57	-	-	-	-	-	-	-	-	57
	Reuse.	47	125	1.391	7	589	765	84	9	110	68	108	115	1.118	4.536
	Landfill	40	25	500	92	367	-	29	1	68	58	215	45	114	1.554
	Incineration	14	50	838	-	75	407	-	4	200	65	-	-	332	1.985
	Not Specified	58	-	58	-	-	-	-	-	23	4	36	-	19	198
	<b>Total</b>	<b>159</b>	<b>200</b>	<b>2.787</b>	<b>99</b>	<b>1.088</b>	<b>1.172</b>	<b>113</b>	<b>14</b>	<b>401</b>	<b>195</b>	<b>359</b>	<b>160</b>	<b>1.583</b>	<b>8.330</b>

<sup>27</sup> Sweden has not provided any data on the destination of sludge.

Graph 2: breakdown of the destination of sludge (in thousands of tonnes of dry matter per year)



#### 6.4. Investment forecasts

**Table 8: Forecasts for 1993-2005 of investments in collecting systems and treatment plants (in billion ECU - value 1994-1995<sup>28</sup>)**

Member State	1993 - 2000			2001 - 2005			1993 - 2005		
	Collecting system	Treatment plants	Total	Collecting system	Treatment plants	Total	Collecting system	Treatment plants	Total
Belgium	1,01	1,40	2,41	0,75	0,74	1,49	1,77	2,14	3,90
Denmark	1,30	1,30	2,60	1,10	0,40	1,50	2,40	1,70	4,10
Germany	25,89	24,66	50,55	9,41	4,21	13,62	35,30	28,87	64,17
Greece*	0,44	0,73	1,17	-	-	-	0,44	0,73	1,17
Spain	3,68	4,90	8,58	1,03	1,26	2,29	4,70	6,15	10,87
France	4,94	3,74	8,68	3,08	0,28	3,36	8,02	4,02	12,04
Ireland	0,34	0,79	1,13	0,15	0,35	0,50	0,49	1,14	1,63
Luxembourg	0,00	0,25	0,25	0,00	0,02	0,02	0,00	0,27	0,27
Netherlands	1,10	1,83	2,93	0,00	0,00	0,00	1,10	1,83	2,93
Austria	5,20	1,42	6,62	2,47	0,70	3,17	7,67	2,12	9,80
Portugal	1,41	0,87	2,28	0,04	0,07	0,11	1,46	0,94	2,40
Finland	0,65	0,37	1,02	0,35	0,18	0,53	1,00	0,55	1,55
Sweden	1,00	1,20	2,20	0,40	0,30	0,70	1,40	1,50	2,90
United Kingdom	1,47	7,20	8,67	1,31	2,55	3,86	2,78	9,74	12,53
<b>Total</b>	<b>48,43</b>	<b>50,66</b>	<b>99,09</b>	<b>20,09</b>	<b>11,06</b>	<b>31,15</b>	<b>68,53</b>	<b>61,70</b>	<b>130,26</b>

\* Greece has provided figures only for the period 1993-2000

Table 8 and graph 3 show the investments planned by the Member States in order to comply with the Directive. Total investments amount to 130 billion ECU, 53% of which is for collecting systems and 47% treatment plants.

<sup>28</sup> Value 1996-1997 for the United Kingdom.

130 billion ECU, 53% of which is for collecting systems and 47% treatment plants.

Germany alone is planning to carry out 49% of the anticipated investments.<sup>29</sup>

The breakdown of investment between collection and treatment varies greatly from one Member State to another. Collection accounts for 50% of total investments in Denmark, Germany, France, Austria, Portugal and Finland. It represents only 22% of investment in the United Kingdom and Luxembourg plans no investments at all in collecting systems.

The main factors influencing the estimate of the necessary investment are as follows:

- the initial state of equipment for the collection and treatment of urban waste water before implementation of the Directive;
- the improvements needed in terms of collection, in order to route all waste water to be treated to the treatment plants, prevent leaks and limit pollution of receiving waters from overloads due to rain;
- improvements needed in terms of treatment plants, in order to treat urban waste water to the standard required by the Directive, depending on the size of agglomerations and the sensitivity of the receiving waters, and also taking account of overloads due to rain;
- specific constraints linked to the site, urban planning, climate etc.;
- cost of labour and equipment.

Graph 4 shows, for each Member State, the amount of investments per population equivalent. It varies between ECU 112 per population equivalent in Greece and ECU 602 in Germany. The average cost for the 14 Member States as a whole is ECU 307 per p.e. Assuming, for the sake of simplicity, a uniform spread of these investments over the 13 years of implementation, this average investment cost is, at constant 1994-1995 values, ECU23.6 per year per population equivalent or, on the basis of average annual consumption of 55 m<sup>3</sup> of water per domestic consumer, an average cost, excluding financial costs and depreciation, of around ECU 0.43 per m<sup>3</sup> of water consumed.

Graph 4 shows that one group of seven Member States (Germany, Austria, Denmark, Belgium, Ireland, Sweden and Finland) is clearly above this average cost whereas another group of six Member States (France, Netherlands, United Kingdom, Spain, Portugal and Greece) is clearly below.

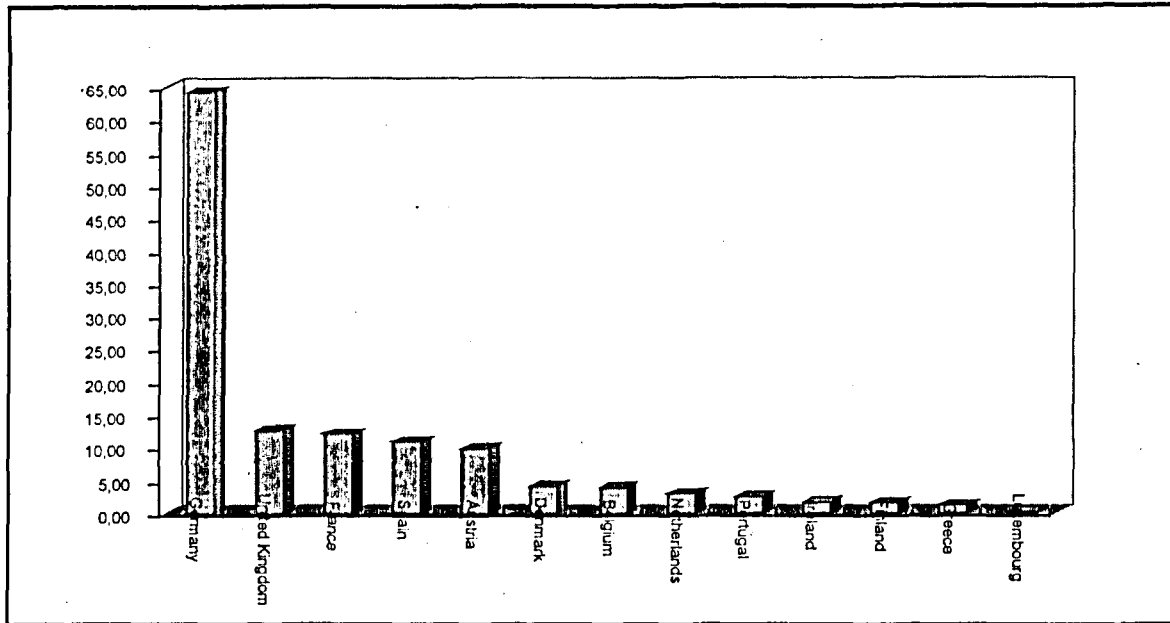
It should be borne in mind that Community aid can be granted towards such investments under the Structural Funds and the Cohesion Fund. Particularly as

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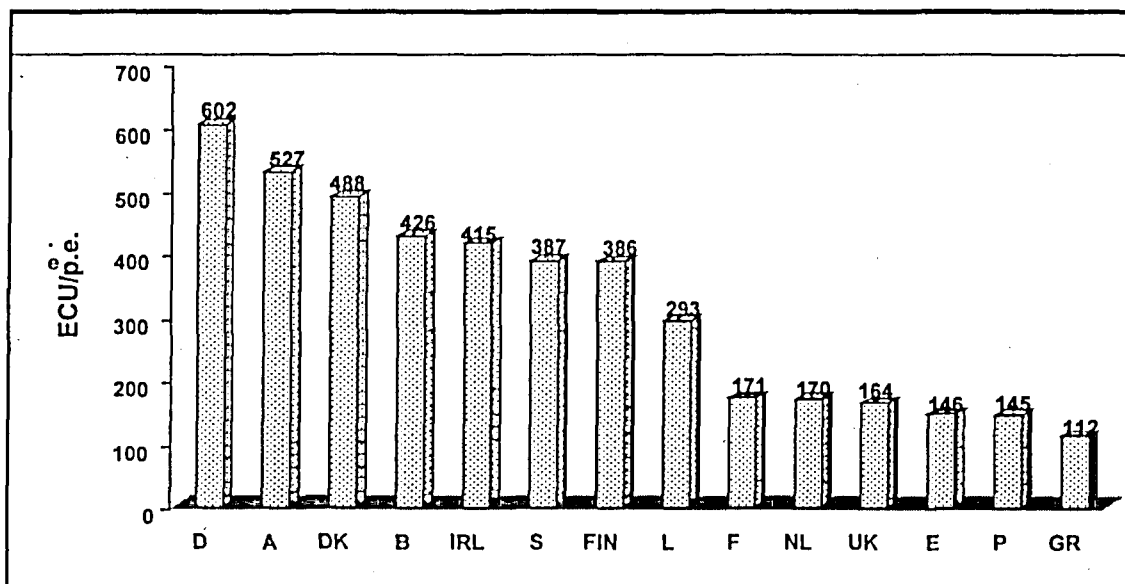
<sup>29</sup> The high cost for Germany may be explained by the scale of the improvements to be made in terms of collection and treatment, particularly in regions of the former East Germany, the level of treatment required (tertiary) in most of the country to combat the eutrophication of the North Sea and Baltic Sea, far reaching measures to deal with overloads from rain and the high cost of equipment and labour in Germany.

regards the Cohesion Fund, those investments carried out and planned for the period 1995-1999 in the environment sector under the Directive were given priority rating. In the case of Spain, for example, it is estimated that almost 30% of the total investments forecast will be cofinanced by the Cohesion Fund over this period.

**Graph 3: Investment forecasts for the period 1993-2005 (in billion ECU - value 1994-1995<sup>30</sup>)**



**Graph 4: Investment forecasts per population equivalent**



<sup>30</sup> Value 1996 to 1997 for the United Kingdom.



## 7. FUTURE DEADLINES OF THE DIRECTIVE AND TASKS OF THE COMMISSION

Future deadlines for Member States in terms of their obligations to transpose and apply the Directive are as follows (in chronological order):

- 30 September 1998: deadline for transposing Directive 98/15/EC of 27 February 1998 amending Directive 91/271/EEC;
- 31 December 1998: deadline for applying the Directive as regards the collection and treatment of urban waste water from agglomerations of more than 10.000.p.e. discharging into the relevant catchment areas of sensitive areas (Articles 3 and 5);
- 31 December 1998: deadline for making the disposal of sludge from water treatment plants subject to general rules or registration or authorisation (Article 14(2));
- 31 December 1998: deadline for phasing out the disposal of sludge to surface waters;
- 30 June 1999: deadline for the publication and transmission to the Commission of situation reports (Article 16), and then every two years;
- 30 June 2000: deadline for the transmission, if necessary, of an update of the implementation programme (Article 17), and then every two years;
- 31 December 2000: deadline for the application of the Directive as regards the collection and treatment of urban waste water from agglomerations of more than 15.000 p.e. not discharging into the catchment areas of sensitive areas (Articles 3, 4 and 6);
- 31 December 2000: deadline for the application of the Directive as regards biodegradable industrial waste water from plants belonging to the industrial sectors listed in Annex III which does not enter urban waste water treatment plants (Article 13);
- 31 December 2005: deadline for the application of the Directive as regards the collection and treatment of urban waste water from agglomerations smaller than those referred to above (Articles 3, 4, 6 and 7).

Apart from this timetable of future obligations, mention should also be made of the ongoing obligation to monitor discharges, water and the disposal of sludge (Article 15) as well as the obligation to review every four years the list of sensitive areas and of less sensitive areas (Articles 5 and 6).

For its part, the Commission has established the following as its main tasks over the next two years as regards following up the implementation of the Directive:

- continuing the process of verifying conformity of transposition measures;
- continuing the assessment of the identification of sensitive areas and less sensitive areas by the Member States;
- requesting information on the level of equipment, the monitoring of discharges and waters and the disposal of sludge, in line with the deadlines for application set out above, and assessing this information, in co-ordination with the European Environment Agency;

- verifying that projects receiving Community funding conform to the provisions of the Directive;
- assessing the situation reports received from the Member States, and the updates to implementation programmes and publishing a summary report every two years (next one in 2000), in co-ordination with the European Environment Agency;
- dealing with requests for derogations;
- initiating and pursuing infringement procedures in the event of failure to fulfil obligations;
- motivating the work of the Follow-up Committee provided for in Article 18, by means of at least one meeting a year.

## 8. CONCLUSION

With the exception of Italy, the Member States have transposed the Directive on urban waste water into their national laws and established an implementation programme for the Directive, albeit with in some cases considerable delays. Infringement procedures have been brought against some of them on account of non-conformity of the transposition, the implementation programme or the failure to identify sensitive areas. Other assessments are currently being carried out by the Commission to verify the conformity of transposition measures and area identification.

The implementation programmes received from 14 Member States generally indicate that it will be possible to respect the forthcoming deadlines for the application of the Directive in the 17351 agglomerations concerned, representing an organic load of 424 million population equivalents, disregarding the Italian agglomerations. To date only Belgium, for the agglomeration of Brussels, and Italy, for the agglomeration of Milan, have indicated that they will be unable to respect the deadlines laid down by the Directive. These programmes, the financial implications of which are considerable (ECU 130 billion for the 14 Member States), are an indication of the intention of the Member States to significantly improve the situation with regard to the collection and treatment of urban waste water, with the aim of improving the quality of aquatic environment for the benefit of public health and the environment as a whole.

Given these factors, the Commission does not consider it appropriate to propose a revision of the Directive at this time.

From 1999 onwards the Commission will verify whether the forecasts contained in the implementation programmes have been achieved, particularly as regards the standard of equipment in agglomerations of more than 10.000 population equivalents in the relevant catchment areas of sensitive areas and the disposal of sludge from treatment plants.

9. MAP 1: SENSITIVE AREAS AND LESS SENSITIVE AREAS

