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**REPORT FROM THE COMMISSION  
TO THE COUNCIL, THE EUROPEAN PARLIAMENT,  
THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND  
THE COMMITTEE OF THE REGIONS**

**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**

## TABLE OF CONTENTS

1.	INTRODUCTION .....	9
2.	THE MAIN OBLIGATIONS IMPOSED BY THE DIRECTIVE AND THE DEADLINES .....	11
3.	IDENTIFICATION OF SENSITIVE AREAS .....	13
4.	Situation AT 1 January 2002 of Agglomerations discharging into sensitive areas ...	17
4.1.	Treatment performance in agglomerations affected by sensitive areas (Monitoring information) .....	20
5.	Situation on 31 December 2000 of agglomerations discharging into “normal areas”	22
6.	Agglomerations affected by the deadlines 1998 and 2000 .....	24
6.1.	Waste water treatment.....	24
6.2.	Waste water collection .....	24
7.	LESS SENSITIVE AREAS .....	28
8.	Waste water treatment in eu cities at 1 january 2002.....	29
9.	industrial waste water Discharged directly into receiving waters (Article 13).....	31
10.	Destination of sludge from treatment plants .....	32
11.	Situation in each Member State .....	34
11.1.	Belgium.....	34
11.1.1.	Identification of sensitive areas.....	34
11.1.2.	Waste water treatment in agglomerations discharging into sensitive areas.....	34
11.1.2.1.	Treatment level.....	34
11.1.2.2.	Treatment performance (monitoring results) in sensitive areas.....	35
11.1.3.	Collecting systems .....	35
11.1.4.	Treatment in cities > 150 000 p.e.....	36
11.1.5.	Industrial waste water (Article 13).....	36
11.1.6.	Sewage Sludge .....	37
11.2.	Denmark.....	38
11.2.1.	Identification of sensitive areas.....	38
11.2.2.	Agglomerations of more than 10 000 p.e.....	38
11.2.2.1.	Treatment level.....	38

11.2.2.2. Treatment performance (monitoring results) .....	39
11.2.3. Collecting systems .....	39
11.2.4. Treatment in cities > 150 000 p.e.....	40
11.2.5. Industrial waste water (Article 13).....	40
11.2.6. Sewage Sludge .....	40
11.3. Germany.....	41
11.3.1. Identification of sensitive areas.....	41
11.3.2. Waste water treatment in agglomerations discharging into sensitive areas.....	41
11.3.2.1. Treatment level.....	41
11.3.2.2. Treatment performance (monitoring results) in sensitive areas.....	41
11.3.3. Waste water treatment in agglomerations discharging into “normal areas” – situation at 31 December 2000 .....	42
11.3.4. Collecting systems .....	42
11.3.4.1. Collecting systems in agglomerations discharging into sensitive areas.....	42
11.3.4.2. Collecting system in agglomerations discharging into “normal areas” .....	43
11.3.5. Treatment in cities > 150 000 p.e.....	43
11.3.6. Industrial waste water (Article 13).....	43
11.3.7. Sewage Sludge .....	44
11.4. Greece .....	45
11.4.1. Identification of sensitive areas.....	45
11.4.2. Waste water treatment in agglomerations discharging into sensitive areas.....	45
11.4.2.1. Treatment level.....	46
11.4.2.2. Treatment performance (monitoring results) in sensitive areas.....	47
11.4.3. Waste water treatment in agglomerations discharging into “normal areas” – situation at 31 December 2000 .....	48
11.4.4. Collecting systems .....	49
11.4.4.1. Collecting systems in agglomerations discharging into sensitive areas.....	49
11.4.4.2. Collecting systems in agglomerations discharging into “normal areas” .....	49
11.4.5. Treatment in cities > 150 000 p.e.....	50
11.4.6. Industrial waste water (Article 13).....	51

11.4.7. Sewage Sludge .....	51
11.5. Spain.....	52
11.5.1. Identification of sensitive areas.....	52
11.5.2. Waste water treatment in agglomerations discharging into sensitive areas.....	52
11.5.2.1.Treatment level.....	52
11.5.2.2.Treatment performance (monitoring results) in sensitive areas.....	53
11.5.3. Waste water treatment in agglomerations discharging into “normal areas” – situation at 31 December 2000 .....	53
11.5.4. Collecting systems .....	53
11.5.4.1.Collecting systems in agglomerations discharging into sensitive areas.....	53
11.5.4.2.Collecting systems in agglomerations discharging into “normal areas”.....	54
11.5.5. Treatment in cities > 150 000 p.e.....	54
11.5.6. Less sensitive areas .....	55
11.5.7. Industrial waste water (Article 13).....	56
11.5.8. Sewage Sludge .....	57
11.6. France.....	57
11.6.1. Identification of sensitive areas.....	57
11.6.2. Waste water treatment in agglomerations discharging into sensitive areas.....	57
11.6.2.1.Treatment level.....	57
11.6.2.2.Treatment performance (monitoring results) in sensitive areas.....	58
11.6.3. Waste water treatment in agglomerations discharging into “normal areas” – situation at 31 December 2000 .....	58
11.6.4. Collecting systems .....	59
11.6.4.1.Collecting systems in agglomerations discharging into sensitive areas, designated in 1994.....	59
11.6.4.2.Collecting systems in agglomerations discharging into “normal areas”.....	59
11.6.5. Treatment in cities > 150 000 p.e.....	60
11.6.6. Industrial waste water (Article 13).....	61
11.6.7. Sewage sludge.....	62
11.7. Ireland .....	62
11.7.1. Identification of sensitive areas.....	62

11.7.2. Waste water treatment in agglomerations discharging into sensitive areas.....	62
11.7.2.1.Treatment level.....	63
11.7.2.2.Treatment performance (monitoring results) in sensitive areas.....	64
11.7.3. Treatment in agglomerations discharging into “normal areas” – situation at 31 December 2000 .....	65
11.7.4. Collecting systems .....	66
11.7.4.1.Collecting systems in agglomerations discharging into sensitive areas.....	66
11.7.4.2.Collecting systems in agglomerations discharging into “normal areas”.....	66
11.7.5. Treatment in cities > 150 000 p.e.....	66
11.7.6. Industrial waste water (Article 13).....	67
11.7.7. Sewage Sludge .....	67
11.8. Italy .....	68
11.8.1. Identification of sensitive areas.....	68
11.8.2. Waste water treatment in agglomerations discharging into sensitive areas.....	68
11.8.2.1.Treatment level.....	69
11.8.2.2.Treatment performance (monitoring results) in sensitive areas.....	69
11.8.3. Waste water treatment in agglomerations discharging into “normal areas” – situation at 31 December 2000 .....	70
11.8.4. Collecting systems .....	71
11.8.4.1.Collecting systems in agglomerations discharging into sensitive areas.....	71
11.8.4.2.Collecting systems in agglomerations discharging into “normal areas”.....	71
11.8.5. Treatment in cities > 150 000 p.e.....	72
11.8.6. Industrial waste water (Article 13).....	74
11.8.7. Sewage Sludge .....	74
11.9. Luxembourg .....	75
11.9.1. Identification of sensitive areas.....	75
11.9.2. Agglomerations of more than 10 000 p.e.....	75
11.9.2.1.Treatment level.....	75
11.9.2.2.Treatment performance (monitoring results) .....	76
11.9.3. Collecting systems .....	76

11.9.4. Treatment in cities > 150 000 p.e.....	76
11.9.5. Industrial waste water (Article 13).....	76
11.9.6. Sewage Sludge .....	76
11.10. The Netherlands .....	77
11.10.1. Identification of sensitive areas.....	77
11.10.2. Agglomerations.....	77
11.10.2.1. Treatment level.....	77
11.10.2.2. Treatment performance (monitoring results) .....	77
11.10.3. Collecting systems .....	78
11.10.4. Treatment in cities > 150 000 p.e.....	78
11.10.5. Industrial waste water (Article 13).....	78
11.10.6. Sewage Sludge .....	79
11.11. Austria.....	79
11.11.1. Identification of sensitive areas.....	79
11.11.2. Waste water treatment in agglomerations discharging into sensitive areas.....	80
11.11.2.1. Treatment level.....	80
11.11.2.2. Treatment performance (monitoring results) .....	80
11.11.3. Treatment in agglomerations discharging into “normal areas” – situation at 31 December 2000 .....	81
11.11.4. Collecting systems .....	82
11.11.4.1. Collecting systems in agglomerations discharging into sensitive areas or their catchments identified by other Member States.....	82
11.11.4.2. Collecting systems in agglomerations discharging into “normal areas”.....	82
11.11.5. Treatment in cities > 150 000 p.e.....	82
11.11.6. Industrial waste water (Article 13).....	83
11.11.7. Sewage Sludge .....	83
11.12. Portugal.....	84
11.12.1. Identification of sensitive areas.....	84
11.12.2. Waste water treatment in agglomerations discharging into sensitive areas.....	84
11.12.2.1. Treatment level.....	84

11.12.2.2. Treatment performance (monitoring results) in sensitive areas .....	85
11.12.3. Waste water treatment in agglomerations discharging into “normal areas” - situation at 31 December 2000 .....	85
11.12.4. Collecting systems .....	86
11.12.4.1. Collecting systems in agglomerations discharging into sensitive areas.....	86
11.12.4.2. Collecting systems in agglomerations discharging into “normal areas” .....	86
11.12.5. Treatment in cities >150 000 p.e.....	86
11.12.6. Less sensitive areas .....	87
11.12.7. Industrial waste water (Article 13).....	88
11.12.8. Sewage Sludge .....	88
11.13. Finland .....	88
11.13.1. Identification of sensitive areas.....	88
11.13.2. Agglomerations of more than 10 000 p.e.....	89
11.13.2.1. Treatment level.....	89
11.13.2.2. Treatment performance (monitoring results) .....	90
11.13.3. Collecting systems .....	91
11.13.4. Treatment in cities > 150 000 p.e.....	91
11.13.5. Industrial waste water (Article 13).....	91
11.13.6. Sewage Sludge .....	92
11.14. Sweden .....	92
11.14.1. Identification of sensitive areas.....	92
11.14.2. Agglomerations of more than 10 000 p.e.....	92
11.14.2.1. Treatment level.....	92
11.14.2.2. Treatment performance (monitoring results) .....	93
11.14.3. Collecting systems .....	93
11.14.4. Treatment in cities > 150 000 p.e.....	94
11.14.5. Industrial waste water (Article 13).....	94
11.14.6. Sewage Sludge .....	94
11.15. United Kingdom.....	95
11.15.1. Identification of sensitive areas.....	95

11.15.2. Waste water treatment in agglomerations discharging into sensitive areas.....	96
11.15.2.1. Treatment level.....	97
11.15.2.2. Treatment performance (monitoring results) in sensitive areas .....	97
11.15.3. Waste water treatment in agglomerations discharging into “normal areas” - situation at 31 December 2000 .....	98
11.15.4. Collecting systems .....	99
11.15.4.1. Collecting systems in agglomerations discharging into sensitive areas.....	99
11.15.4.2. Collecting systems in agglomerations discharging into “normal areas” - situation at 31 December 2000 .....	99
11.15.5. Treatment in cities > 150 000 p.e.....	99
11.15.6. Less sensitive areas .....	100
11.15.7. Industrial waste water (Article 13).....	100
11.15.8. Sewage sludge.....	101
12. INFRINGEMENT PROCEDURES.....	102
13. FORTHCOMING TASKS FOR THE COMMISSION.....	105
14. Summary and Conclusion: .....	106



## 1. INTRODUCTION

In January 1999, the European Commission published its first report<sup>1</sup> on the implementation of Council Directive 91/271/EEC of 21 May 1991 concerning urban waste water treatment,<sup>2</sup> as amended by Commission Directive 98/15/EC of 27 February 1998<sup>3</sup>. The Directive is one of the cornerstones of Community water policy and its aim is to protect the environment from the adverse effects of urban waste water discharges.

The first Commission report gave details of the pollution caused by urban waste water and presented an initial progress report on the implementation of the Directive by the Member States. This first report underlined the major efforts which had been made by Member States, the considerable costs which were likely to be involved in implementing the Directive and the delays which were foreseen for a number of major cities such as Brussels and Milan.

The second Commission report<sup>4</sup> gave details of the identification of sensitive areas and the measures implemented by the Member States in relation to the deadline of 31 December 1998. By this date, Member States were required to ensure *inter alia*, that waste water treatment facilities were available for all agglomerations with a population equivalent above 10 000 where the effluent was being discharged into a sensitive area. The report was based on the replies submitted by the Member States and a study<sup>5</sup> prepared by the Commission services in relation to sensitive areas. For that report only 13 of the Member States provided all the information requested by the Commission in relation to waste water treatment in sensitive areas.

The second key milestone under the Urban Waste Water Treatment Directive was 31 December 2000. By this date Member States were required to ensure that waste water treatment facilities were provided for all agglomerations with a population equivalent above 15 000, which discharged their effluent into a so called “normal areas”<sup>6</sup>. By this date, Member States were also required to ensure that biodegradable waste water produced by plants of the food-processing sectors listed in the Directive, and which discharged directly into receiving water bodies, respected certain conditions.

The present report presents the measures implemented by the Member States in relation to the deadline of 31 December 2000. In addition, it presents the improvements having taken place by 2002 concerning agglomerations discharging into sensitive areas and subject to the deadline of 31 December 1998. Beyond the updated situation of waste water treatment

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<sup>1</sup> COM (1998) 775 final, 15.1.1999

<sup>2</sup> OJ L 135, 30.5.1991, p. 40

<sup>3</sup> OJ L 67, 7.3.1998, p. 29

<sup>4</sup> COM (2001) 685 final, 21.11.2001

<sup>5</sup> ”Verification of Vulnerable Zones under the Nitrates Directive and Sensitive Areas under the Urban Waste Water Treatment Directive”, Environmental Resource Management, between March 1999 and June 2000. Also called ERM-Reports.

<sup>6</sup> A “normal area” is an area, which is neither identified as sensitive area (Article 5 and Annex II A of Council Directive 91/271/EEC), nor as less sensitive area (Article 6 and Annex II B of Council Directive 91/271/EEC). Urban waste water, which is discharged into such an area, shall before discharge be subject to secondary treatment or an equivalent treatment (Article 4) or an appropriate treatment (Article 7).

infrastructure, the report also includes information on the treatment performance of waste water treatment plants discharging their effluents into sensitive areas in the year after the deadline had expired. Furthermore the report gives an overview of waste water treatment in major cities, as well as a general review of the progress of Member States towards the implementation of the directive. Member States are not formally required to submit reports in relation to the respect of the deadlines set down in the directive. However, the Commission, on its own initiative, decided to request the Member States to provide the information in order to verify the implementation of the Directive. Accordingly, formal requests were sent to Member States in December 2000 and March 2001. Reminders were sent in January 2002, in which Member States were also encouraged to provide updated information on waste water treatment in agglomerations discharging into sensitive areas and major cities discharging into sensitive and non-sensitive areas.

The draft report was sent to the Member States during 2003 for comments. Feedback and suggestions for changes and improvements arriving before the end of June 2003 were taken into account. In addition, final comments made during the urban waste water committee held on 1<sup>st</sup> and 2<sup>nd</sup> September 2003 were still included. The report is based on the replies submitted by Member States, the situation reports, which have to be published by the Member States according to Article 16 of the Directive, and the study carried out for the Commission in relation to the identification of sensitive areas.

The Commission encountered significant delays in collecting the information in order to prepare the present report. One year after the deadline for delivering the information to the Commission, most Member States had still not provided all the requested information. Many Member States only provided the complete information after the Commission had announced infringement procedures. Despite the legal actions taken by the Commission, France and Spain still did not deliver the complete information. In addition to the long delays in providing the requested information, the quality of the data provided was frequently so poor that this resulted in further delays for the Commission in trying to process and analyse the information.

The Commission is continuing to follow the implementation process in all the Member States.

## 2. THE MAIN OBLIGATIONS IMPOSED BY THE DIRECTIVE AND THE DEADLINES

The principal obligation imposed by the Directive is that waste water collecting and treatment systems must be provided by the following deadlines:

- **31 December 1998:** the deadline by which a stringent collecting and treatment system (secondary<sup>7</sup> + tertiary<sup>8</sup> treatment or so-called more stringent treatment according to Article 5) must be provided in all agglomerations with a population equivalent<sup>9</sup> (p.e.) of more than 10 000 where the effluent is discharged into a sensitive area. The results of the Commission's verification of conformity with this deadline are set out in the second Commission report. The improved situation up to 2002 is set out in the present report.
- **31 December 2000:** the deadline by which a secondary treatment<sup>10</sup> and collecting system must be provided in all agglomerations of more than 15 000 p.e. where the effluent is not discharged into a sensitive area. This deadline also applies to biodegradable industrial waste-water from plants in the food-processing sector which discharged directly into receiving waters. By that date, waste water of the concerned industrial sectors had to respect prior regulations and/or specific authorisations before discharge into receiving waters. The results of the Commission's verification with this deadline are set out in the present report.
- **31 December 2005:** the deadline by which, a collecting and treatment system must be provided in all agglomerations between 2000 and 10 000 p.e. where the effluent is discharged into a sensitive area, and in all agglomerations of between 2 000 and 15 000 p.e. where the effluent is not discharged into such an area. Smaller agglomerations which already have a collecting system must also have an appropriate treatment system in place by the same date.

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<sup>7</sup> Secondary treatment means treatment by a process generally involving biological treatment with a secondary settlement or an equivalent process.

<sup>8</sup> Tertiary treatment means treatment, supplementary to the secondary treatment, of nitrogen (nitrification-denitrification) and/or phosphorus and/or any other pollutant which affects the quality or a specific use of the water, such as microbiological pollution, colour, etc. Paragraphs 3 and 4 of Article 5, and table 2 of Annex I (amended by the Directive 98/15/EC), describe the waste water treatment criteria for the discharges into sensitive areas as a minimum percentage reduction in the load for total phosphorus and total nitrogen and define concentration standards for these parameters.

<sup>9</sup> Population equivalent (p.e.) is a unit of measurement of biodegradable organic pollution representing the average load of such pollution produced per person per day. It is specified in the Directive as 60 g BOD<sub>5</sub> (biochemical oxygen demand in five days) per day. The size of the agglomeration, expressed in p.e., corresponds to the organic load produced in the agglomeration during an average day during the week of the year with maximum production. It is calculated from the sum of the organic load produced during that day by permanent and seasonal residential establishments and services and the organic load produced on the same day by the industrial waste water which must be collected by a collecting system.

<sup>10</sup> The treatment may be less stringent than secondary treatment, where there are certain derogation conditions, with the agreement of the Commission and the Council, in the case of discharges to coastal waters or estuaries identified by the Member States as less sensitive.

The other main deadlines and obligations imposed by the Directive are as follows:

- **30 June 1993:** the Directive had to be transposed into national law. By that date Member States had to have adopted the laws, regulations and administrative provisions necessary to comply with the Directive. The first Commission report indicated that many of the Member States were late in transposing the Directive. To date, all Member States have transposed it, the last being Italy in 1999.
- **31 December 1993:** the discharge of industrial waste water into collecting systems and urban waste water treatment plants, and the discharge of certain biodegradable industrial waste water into receiving waters, had to be subject to prior regulations and/or specific authorisations. The Member States have adopted all the measures needed to meet these obligations.
- **31 December 1993:** the Member States had to draw up a programme for the implementation of the Directive. All the Member States have communicated such a programme to the Commission, after delays of varying length. Several Member States have also sent the Commission updates on the information contained in these programmes. In the case of Belgium, in the opinion of the Commission, these programmes are not in conformity with the provisions of the Directive or the required model for presentation.
- **31 December 1993:** the Member States were required to identify sensitive areas. Further details on this fundamental point, which determines the type of urban waste water treatment to be provided and the deadline for the treatment, are explored in more detail below.
- **30 June 1995, for the first time and every two years thereafter:** the authorities and bodies responsible for implementation in the Member States are required to publish a situation report on the disposal of urban waste water and sludge in their sector. The Member States are required to send these reports to the Commission as soon as they have been published. In 1999, a working group consisting of representatives of the Member States and the Commission drafted a specimen situation report to assist the authorities preparing the report and to harmonise the information given. Up to now, the Commission has not received any situation reports from France. Finally, most of the Member States have not complied with the two-year period for the revision and publication of the report and its transmission to the Commission.
- **31 December 1998:** the disposal of sludge from urban waste water treatment plants was required to be subject to general rules, registration or authorisation. The checks carried out by the Commission show that all Member States have introduced such measures for the disposal of sludge. In addition, the disposal of sludge to surface waters by dumping from ships, by discharge from pipelines or by other means was to be phased out by the same date. Only Spain, Ireland and the United Kingdom regularly used this practice. The United Kingdom banned the practice after 1998 in its transposing legislation. Ireland has informed the Commission that the disposal of sludge at sea was allowed under national legislation until 31 December 1998, after which it became an offence. However, Ireland has indicated that in fact the disposal of sludge at sea did not cease until September 1999. Spain has not

notified the Commission of any measures taken to prohibit the disposal of sludge to surface waters.

- Finally, it should be recalled that the Directive stipulates that discharges of waste water from urban waste water treatment plants must be the subject of prior regulations and/or specific authorisations and that such discharges must also be monitored in accordance with the specific provisions of the Directive. The Commission working together with an expert working group has drawn up a computerised questionnaire to gather information about the monitoring of discharges. The Commission sent this questionnaire to all Member States in September 2000 asking them to gather information about the monitoring carried out in 1999 for the agglomerations affected by the deadline of 31 December 1998. The results are summarised later in this report.

### **3. IDENTIFICATION OF SENSITIVE AREAS**

In accordance with Article 5 of the Directive, the Member States were required to identify sensitive areas at the latest by 31 December 1993 with reference to the identification criteria given in Annex II.

These criteria refer to three groups of sensitive areas:

- freshwater bodies, estuaries and coastal waters which are eutrophic<sup>11</sup> or which may become eutrophic if protective action is not taken;
- surface freshwaters intended for the abstraction of drinking water which contain or are likely to contain more than 50 mg/l of nitrates;
- areas where further treatment is necessary to comply with other Council Directives, such as the Directives on fish waters, on bathing waters, on shellfish waters, on the conservation of wild birds and natural habitats, etc.

If a water body falls into one of these three groups, this is sufficient for it to be designated as sensitive.

The identification of a water body as a sensitive area is an essential prerequisite for the practical application of the Directive. In areas identified as sensitive or in a catchment which contributes to the pollution of the sensitive area (for example a river running into an estuary or coastal area which is designated as sensitive) , collecting systems and treatment systems, had to be operational by 31 December 1998 at the latest, for all agglomerations of more than 10 000 p.e. Furthermore the stringency of waste water treatment has to be more than secondary treatment. These treatment requirements do not apply in sensitive areas where it can be shown that the minimum percentage of reduction of the overall nitrogen and phosphorus load is at least 75% for each of the two parameters.

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<sup>11</sup> Subject to eutrophication: eutrophication means the enrichment of water by nutrients, especially compounds of nitrogen and/or phosphorus, causing an accelerated growth of algae and higher forms of plant life to produce an undesirable disturbance to the balance of organisms present in the water and to the quality of the water concerned.

In accordance with Article 5(8), a Member State does not have to identify sensitive areas if it applies more stringent (tertiary) treatment over all its territory. Five Member States have decided to apply more stringent treatment in this way: Denmark, Luxembourg, the Netherlands, Finland and Austria (since 2002).

Belgium (since 2001) and Sweden do not apply Article 5(8), but have identified their entire territory as a sensitive area.

Eight other Member States - Germany, Spain, France, Greece, Ireland, Italy, Portugal and the United Kingdom<sup>12</sup> - have identified certain water bodies in their territory as sensitive areas. These areas were initially identified, with a greater or lesser degree of delay, between 1994 and 1999.

Some Member States, such as Spain, France and Italy, consider that agglomerations situated in the catchment areas of sensitive areas should not necessarily be subject to more stringent (tertiary) treatment<sup>13</sup>. On this point, the Commission's position is that the nitrates and phosphates, the pollutants in urban waste water which contribute to eutrophication and hence to the designation of an area as being sensitive are highly persistent. This means that if these pollutants are not removed in the sewage works, they will enter the river and be carried down the catchment to the sensitive area where they will contribute to the on-going nutrient enrichment. Therefore, the Commission considers that failure to provide more stringent treatment in agglomerations of more than 10 000 p.e. situated in the catchment of a sensitive area, constitutes a failure to comply with the Directive. This failure is particularly marked in the following countries: Spain, which has not provided for any advanced treatment in the catchment areas of rivers identified as sensitive in their downstream section, such as the Ebro or the Guadalquivir; Italy, in particular for the catchment area of the Po, the delta and - highly eutrophicated - adjacent coastal waters. Furthermore the Commission has concerns regarding the manner in which the United Kingdom interprets and implements the provisions of the directive in regard to the catchment areas of sensitive areas.

The Member States, which have decided not to introduce an advanced standard of treatment throughout their territory, must ensure that their list of sensitive areas is revised at least every four years. The list should therefore have been revised by 31 December 1997, again by 31 December 2001, and so on. Between 1998 and 2000, the Commission employed a consultant to verify the sensitive areas identified by the above ten Member States.<sup>14</sup> This study reveals shortcomings in the sensitive areas identified by them,<sup>15</sup> identifying other areas

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<sup>12</sup> The maps attached show, in dark green, the water bodies identified by Member States as sensitive and, in lighter green, the catchment areas or parts of the catchment areas in which the Member States have decided to apply the provisions of the Directive relating to the protection of sensitive areas. The territories where Member States apply more stringent treatment according to Article 5(8) are also shown in light green.

<sup>13</sup> The parts of catchment areas not taken into account by these Member States are shown on the maps in pink, like the catchment areas of those areas which should have been identified as sensitive due to the Commission's opinion (see footnote 16).

<sup>14</sup> ERM reports between March 1999 and June 2000 (see also footnote 5).

<sup>15</sup> The water bodies which, in the view of the Commission, should have been identified as sensitive are shown in dark pink on the maps (=potentially sensitive areas). The corresponding catchment areas, in which advanced (tertiary) treatment of urban discharges should have been provided, are shown in pink (see also footnote 14).

which were potentially sensitive because of eutrophication, and the high concentration of nitrates in surface waters intended for drinking water supply. The study highlighted the fact that a large number of Member States had not taken sufficient account of the degree of eutrophication of their waters. The areas concerned are the North Sea (from the coastal waters of northern France to Sweden), the Baltic and the Adriatic; all of them have extensive eutrophication problems. At present, the Commission is carrying out a review of the study for certain Member States.

On the basis of their own internal assessments, the results of the Commission study on sensitive areas and in some cases as a consequence of legal actions initiated by the Commission, many Member States have, during recent years, significantly increased the number and extent of the sensitive areas in their territory. France and the United Kingdom already revised their lists of sensitive areas in 1999 and 1998 respectively.

Belgium designated Wallonia as a sensitive area in 2001, since then the entire Belgium territory has been designated as a sensitive area.

Since 2001 the entirety of Germany has been designated as a sensitive area, with the only exemption being the Danube catchment.

Greece designated the Saronic Gulf and the Gulf of Thessaloniki as sensitive areas in 2002. These water bodies receive Athens' and Thessaloniki's waste water which represents almost the half of Greece's produced waste water load. Greece has also announced further designations of sensitive areas.

Spain notified certain unofficial designations of sensitive areas officially to the Commission, but did not designate any further sensitive areas.

Ireland significantly improved and extended its sensitive areas for lakes, rivers and estuaries in 2001.

Italy sent maps of recent identifications of sensitive areas in August 2003, which seemed to include some additional inland waters, but not the crucial regions of the Adriatic or any of the catchments draining into sensitive areas.

Portugal announced further designations of its sensitive areas, which will include most regions requested by the Commissions.

Austria decided to apply more stringent waste water treatment all over its territory according to Article 5(8) in 2002.

The United Kingdom designated a high number of further sensitive areas throughout its territory in 2000, 2001 and 2002. However, the Commission remains of the opinion that there are other important water bodies which still need to be designated.

The Commission very much appreciates the measures undertaken by the Member States in terms of further designation of sensitive areas. However, despite the significant progress of the last few years, Spain, Greece, France, Ireland, Italy, Portugal and the United Kingdom have, in the Commission's view, still not taken all the measures needed for discharges of urban waste water, which contribute to eutrophication along the coasts of the Atlantic, the

English Channel, the North Sea, the Irish Sea and the Mediterranean. The Commission also believes that France, Italy, Finland, Sweden and the United Kingdom should do more to reduce the level of nitrates and phosphates in waste water entering sensitive areas.

The Commission is also aware of shortcomings on the part of some Member States with regard to the third criterion for the identification of sensitive areas. In particular, tertiary treatment is needed for the protection of numerous bathing waters and shellfish waters to reduce the microbiological pollutants in urban discharges which may affect them. However, only Spain, France, Portugal, Italy and the United Kingdom have taken account of this criterion when identifying their sensitive areas.



#### **4. SITUATION AT 1 JANUARY 2002 OF AGGLOMERATIONS DISCHARGING INTO SENSITIVE AREAS**

In its second report, the Commission presented the situation at the end of the deadline of 1998 for agglomerations which Member States considered to be located in or which discharged into catchments impacting upon sensitive areas (see previous section for a discussion of the issues relating to the designation of sensitive areas) In January 2002, the Commission offered the possibility to the Member States of providing updated information on the agglomerations affected by sensitive areas in order to demonstrate any progress which had taken place. Certain Member States did not update the situation, but provided more recent information, using the 1999 monitoring information request. In some cases where no information has been provided at all, or data were incomplete, the Commission has used the original data from 1998. The assessment presented below is based on the Member States appreciation of the situation with regard to the designation of sensitive areas (see previous section for a more detailed discussion of the difference of opinion between the Commission and the Member states on these issues)

With regard to the type of required tertiary treatment to reduce or prevent the eutrophication of receiving waters, the Commission believes that discharges of both nitrogen and phosphorus cause eutrophication, whether in freshwaters, marine waters or estuaries. It has been scientifically established that the main causes of eutrophication are nitrogen, in the case of coastal waters, and phosphorus in the case of freshwaters. However, scientific studies also show that in freshwaters, as well as marine waters, both nitrogen and phosphorus can be limiting factors, either together or in turn, depending on the algal species and the time of the year. It therefore is often necessary to reduce both nutrients. For the evaluation of treatment conformity the Commission considers that unless scientific proof to the contrary can be put forward for certain water bodies, at least phosphorus should be treated to combat eutrophication of fresh waters, and at least nitrogen to combat eutrophication of coastal waters and estuaries. Frequently, the organic design capacity of many treatment plants seemed to be too small for a sufficient waste water treatment of the total nominal load generated by the agglomerations. In cases where the organic design capacity was even less than 80% of the total nominal load of the agglomerations, the Commission regarded these agglomerations as not complying with the Directive, as it believes that under such conditions either the treatment plants were overloaded or the waste water not entirely collected by the sewerage system. By the beginning of 2002, Belgium, Denmark, Luxembourg, the Netherlands, Austria, Finland, Sweden and Germany were in principle requiring stringent treatment levels for a very high percentage of the total waste water load. Greece, Spain, Italy, Portugal and the UK, foresaw more stringent waste water treatment to protect sensitive areas for less than 10% of their waste water load. France and Ireland foresaw about 24% and 86% respectively<sup>16</sup>.

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<sup>16</sup> The numbers base on the Member States application of Article 5 of the Directive and their waste water load (p.e.) of agglomerations affected by sensitive areas, in relation to the estimated total load (p.e.) regarded by Member States to be affected by the Directive (see overview table of the second Commission report, taking into account the corrected data for the Netherlands). The data do not take account of the current compliance status of waste water treatment.

In addition to measures in relation to treatment works, a number of Member States have taken measures to reduce phosphorous in detergents. These measures have undoubtedly made a significant contribution to reduce loading. The Commission appreciates any measures undertaken at source by Member States in order to reduce pollution.

Table 4-1 shows the number and the organic load of the agglomerations for which Member States decided to introduce more stringent treatment to protect sensitive areas. In total, 5 495 agglomerations out of a total of approximately 20 000 agglomerations covered by the Directive are affected. This figure includes all agglomerations with a population equivalent of more than 10 000 discharging into sensitive areas identified by Member States and all agglomerations reported by the Member States applying Article 5(4), which also included agglomerations below 10 000 p.e.

In the 12 Member States, which apply tertiary treatment for all concerned agglomerations above 10 000 p.e. (Article 5.2), 1242 agglomerations were affected by the obligation of more stringent treatment. 559 of them, representing 42 % of the concerned load provided the required level of tertiary treatment and were complying with the Directive by January 2002. Denmark and Austria are practically in full compliance with the Directive, whereas - in the Commission's opinion - in Belgium, Greece, Portugal, Finland and the United Kingdom less than 50% of the waste water load impacting on sensitive areas was receiving the appropriate level of treatment.

Germany, Luxembourg and the Netherlands do not assess waste water treatment conformity for each concerned agglomeration, but apply the option of Article 5(4) and consider a percentage of reduction of the nitrogen and phosphorous load throughout their territory. At the beginning of 2002, Germany and the Netherlands achieved above more than the requested 75 % phosphorous reduction required by the Directive (90 % and 79 % respectively), but have not yet fully attained the 75 % nitrogen reduction (74 % and 66 % respectively). Luxembourg still has to improve both nitrogen and phosphorous removal rates in order to comply with the Directive, but wishes to be assessed by individual plants until full conformity with Article 5(4) is achieved.

Most Member States plan to achieve conformity with the Directive by 2005 or 2008 at the latest.

A number of Member States improved the treatment situation in agglomerations affected by sensitive areas. However, a direct comparison with the results of the second Commission report would not have presented an objective picture due to the significant changes in the assessment procedures which were carried out by many Member States. There were for example changes in the interpretation of definitions, the approach for calculations, additional designations of sensitive areas, which were outstanding, etc., all this leading to a change of concerned agglomerations. Nevertheless, the total organic load of agglomerations taken into account for tertiary treatment increased, from 198 million population equivalents in 1998 to 210 million population equivalents in 2002.

**Table 4-1: Waste water treatment in agglomerations affected by sensitive areas and organic loads – Situation at 1 January 2002**

Member State	Articles applied <sup>1</sup>	Agglomerations concerned		Complying treatment level			Non complying treatment level		
		Number	Load [p.e.]	Number	Load [p.e.]	% <sup>2</sup>	Number	Load [p.e.]	% <sup>2</sup>
Belgium		186	8 952 516	72	2 566 050	29	114	6 386 466	71
Denmark	5(8)	127	6 698 384	122	6 429 418	96	5	268 966	4
Germany <sup>3</sup>	5(4)	3 859	124 876 488	–	–	P-reduction 90 %, N-reduction 74 %	–	–	–
Greece		17	609 400	8	241 400	40	9	368 000	60
Spain		113	5 740 260	34	1 407 984	25	79	4 332 276	75
France		348	16 728 379	143	6 086 935	36	205	10 641 444	64
Ireland		28	3 362 856	12	269 478	8	16	3 093 378	92
Italy		49	3 024 094	28	2 165 493	72	16	661 748	22
Luxembourg	5(8), 5(4) <sup>4</sup>	11	804 500	3	108 500	14	8	696 000	86
Netherlands <sup>3</sup>	5(8), 5(4)	394	15 906 991	–	–	P-reduction 79 %, N-reduction 66 %	–	–	–
Austria	5(8) <sup>5</sup>	25	1 851 885	25	1 851 885	100	0	0	0
Portugal		27	1 372 700	5	148 500	11	22	1 224 200	90
Finland	5(8)	87	6 377 300	7	429 600	7	80	5 947 700	93
Sweden		134	7 672 670	74	5 629 760	73	60	2 042 910	27
United Kingdom		90	6 221 177	26	1 782 241	29	64	4 438 936	71
<b>Total</b>		<b>5 495</b>	<b>210 199 600</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>MS not applying Article 5(4)</b>		<b>1 242</b>	<b>69 416 121</b>	<b>559</b>	<b>29 117 244</b>	<b>42</b>	<b>678</b>	<b>40 102 024</b>	<b>58</b>

<sup>1</sup> According to Article 5(8), a Member State does not have to identify sensitive areas for the purpose of the Directive if it implements the treatment established under paragraphs 2,3 and 4 of the Directive over all its territory.

The option of Article 5(4) of the Directive exempts a Member State from the provisions for individual treatment plants with more than 10 000 p.e. according to Article 5(2) and 5(3), but it has to show that a minimum percentage of reduction in the overall load entering a treatment plant in that area is at least 75% for total phosphorus and 75% for total nitrogen.

<sup>2</sup> Percentage in relation to the total organic load affected in the Member State

<sup>3</sup> Germany did not include the waste water load of their entire territory, but only the load of agglomerations above 2 000 p.e. In Germany the load of agglomerations below 2 000 p.e. represents about 2% of the entire waste water load produced.

<sup>4</sup> Luxembourg applies Article 5(4), but wishes to be evaluated according to Article 5(2) and 5(3) until it achieves full compliance with Article 5(4).

<sup>5</sup> As Austria applies Article 5(8) from the end of 2002 onwards. The current evaluation includes only agglomerations discharging into the catchment areas of sensitive areas identified by other Member States.

#### **4.1. Treatment performance in agglomerations affected by sensitive areas (Monitoring information)**

The existence of a treatment works is no guarantee that the waste water is receiving the appropriate level of treatment as this depends on the efficiency with which the plants are operated. The Commission therefore requested information on monitoring results from all concerned treatment plants of 1999. The information was requested in the form of an electronic questionnaire and by letter on 18 December 1999. France did not provide any monitoring information; Spain sent certain monitoring information in May 2003, which was too late to be taken into account for the evaluation below. Austria sent its information of the year 2000. In order to provide a first general glimpse on the efficiency of treatment performance in terms of complying BOD<sub>5</sub>, COD, nitrogen and/or phosphorous removal, the data on plants were aggregated on agglomeration level. In cases of a difference in opinion between the Commission and Member States in terms of treatment requirements, the evaluation below represents the Commission's interpretation.

Excluding Germany and the Netherlands( which apply Article 5(4) of the Directive) as well as France and Spain (which did not supply data in time), only about 44 % of the waste water load of the concerned agglomerations was - according to the Commission's opinion - treated sufficiently in the sense of the Directive before discharge. Denmark and Austria achieved the treatment performance of 99 % and 79 % conformity respectively. Among the rest of the countries the percentage of total waste water load receiving adequate treatment ranged from 4% to 64%.

**Table 4-2: Treatment performance in agglomerations affected by sensitive areas (Monitoring year 1999)**

Member State	Agglomerations concerned		Complying monitoring			Non complying monitoring		
	Number	Load [p.e.]	Number	Load [p.e.]	% <sup>1</sup>	Number	Load [p.e.]	% <sup>1</sup>
Belgium	153	7 401 169	44	1 636 700	22	109	5 764 469	78
Denmark	127	6 698 384	126	6 661 882	99	1	36 502	1
Germany <sup>2</sup>	3859	124 876 488	-	-	P: 90 % N: 74 %	-	-	-
Greece	17	609 400	2	62 400	10	15	547 000	90
Spain <sup>3</sup>	113	5 740 260	-	-	-	-	-	-
France <sup>3</sup>	348	16 728 379	-	-	-	-	-	-
Ireland	11	286 399	6	119 748	42	5	166 651	58
Italy	39	2863257	18	1 218 280	43	21	1 644 977	57
Luxembourg <sup>2</sup>	11	804 500	3	108 500	13 (P: 74 % N: 30 %)	8	696 000	87
Netherlands <sup>2</sup>	394	15 906 991	-	-	P: 79 % N: 66 %	-	-	-
Austria	25	1 871 885	20	1 483 665	79	5	388 220	21
Portugal	27	1 345 784	3	53 000	4	24	1 292 784	96
Finland	85	6 781 700	11	675 500	10	74	6 106 200	90
Sweden	134	7 672 670	57	4 898 360	64	77	2 774 310	36
United Kingdom	90	6 150 957	22	1 654 160	27	68	4 496 797	73
<b>Total</b>	<b>5 443</b>	<b>205 899 060</b>	-	-	-	-	-	-
<b>MS not applying Article 5(4)</b>	<b>719</b>	<b>42 486105</b>	<b>312</b>	<b>18 572 195</b>	<b>44</b>	<b>407</b>	<b>23 913 910</b>	<b>56</b>

<sup>1</sup> Percentage in relation to the total organic load affected in the Member State

<sup>2</sup> Germany, Luxembourg and the Netherlands apply Article 5(4) of the Directive, whereas Luxembourg wishes to be evaluated according to Article 5(2) until it achieves full compliance.

<sup>3</sup> France and Spain did not deliver any information on the treatment performance of plants.

## **5. SITUATION ON 31 DECEMBER 2000 OF AGGLOMERATIONS DISCHARGING INTO “NORMAL AREAS”**

At 31 December 2000, the second major deadline of the Directive expired which concerned agglomerations with a population equivalent of more than 15 000 discharging their effluents into areas, which were neither identified as sensitive nor less sensitive areas in the sense of the Directive, but so called “normal areas”. The Member States reported on the treatment situation of these areas following a request from the Commission sent on 14 April 2001.

The evaluation of the situation in “normal areas” also includes agglomerations discharging into areas which the Member States consider as “normal areas” and which the Commission considers should be sensitive areas (see previous sections for a more detailed explanation). The nine Member States affected by the above-mentioned deadline on “normal areas” reported on 2 698 agglomerations representing a waste water load of 261 662 171 p.e.

1 832 agglomerations representing 69 % of the concerned load, provided secondary treatment for their waste water by 31 December 2000 and were, therefore, complying with the Directive. Germany and Austria achieved full compliance the United Kingdom provided secondary treatment for 89 % of the waste water load. Countries such as Greece, Ireland, and Portugal achieved a low compliance rate providing secondary treatment for less than 50 % of the concerned waste water load.

**Table 5-1: Waste water treatment in agglomerations affected by normal areas (> 15 000 p.e.) and organic loads – Situation at 31 December 2000**

Member State	Total		Complying secondary treatment			Non complying treatment		
	Number	Load [p.e.]	Number	Load [p.e.]	Load [%] <sup>1</sup>	Number	Load [p.e.]	Load [%] <sup>1</sup>
Belgium <sup>2</sup>	-	-	-	-	-	-	-	-
Denmark <sup>2</sup>	-	-	-	-	-	-	-	-
Germany	126	8 264 830	126	8 264 830	100	0	0	0
Greece <sup>3</sup>	90	9 081 100	55	4 307 100	47	35	4 774 000	53
Greece <sup>4</sup>	77	8 317 800	52	4 040 300	49	25	4 277 500	51
Spain	458	53 862 365	245	33 307 446	62	213	20 554 919	38
France	486	42 548 060	307	29 042 277	68	179	13 505 783	32
Ireland	28	3 901 479	13	706 032	18	15	3 195 447	82
Italy	630	55 142 105	312	28 764 701	52	318	26 377 404	48
Luxembourg <sup>2</sup>	-	-	-	-	-	-	-	-
Netherlands <sup>2</sup>	-	-	-	-	-	-	-	-
Austria	181	15 189 287	181	15 189 287	100	0	0	0
Portugal	94	8 455 900	45	3 149 200	37	49	5 306 700	63
Finland <sup>2</sup>	-	-	-	-	-	-	-	-
Sweden <sup>2</sup>	-	-	-	-	-	-	-	-
United Kingdom	618	65 980 345	551	58 816 918	89	67	7 163 427	11
<b>Total</b>	<b>2 698</b>	<b>261 662 171</b>	<b>1 832</b>	<b>181 280 991</b>	<b>69</b>	<b>866</b>	<b>80 381 180</b>	<b>31</b>

<sup>1</sup> Percentage in relation to the total organic load affected in the Member State

<sup>2</sup> The Member States were not affected by “normal areas” as they had either identified their entire territory as sensitive area or Applied Article 5(8)

<sup>3</sup> First version, not taken into account for the total calculation.

<sup>4</sup> Second version, after Greece’s revision, taken into account for the total calculation.

## **6. AGGLOMERATIONS AFFECTED BY THE DEADLINES 1998 AND 2000**

### **6.1. Waste water treatment**

In total, Member States reported 8 181 agglomerations, representing a load of 469 269 723 population equivalents being affected by the deadlines of the Directive which have already expired (Article 4 and 5).

Germany and the Netherlands apply Article 5(4) and evaluate compliance rate on the basis of the percentage of nitrogen and phosphorus reduction. Concerning the other 13 Member States, 2 254 out of 3 802 agglomerations affected by both mentioned deadlines, complied with the specific provisions. They represented 64 % of the concerned load.

Table 6-1 and 6-2 present an overview of agglomerations reported by Member States being affected by the above deadlines in terms of waste water treatment.

### **6.2. Waste water collection**

In addition to waste water treatment, the above deadlines also concern provisions for waste water collection (Article 3). This information was requested by the Commission in the previously mentioned letters and questionnaires.

As regards sensitive areas, Member States reported 3 246 agglomerations of which 2 855 had a collecting system which was compliant either already before 1998 or by the beginning of 2002, which represented 91% of the load of the concerned agglomerations. In countries such as Denmark, Germany, Luxembourg, the Netherlands, Austria, Sweden and the United Kingdom the sewerage systems of agglomerations affected by sensitive areas were fully complying by 31 December 1998 or 1 January 2002. However, in Belgium, Spain and Italy, more than 50 % of the agglomerations provided an insufficient waste water collection.

As far as “normal areas” were concerned, Member States reported on 2 698 agglomerations, representing 261 662 171 population equivalents. 1 910 agglomerations, which covered 77 % of the concerned load, were in conformity when the deadline expired on 31 December 2000. From the countries being affected by “normal areas” at that time, Germany, Ireland, Austria and the United Kingdom were fully in compliance in terms of waste water collection, whereas Italy showed a compliance rate of less than 50 % of its agglomerations.

In total, Member States reported 5 932 agglomerations with a load of 462 million population equivalents being affected by the deadlines of 31 December 1998 and 2000. 4 753 of these agglomerations, representing 83 % of the concerned load, were reported to comply at the latest by 1 January 2002, or by 31 December 2000 respectively.

Table 6-3 presents an overview of agglomerations reported by Member States being affected by the above deadlines in terms of waste water collection.



**Table 6-1: Agglomerations affected by sensitive areas and “normal areas” and their organic loads**

Member State	Population (1 000 hab. in the year 2000)	Total		Normal areas (31/12/2000)			Sensitive areas (1/1/2002)		
		No.	Load [p.e.]	No.	Load [p.e.]	% <sup>1</sup>	No.	Load [p.e.]	% <sup>1</sup>
Belgium <sup>2</sup>	10 239	186	8 952 516	-	-		186	8 952 516	100.0
Denmark <sup>2</sup>	5 330	127	6 698 384	-	-		127	6 698 384	100.0
Germany	82 164	3 985	133 141 318	126	8 264 830	6.2	3859	124 876 488	93.8
Greece <sup>3</sup>	10 543	123	9 962 500	90	9 081 100	91.2	33	881 400	8.8
Greece <sup>4</sup>	10 543	94	8 927 200	77	8 317 800	93.2	17	609 400	6.8
Spain	39 442	571	59 602 625	458	53 862 365	90.4	113	5 740 260	9.6
France	59 226	834	59 276 439	486	42 548 060	71.8	348	16 728 379	28.2
Ireland <sup>5</sup>	3 777	44	4 672 287	28	3 901 479	83.5	28	3 362 856	72.0
Italy	57 680	679	58 166 199	630	55 142 105	94.8	49	3 024 094	5.2
Luxembourg <sup>2</sup>	436	11	804 500	-	-		11	804 500	100.0
Netherlands <sup>2</sup>	15 864	394	15 906 991	-	-		394	15 906 991	100.0
Austria	8 103	206	17 041 172	181	15 189 287	89.1	25	1 851 885	10.9
Portugal	9 998	121	9 828 600	94	8 455 900	86.0	27	1 372 700	14.0
Finland <sup>2</sup>	5 171	87	6 377 300	-	-		87	6 377 300	100.0
Sweden <sup>2</sup>	8 861	134	7 672 670	-	-		134	7 672 670	100.0
United Kingdom	59 623	708	72 201 522	618	65 980 345	91.4	90	6 221 177	8.6
<b>Total</b>	<b>376 457</b>	<b>8 181</b>	<b>469 269 723</b>	<b>2 698</b>	<b>261 662 171</b>	<b>55.8</b>	<b>5 495</b>	<b>210 199 600</b>	<b>44.8</b>

<sup>1</sup> Percentage in relation to the total organic load affected in the Member State

<sup>2</sup> The Member States were not affected by “normal” areas as they had either identified their entire territory as sensitive of applied Article 5(8).

<sup>3</sup> First version, not taken into account for the total calculation

<sup>4</sup> Second version, after Greece’s revision, taken into account for the total calculation

<sup>5</sup> Twelve Irish agglomerations were reported under “normal areas” in 2000, in 2001 they were identified as discharging into sensitive areas, therefore, they were considered under sensitive areas in 2002 as well. For the total load the agglomerations were considered only once.

**Table 6-2: Overview of waste water treatment in agglomerations affected by sensitive areas and “normal areas” – Situation at January 2002 and 31 December 2000 (deadline) respectively**

Member State	Sensitive areas				Normal areas				Total			
	No.	Load [p.e.]	Number in conformity	Load in conformity [%]	No.	Load [p.e.]	Number in conformity	Load in conformity [%]	No.	Load [p.e.]	Number in conformity	Load in conformity [%]
Belgium <sup>1</sup>	186	8 952 516	72 (39 %)	29	-	-	-	-	186	8 952 516	72 (39 %)	29
Denmark <sup>1</sup>	127	6 698 384	122 (96 %)	96	-	-	-	-	127	6 698 384	122 (96 %)	96
Germany <sup>2</sup>	3 859	124 876 488	-	N-red.: 90 % P-red.: 74 %	126	8 264 830	126 (100 %)	100	3 985	133 141 318	-	-
Greece <sup>4</sup>	33	881 400	4 (12 %)	14	90	9 081 100	55 (61 %)	47	123	9 962 500	59 (48 %)	44
Greece <sup>5</sup>	17	609 400	8 (47 %)	40	77	8 317 800	52(68 %)	49	94	8 927 200	60 (64 %)	48
Spain	113	5 740 260	34 (30 %)	25	458	53 862 365	245 (53 %)	62	571	59 602 625	279 (49 %)	58
France	348	16 728 379	143 (41 %)	36	486	42 548 060	307 (63 %)	68	834	59 276 439	450 (54 %)	59
Ireland <sup>6</sup>	28	3 362 856	12 (43 %)	8	28	3 901 479	13 (46 %)	18	44	4 672 287	17 (39 %)	9
Italy	49	3 024 094	28 (57 %)	77	630	55 142 105	312 (50 %)	52	679	57 969 346	340 (50 %)	53
Luxembourg <sup>1,2</sup>	11	804 500	3 (27 %)	13	-	-	-	-	11	804 500	3 (27 %)	13
Netherlands <sup>1,2</sup>	394	15 906 991	-	N-red.: 79 % P-red.: 66 %	-	-	-	-	394	15 906 991	-	-
Austria <sup>3</sup>	25	1 851 885	25 (100 %)	100	181	15 189 287	181 (100 %)	100	206	17 041 172	206 (100 %)	100
Portugal	27	1 372 700	5 (19 %)	11	94	8 455 900	45 (48 %)	37	121	9 828 600	50 (41 %)	34
Finland <sup>1</sup>	87	6 377 300	7 (8 %)	7	-	-	-	-	87	6 377 300	7 (8 %)	7
Sweden <sup>1</sup>	134	7 672 670	74 (55 %)	73	-	-	-	-	134	7 672 670	74 (55 %)	73
United Kingdom	90	6 221 177	26 (29 %)	29	618	65 980 345	551 (89 %)	89	708	72 201 522	577 (81 %)	84
<b>Total</b>	<b>5 495</b>	<b>210 199 600</b>	<b>-</b>	<b>79</b>	<b>2 698</b>	<b>261 662 171</b>	<b>1 829 (68 %)</b>	<b>70</b>	<b>8181</b>	<b>469 269 723</b>	<b>-</b>	<b>75</b>
<b>MS not applying Article 5(4)</b>	<b>1 242</b>	<b>69 416 121</b>	<b>559 (45 %)</b>	<b>42</b>	<b>2 572</b>	<b>253 397 341</b>	<b>1 703 (66 %)</b>	<b>70</b>	<b>3 802</b>	<b>320 221 414</b>	<b>2 254 (59 %)</b>	<b>64</b>

<sup>1</sup> The Member States had either identified their entire territory as sensitive of applied Article 5(8) at the time and, therefore, were not affected by “normal” areas.

<sup>2</sup> Germany, Luxembourg and the Netherlands apply Article 5(4) of the Directive. Luxembourg applies Article 5(4), but wishes to be evaluated according to Article 5(2) and 5(3) until it achieves full compliance with Article 5(4).

<sup>3</sup> As Austria applies Article 5(8) from the end of 2002 onwards. The current evaluation includes only agglomerations discharging into the catchment areas of sensitive areas identified by other Member States.

<sup>4</sup> First version, not taken into account for the total calculation. Data for sensitive areas see second report of the Commission.

<sup>5</sup> Second version, after Greece’s revision, taken into account for the total calculation

<sup>6</sup> Twelve Irish agglomerations were reported under “normal areas” in 2000, in 2001 they were identified as discharging into sensitive areas, therefore, they were considered under sensitive areas in 2002 as well. For the total load the agglomerations were considered only once.

**Table 6-3: Collecting systems of agglomerations affected by the deadlines of 31 December 1998 and 31 December 2000 (Article 3)**

Member State	Sensitive areas 1 January 2002				Normal areas 31 December 2000				Total			
	No	Load [p.e.]	No in conformity	% of load in conformity	No	Load [p.e.]	No in conformity	% of load in conformity	No	Load [p.e.]	No in conformity	% of load in conformity
Belgium <sup>1</sup>	186	8 952 516	48 (26 %)	22	-	-	-	-	186	8 952 516	48 (26 %)	22
Denmark <sup>1</sup>	127	6 698 384	127 (100 %)	100	-	-	-	-	127	6 698 384	127 (100 %)	100
Germany <sup>2</sup>	1 748	118 825 715	1 748 (100 %)	100	126	8 264 830	126 (100 %)	100	1874	127 090 545	1 874 (100 %)	100
Greece <sup>4</sup>	17	609 400	14 (82 %)	74	90	9 081 100	40 (44 %)	78	107	9 690 500	54 (50 %)	78
Greece <sup>5</sup>	17	609 400	14 (82 %)	74	77	8 317 800	49 (64 %)	87	94	8 927 200	63 (67 %)	86
Spain	113	5 740 260	62 (55 %)	46	458	53 862 365	430 (94 %)	92	571	59 602 625	492 (86 %)	87
France	348	16 728 379	202 (58 %)	60	486	42 548 060	168 (35 %)	57	834	59 276 439	370 (44 %)	58
Ireland <sup>6</sup>	28	3 362 856	27(96 %)	100	28	3 901 479	28 (100 %)	100	44	4 672 287	43 (98 %)	100
Italy	49	3 024 094	16 (33 %)	47	630	55 142 105	241 (38 %)	36	679	58 166 199	257 (38 %)	37
Luxembourg <sup>1,2</sup>	11	804 500	11 (100 %)	100	-	-	-	-	11	804 500	11 (100 %)	100
Netherlands <sup>1,2</sup>	256	15 265 763	256 (100 %)	100	-	-	-	-	256	15 265 763	256 (100 %)	100
Austria <sup>3</sup>	25	1 851 885	25 (100 %)	100	181	15 189 287	181 (100 %)	100	206	17 041 172	206 (100 %)	100
Portugal	27	1 372 700	22 (81 %)	82	94	8 455 900	69 (73 %)	79	121	9 828 600	91 (75 %)	79
Finland <sup>1</sup>	87	6 377 300	73 (84 %)	96	-	-	-	-	87	6 377 300	73 (84 %)	96
Sweden <sup>1</sup>	134	7 672 670	134 (100 %)	100	-	-	-	-	134	7 672 670	134 (100 %)	100
United Kingdom	90	6 150 957	90 (100 %)	100	618	65 980 345	618 (100 %)	100	708	72 131 302	708 (100 %)	100
<b>Total</b>	<b>3 246</b>	<b>203 437 379</b>	<b>2 855 (88 %)</b>	<b>91</b>	<b>2 698</b>	<b>261 662 171</b>	<b>1 910 (71 %)</b>	<b>77</b>	<b>5 932</b>	<b>462 507 502</b>	<b>4 753 (80 %)</b>	<b>83</b>

<sup>1</sup> The Member States had either identified their entire territory as sensitive of applied Article 5(8) at the time and, therefore, were not affected by “normal” areas.

<sup>2</sup> Germany, Luxembourg and the Netherlands apply Article 5(4) of the Directive. Luxembourg applies Article 5(4), but wishes to be evaluated according to Article 5(2) and 5(3) until it achieves full compliance with Article 5(4).

<sup>3</sup> Austria has applied Article 5(8) from the end of 2002 onwards. The current evaluation includes only agglomerations discharging into the catchment areas of sensitive areas identified by other Member States.

<sup>4</sup> First version, not taken into account for the total calculation.

<sup>5</sup> Second version, after Greece’s revision, taken into account for the total calculation

<sup>6</sup> Twelve Irish agglomerations were reported under “normal areas” in 2000, in 2001 they were identified as discharging into sensitive areas, therefore, they were considered under sensitive areas in 2002.

## 7. LESS SENSITIVE AREAS

While Member States are obliged by the Directive to identify sensitive areas, the identification of less sensitive areas is an option, open to them for certain coastal waters and estuaries which, because of their morphology, hydrology or specific hydraulic conditions, are able to receive urban waste water discharges which have undergone less stringent treatment than secondary treatment without the environment being adversely affected.

Spain and Portugal have identified such less sensitive areas. However, the Commission would like to point out that sensitive or potentially sensitive areas of coastal waters and estuaries and bodies of water adjacent to them do not fulfil the conditions for identification as less sensitive if these areas may be affected by discharges. In particular, bathing waters and shellfish waters, which are particularly fragile and sensitive to waste water discharges, and bodies of water situated in their immediate vicinity which may be affected by discharges may not be identified as less sensitive. The Commission therefore challenges certain less sensitive areas identified on the western coast of Portugal, in Madeira, the Azores and the Canary Islands, on the coast of Andalusia and other regions. With regard to Andalusia, the Commission also believes that, in particular, because of the very limited tides, the waters of the Mediterranean do not comply with the hydrology criteria or the hydraulic conditions required for identification as less sensitive.

It is important to remember that in every case where it is foreseen to have treatment less stringent than secondary treatment for waste water discharged into a less sensitive area it is necessary to have a derogation from the directive. The Member States must present comprehensive studies to the Commission showing that such discharges will not adversely affect the environment (Article 6(2)) and, in exceptional circumstances for agglomerations of more than 150 000 p.e., that more advanced treatment will not produce any environmental benefits (Article 8(5)). The Commission must examine these studies and take the appropriate measures after submitting the project to the Committee provided for in Article 18 and, if necessary, to the Council.

In 1999, Portugal requested a derogation for the agglomeration of the Estoril Coast (720 000 p.e.) near Lisbon. The derogation was granted by the Commission in October 2001<sup>17</sup> and foresees a re-evaluation during the year 2006.

The United Kingdom had also identified less sensitive areas, but subsequently withdrew its requests for derogation under Article 6(2) in 2002.

Spain has not requested any derogation.

As a general consideration, the Commission believes that, apart from the Estoril coast, all EU agglomerations of more than 15 000 p.e. must have at least secondary treatment since 31 December 2000, including those which discharge their effluent into waters identified as less sensitive.

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<sup>17</sup> OJ L 269, 10.10.2001, p. 14

## **8. WASTE WATER TREATMENT IN EU CITIES AT 1 JANUARY 2002**

Apart from evaluating the situation with regard to conformity on 31 December 1998, the Commission provided in its second report a “snapshot” of the waste water treatment level in all major European cities above 150 000 population equivalents for information and to ensure transparency. In January 2002 the Commission offered Member States the possibility of updating their information on the major cities in order to show the improvements which have taken place between 1998 and 2001. The attached maps show the improved situation. Some Member States did not respond to the Commission request. In these cases the Commission used updated information provided in the context of previous, above-mentioned data requests. In certain cases where Member States no longer reported large cities after 1998, the Commission assumed that the situation remained unchanged. Each major urban centre is described in terms of a single all-over treatment level, even if the urban centre consists of several agglomerations within the meaning of the Directive. Austria reported also amongst its large cities some agglomerations which do not correspond to major urban centres, but represent a point source of more than 150 000 p.e. due to a combination of urban and industrial discharges. Also Italy and Portugal seemed partly to report agglomerations amongst their large cities. The term city, therefore, represents in this report major, urban centres and some agglomerations in the sense of the Directive.

The cities were assessed on the provided treatment level installed and the sensitivity of the receiving water body. Cities discharging into a sensitive area, therefore, should have been equipped with more stringent treatment (nitrogen and/or phosphorus removal and/or any other treatment such as microbiological treatment) by 31 December 1998. Cities discharging into normal areas should have been equipped with at least secondary treatment by 31 December 2000. However, a number of cities evaluated under “normal areas” discharge their effluents into potentially sensitive areas or their catchment areas, and should therefore - according to the Commission’s opinion - provide more stringent treatment. This also affects cities such as Paris, London, Madrid, Barcelona, Milan and others.

At 1 January 2002, the situation for 556 cities with a population equivalent of more than 150 000 was as follows:

### **In “normal” areas:**

309 cities discharged their effluents into “normal areas” of which

- 232 provide at least secondary treatment,
- 67 cities have not yet provided secondary treatment.
  - 21 of those cities did not have any waste water treatment in place, such as:
    - Italy: Milan, Foce Sarno, Imperia Foce Imperia, Medio Sarno, Misterbianco
    - Ireland: Cork
    - Portugal: Cova da Beira, Vila Nova da Gaia

- Spain: A Coruna, Barcelona, Cadiz, Donostia-San-Sebastian, Ferrol, Gijon, Suances, Tui
- United Kingdom: Brighton, Hastings, Kilmarnock/Irvine, Levenmouth, Torbay
- For 10 cities the Commission did not receive sufficient information.

**In sensitive areas:**

247 cities discharged their effluent into sensitive areas of which

- 155 were equipped with complete more stringent treatment,
- 91 cities have not yet provided the required more stringent treatment for the entire city
  - Four of those cities had no waste water treatment at all:
    - Belgium: Pepinster
    - Portugal: Barreiro
    - Spain: Alginet
    - Ireland: Waterford
- For one city the provided information was insufficient

In comparison with 1998 (see second Commission report), the treatment situation in major EU cities had improved significantly by 2002. The number of cities fully providing more stringent treatment increased from 78 to 205<sup>18</sup>. The number of cities without any waste water treatment in place decreased from 37 to 26, and the number of cities for which insufficient information was available decreased from 134 to 11.

According to the Commission's opinion, in total, 387 out of 556 major urban centres in the European Union provided sufficient waste water treatment by the beginning of 2002. (77 cities were situated in potentially sensitive areas and should therefore also be equipped with more stringent than secondary treatment.)

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<sup>18</sup> The extraordinary improvement partly leads back to the fact that in 1998 for many German cities no information was available.

## 9. INDUSTRIAL WASTE WATER DISCHARGED DIRECTLY INTO RECEIVING WATERS (ARTICLE 13)

In accordance with Article 13 of the Directive, Member States had to ensure that by 31 December 2000 biodegradable industrial waste water from plants belonging to the agro-food processing sectors (listed in Annex III) and does not enter urban waste water treatment plants before discharge into receiving waters, respects conditions established by the competent authority or appropriate body. The provision only affects discharges from plants of 4 000 population equivalents or more.

The table below shows the percentage of plants belonging to the specific industrial sectors and complying with the Directive by 31 December 2000.

**Table 9-1: Percentage of industrial waste water affected by and respecting conditions of Article 13**

Industrial Sector	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Milk-processing	90	-	100	100	7	100	59	100	-	100	100	71	100	100	44
Manufacture of fruit and vegetable products	85	-	93	100	89	100	100	100	-	100	100	99	100	-	100
Manufacture and bottling of soft drinks	89	-	100	100	58	100	-	-	-	-	100	100	-	-	-
Potato-processing	91	-	100	100	-	100	-	100	-	100	100	100	100	100	100
Meat industry	86	-	79	100	69	100	75	100	-	100	100	94	-	-	92
Breweries	99	-	100	100	92	100	-	100	-	100	-	100	-	100	100
Production of alcohol and alcoholic beverages	49	-	100	100	73	100	-	100	-	-	-	93	100	-	100
Manufacture of animal feed from plant products	100	-	-	-	-	100	-	100	-	-	-	-	100	-	100
Manufacture of gelatine and glue from hides, skin and bones	61	-	100	-	-	100	84	100	-	100	-	-	-	-	100
Malt-houses	63	-	100	-	100	100	-	100	-	-	-	100	-	-	100
Fish-processing industry	0	100	100	-	0	-	100	100	-	-	100	100	-	100	28
<b>Total</b>	<b>87</b>	<b>100</b>	<b>97</b>	<b>100</b>	<b>68</b>	<b>100</b>	<b>81</b>	<b>100</b>	<b>-</b>	<b>100</b>	<b>100</b>	<b>94</b>	<b>100</b>	<b>100</b>	<b>86</b>

At the end of 2000, 2 576 plants with a total load of about 59 million p.e. were affected by Article 13<sup>19</sup>. About 91 % of the load complied with the Directive.

<sup>19</sup> The data do not include France, as France did not provide any information on the load of the affected industrial sectors.

According to the available information, in Denmark, Greece, France, Italy, the Netherlands, Austria, Finland and Sweden all industrial branches falling under Article 13 complied with the established provisions by 31 December 2000. Luxembourg was not affected by industries falling under Article 13.

In Belgium, Germany, Spain, Ireland, Portugal and the United Kingdom certain industrial sectors did not yet comply with Article 13 by 31 December 2000. Germany, Ireland and the United Kingdom announced compliance for their outstanding sectors by 2001, 2002 and at the latest by 2003 respectively. Spain and Portugal envisage full compliance of all industrial branches at the latest by 2005.

## **10. DESTINATION OF SLUDGE FROM TREATMENT PLANTS**

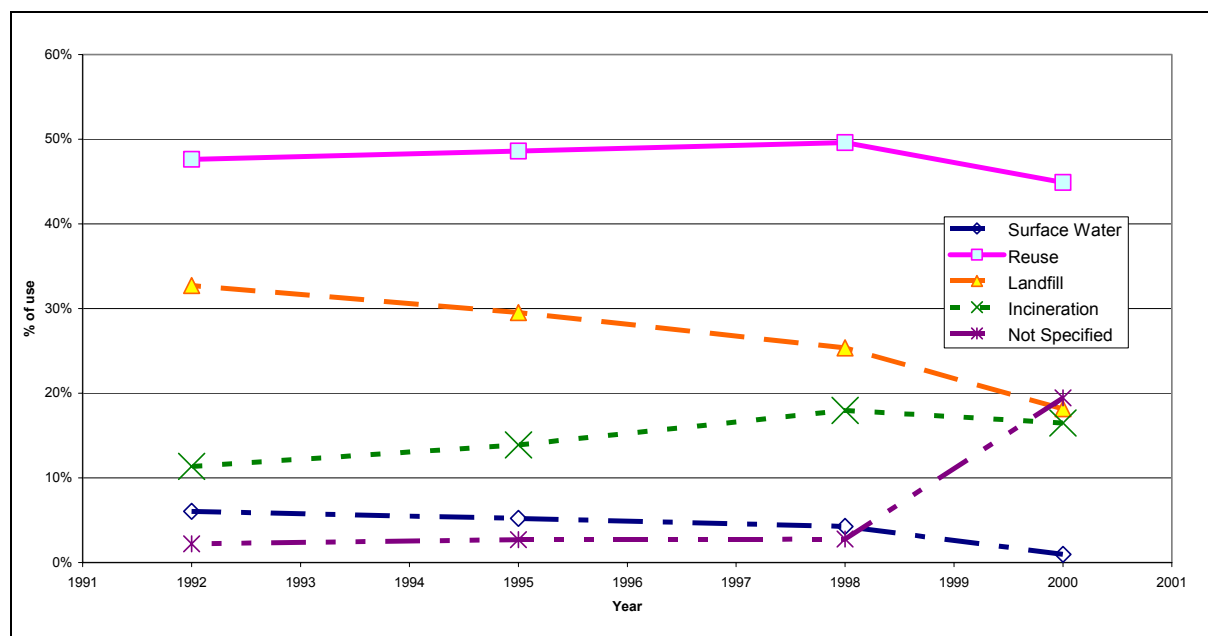
The information reported below on sewage sludge generation and disposal is based partly on Member States' situation reports according to Article 16, and partly on the implementation programmes according to Article 17 of the Directive.

- The total amount of sludge generated in urban waste water treatment plants has increased from 5.5 million tonnes dry matter in 1992 (see first Commission report, figure without Italy and Sweden) to 7.0 million tonnes in 2000.
- Since 1992, the amount of sewage sludge re-used in agriculture and landscape architecture (including coverage of landfills) represented about 50 % of the total sludge produced (45% in the 1999-2001 period).
- The quantity of sludge that was disposed of on landfills has slightly decreased.
- Sludge incineration almost doubled from 1992 to 2000.
- Member States should have phased out the disposal of sewage sludge into surface waters by the end of 1998. However, Spain and Ireland still dumped significant amounts of sludge into the sea during recent years. According to information from 2003, Ireland stopped this practice in 1999. The situation in Spain is unclear, but it seems that sludge continues to be disposed of into the sea.

As the data supplied by Member States was not complete and 20% of the sludge could not be accounted for the data do not allow any trend analysis for the sludge being re-used, disposed of or incinerated.



**Figure 10-1: Sludge disposal from 1992 – 2000 in EU-Member States (data do not include Sweden and Italy from 1992 to 1998, Italy from 2000)**



**Table 10-1: Sludge disposal and re-use in EU-Member States between 1999-2001\***

Disposal in thousands of tonnes of dry matter per year	B	DK	D	EL**	E**	F**	IRL	L	NL	A	P**	S	FIN	UK	Total	%
Re-use	15	84	920	6	578	507	9	6	77	37	106	116	90	588	3.139	45
Landfill	32	36	230	90	360	0	17	0	64	41	71	76	60	192	1.270	18
Incineration	25	10	460	0	74	0	0	0	195	151	0	0	0	237	1.153	17
Surface Water	0	0	0	0	57	0	12	0	0	0	0	0	0	0	69	1
Not Specified	19	25	690	0	0	398	0	1	0	86	0	30	0	113	1.343	19
<b>Total</b>	<b>91</b>	<b>156</b>	<b>2300</b>	<b>96</b>	<b>1069</b>	<b>904</b>	<b>38</b>	<b>7</b>	<b>336</b>	<b>315</b>	<b>177</b>	<b>222</b>	<b>150</b>	<b>1130</b>	<b>6992</b>	<b>100</b>

\* Member States did not provide data for one and the same year, but for one or more years between 1999 and 2001. Italy did not provide any information.

\*\* The implementation programmes according to Article 17 were used as a data source.

## 11. SITUATION IN EACH MEMBER STATE

### 11.1. Belgium

In Belgium, the implementation of the Directive lies within the responsibility of the three regions Flanders, Wallonia and Brussels-Capital. Each region sent its data separately, however, the below report presents the picture for the entirety of Belgium.

#### 11.1.1. Identification of sensitive areas

In 1992 and 1995, Flanders identified all of its waters, including its coastal waters, as sensitive. In 1994, the region of Brussels-Capital identified the River Senne as sensitive. In 1995 Wallonia identified certain stretches of its rivers as sensitive. Later, in February 2001, Wallonia identified its entire territory. Therefore, since 2001, the whole of Belgium has been designated as sensitive area.

#### 11.1.2. Waste water treatment in agglomerations discharging into sensitive areas

##### 11.1.2.1. Treatment level

In January 2002 Belgium had 186 agglomerations with a nominal load of more than 10 000 p.e., 112 were situated in Flanders<sup>20</sup>, two in Brussels Capital and 72 in Wallonia.

114 of the 186 agglomerations above 10 000 p.e. were equipped with more stringent treatment, but only 93 of them removed both phosphorus and nitrogen. 51 agglomerations either did not treat their waste water at all or had no more than very inadequate treatment including Brussels (1.1 mio p.e.), Mouscron, Namur, Liège and Grimbergen.

In at least 25 of the agglomerations with more stringent treatment, the organic design capacity of the treatment plants seemed to be too small for a sufficient waste water treatment of the concerned agglomerations<sup>21</sup>. These agglomerations should, according to the Commission's opinion, be subject to a capacity upgrading.

In total, 72 agglomerations with more than 10 000 p.e. were complying with the provisions of the Directive, 114 agglomerations, representing 71.3 % of the total concerned load were not

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<sup>20</sup> Five of the Flemish agglomerations (Heusden, Poperinge, Olsene, Knokke, Ledegem) reported in 1998 became smaller than 10 000 p.e. due to reduced industrial activities, the connection of parts of agglomerations to other agglomerations as well as the optimisation of available data on inhabitants. Therefore they were not longer taken into account. Furthermore, the names of nine Flemish agglomerations have been changed, this has to be taken into consideration in a comparison of previous and recent data.

<sup>21</sup> Antwerpen-Zuid, Beerse, Beersel, Brasschaat, Duffel, Edegem, Gent, Hamme, Hove, Kalmthout, Koersel, Lanaken, Lede, Leuven, Mechelen - Noord, Mol, Morkhoven, Overpelt, Pulderbos, Schilde, Sint-Truiden, Tessenderlo, Turnhout, Zelzate and Zwalm. As to the latest information of 01 September 2003, the Flemish Region stated that the Commission report took into account the reported organic design capacity of treatment plants, but not the hydraulic design capacity, according to which the monitoring data comply with the Directive. The Flemish authorities also confirmed that for the above 24 agglomerations treatment works are being upgraded.

complying, either because no treatment facilities or because insufficient treatment capacity was installed.

**Table 11-1: Treatment level of agglomerations discharging into sensitive areas**

Belgium	Treatment level in agglomerations > 10 000 p.e. – Article 5			
	Number	%	Nominal load [p.e.]	%
01/01/2002				
Total	186	100.0	8 952 516	100.0
More stringent treatment	114	61.3	4 692 650	52.4
<i>but missing treatment steps</i>	21	11.3	1 404 000	15.7
<i>but insufficient treatment capacity</i>	25	13.4	1 070 800	12.0
<b>Not in compliance*</b>	<b>114</b>	<b>61.3</b>	<b>6 386 466</b>	<b>71.3</b>
<b>In compliance</b>	<b>72</b>	<b>38.7</b>	<b>2 566 050</b>	<b>28.7</b>

\* including incomplete more stringent treatment and insufficient treatment capacity of plants taking into account possible overlaps of both shortcomings, such as Antwerpen-Zuid, Brasschaat, Leuven and Mechelen-Nord.

#### 11.1.2.2. Treatment performance (monitoring results) in sensitive areas

Treatment performance in Belgium was evaluated for 153 agglomerations with more than 10 000 p.e. discharging into the sensitive areas (113 Flemish agglomerations, the two agglomerations of Brussels Capital and 38 Walloon agglomerations designated before 1999. The evaluation does not include the 38 agglomerations of the Walloon sensitive areas, which were designated after the Commission's data request in 2001).

Even though, 96 out of the above 153 agglomerations were equipped with more stringent treatment, only 44 of them were complying in terms of treatment performance. 109 agglomerations, which represent 78 % of the total nominal load of the concerned agglomerations, discharged their waste water untreated or insufficiently treated.

**Table 11-2: Treatment performance in agglomerations discharging into sensitive areas**

Belgium	Treatment performance in agglomerations > 10 000 p.e.			
	Number	%	Nominal load [p.e.]	%
31/12/1999				
Total	153	100.0	7 401 169	100.0
More stringent treatment	96	62.7	4 217 900	57.0
<i>but insufficient treatment capacity</i>	27	17.6	1 176 500	15.9
Monitoring in compliance (Member State)	44	28.8	1 636 700	22.1
<i>but insufficient treatment capacity</i>	10	6.5	515 900	7.0
Monitoring in compliance (EC)	44	28.8	1 636 700	22.1
<i>but insufficient treatment capacity</i>	10	6.5	515 900	7.0
<b>Not in compliance</b>	<b>109</b>	<b>71.2</b>	<b>5 764 469</b>	<b>77.9</b>
<b>In compliance</b>	<b>44</b>	<b>28.8</b>	<b>1 636 700</b>	<b>22.1</b>

#### 11.1.3. Collecting systems

In Belgium all agglomerations with more than 10 000 p.e. should already be equipped with a complying collecting system. However, at the beginning of 2002 the collecting systems of 138 Belgian agglomerations were not yet complying with Article 3 of the Directive. This included large agglomerations such as Brussels or Liège.

**Table 11-3: Collecting systems in agglomerations discharging into sensitive areas**

<b>Belgium</b>	<b>Agglomerations &gt; 10 000 p.e. - Article 3</b>			
01/01/2002	Number	%	Nominal load [p.e.]	%
Total	186	100.0	8 952 516	100.0
<b>Not in compliance</b>	<b>138</b>	<b>74.2</b>	<b>6 943 712</b>	<b>77.6</b>
<b>In compliance</b>	<b>48</b>	<b>25.8</b>	<b>2 008 804</b>	<b>22.4</b>

#### 11.1.4. Treatment in cities > 150 000 p.e.

Since the whole of Belgium is designated as a sensitive area, all cities should provide secondary treatment followed by tertiary treatment.

- At the beginning of 2002 only two cities were equipped with more stringent treatment (secondary treatment plus nitrogen and phosphorus removal): Oostende and Mons.
- Gent had tertiary treatment for a part of its population.
- Five cities provided secondary treatment: Aiseau-Presles, Antwerpen, Brugge and Deurne and Wavre (165 000 p.e.).
- Four cities had no treatment at all for major parts of their population: Brussels (1.1 mio p.e.), Charleroi (380 000 p.e.), Liège (737 500 p.e.) and Pepinster<sup>22</sup>(170 000 p.e.).

Since 2000, secondary treatment facilities for about one third of Brussels' waste water were in place in the treatment plant Brussels-South. The second plant, Brussels-North, is planned to be operational, providing secondary treatment followed by nitrogen and phosphorus removal, in 2006. The unsatisfactory waste water treatment situation of Brussels is subject to an infringement procedure before court. The case, however, covers not only Brussels but also the shortcomings of the other Belgian regions.

#### 11.1.5. Industrial waste water (Article 13)

Belgium reported 99 industrial plants falling under Article 13 with a total organic load of 3 463 700 p.e. Twenty-four of these plants were located in the Walloon region and in conformity by 31 December 2000. The remaining plants were situated in the Flemish region. The Flemish authorities advised that in terms of permits all concerned plants were complying in time. However, some of them, representing 13% of the concerned industrial load, did not comply with the monitoring requirements and received a penalty.

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<sup>22</sup> According to latest information from the Walloon Region of 01 September 2003, Pepinster provided more stringent treatment since August 2002.

**Table 11-4: Industrial waste water with respect to Article 13 of the Directive**

<b>Belgium - Industrial sector</b>	<b>Total organic load of industrial waste water from plants with respect to Article 13 [p.e.]</b>	<b>Number of plants</b>	<b>Total organic load respecting conditions under Article 13 at 31 December 2000 [p.e.]</b>	<b>%</b>	<b>Date of full compliance</b>
Milk-processing	517 600	20	467 700	90	by 31/12/2000
Manufacture of fruit and vegetable products	1 160 500	19	980 900	85	by 31/12/2000
Manufacture and bottling of soft drinks	193 700	6	172 100	89	by 31/12/2000
Potato-processing	258 100	10	235 000	91	by 31/12/2000
Meat industry	411 400	21	355 300	86	by 31/12/2000
Breweries	605 500	13	599 400	99	by 31/12/2000
Production of alcohol and alcoholic beverages	20 600	2	10 000	49	by 31/12/2000
Manufacture of animal feed from plant products	6 600	1	6 600	100	by 31/12/2000
Manufacture of gelatin and of glue from hides, skin and bones	167 500	2	102 400	61	by 31/12/2000
Malt-houses	113 800	4	71 200	63	by 31/12/2000
Fish-processing industry	8 400	1	0	0	by 31/12/2000
<b>Total</b>	<b>3 463 700</b>	<b>99</b>	<b>3 000 600</b>	<b>87</b>	

#### 11.1.6. Sewage Sludge

Information about the quantities of produced sewage sludge and its disposal was available for Flanders and Wallonia. Complete information for both regions was available from the year 1999.

In Flanders the quantity of produced sewage sludge was 73 490 t dry substance (DS). Seven percent which was re-used in agriculture, 33 % was deposited on landfills, 34 % incinerated and 26 % was reused or disposed of in other ways.

In Wallonia, 17 968 t dry substance of sewage sludge was produced. 53 % was re-used in agriculture, 45% was deposited on landfills and 2 % was incinerated. The tendency of sludge disposal in Wallonia is more towards re-use in agriculture, less deposition in landfills and no incineration.

**Tables 11-5: Re-use and disposal of sludge produced in waste water treatment plants**

<b>Flanders - Sewage Sludge (1999)</b>	<b>Tons DS</b>	<b>%</b>
<b>Sludge production total</b>	<b>73 490</b>	<b>100</b>
Agriculture	5 270	7
Landfill	24 300	33
Incineration	25 020	34
Other	18 900	26

<b>Wallonia - Sewage Sludge (1999)</b>	<b>Tons DS</b>	<b>%</b>
<b>Sludge production total</b>	<b>17 968</b>	<b>100</b>
Agriculture	9 505	53
Landfill	8 067	45
Incineration	369	2
Other	0	0

## **11.2. Denmark**

### *11.2.1. Identification of sensitive areas*

In 1999 Denmark decided to apply more stringent treatment over all its territory according to Article 5(8) of the Directive. It is therefore not required to identify sensitive areas for the purpose of the Directive. Denmark applies this option for phosphorus and nitrogen.

### *11.2.2. Agglomerations of more than 10 000 p.e.*

#### **11.2.2.1. Treatment level**

In 1998 the Danish authorities had reported 125 agglomerations of which already 123 were complying with the Directive.

According to updated information, Denmark had 127 agglomerations with a population equivalent of more than 10.000<sup>23</sup>. All agglomerations provided more stringent treatment (phosphorus and nitrogen removal) at that date. However, in a number of agglomerations the organic design capacity of the treatment plants seemed to be too small for a sufficient treatment of the waste water generated in the concerned agglomerations. In at least five agglomerations (Attrup, Sindal, Tårnby, Thisted and Tysinge) the organic design capacity of the plants was less than 80% of the total nominal load of the agglomerations. As each of the concerned plants reached the required emission standards in 1999, Denmark was of the opinion that a capacity upgrading of the concerned plants is not necessary. The Commission believed that under the given conditions, either the treatment plants were overloaded or the waste water was not entirely collected by the collecting systems. Both shortcomings would

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<sup>23</sup> According to Denmark's information, the total nominal load of agglomerations can differ from year to year and the Directive requires compliance for agglomerations in sensitive areas above 10 000 p.e. Therefore, only the agglomerations with a nominal load above 10 000 p.e. were reported to the Commission, which explains the different number of agglomerations.

finally require a capacity upgrading of the concerned plants. Finally in September 2003, Denmark informed that the nominal loads reported for these agglomerations were incorrect and that all the plants were therefore in conformity.

**Table 11-6: Treatment level of agglomerations > 10 000 p.e.**

Denmark	Treatment level in agglomerations > 10 000 p.e. – Article 5			
01/01/2002	Number	%	Nominal load [p.e.]	%
Total	127	100.0	6 698 384	100.0
More stringent treatment	127	100.0	6 698 384	100.0
<i>but missing treatment steps</i>	0	0.0	0	0.0
<i>but insufficient treatment capacity</i>	5	3.9	268 966	4.0
<b>Not in compliance</b>	5	3.9	268 966	4.0
<b>In compliance</b>	<b>122</b>	<b>96.1</b>	<b>6 429 418</b>	<b>96.0</b>

#### 11.2.2.2. Treatment performance (monitoring results)

In 1999, 126 out of the 127 agglomerations with a population equivalent of more than 10 000 had waste water treatment plants the performance of which was in compliance with the directive. Only Kalundborg did not comply, as it did not reach the standards for COD due to the industrial load from a medical industry. The Danish authorities mentioned that this problem had been solved in 2002 by an installation of advanced ozone-treatment for the industrial waste water.

**Table 11-7: Treatment performance of agglomerations > 10 000p.e.**

Denmark	Treatment performance in agglomerations > 10 000 p.e.			
31/12/1999	Number	%	Nominal load [p.e.]	%
Total	127	100.0	6 698 384	100.0
More stringent treatment	127	100.0	6 698 384	100.0
<i>but insufficient treatment capacity</i>	5	3.9	268 966	4.0
Monitoring in compliance (Member State)	126	99.2	6 661 882	99.5
<i>but insufficient treatment capacity</i>	5	3.9	268 966	4.0
Monitoring in compliance (EC)	126	99.2	6 661 882	99.5
<i>but insufficient treatment capacity</i>	5	3.9	268 966	4.0
<b>Not in compliance</b>	<b>1</b>	<b>0.8</b>	<b>36 502</b>	<b>0.5</b>
<b>In compliance</b>	<b>126</b>	<b>99.2</b>	<b>6 661 882</b>	<b>99.5</b>

#### 11.2.3. Collecting systems

In 2002, according to the information sent by the Danish authorities, all agglomerations with a nominal load of more than 10 000 p.e. were equipped with a complying waste water collecting system.

**Table 11-8: Collecting systems in agglomerations > 10 000 p.e.**

Denmark	Agglomerations > 10 000 p.e. – Article 3			
	Number	%	Nominal load [p.e.]	%
01/01/2002				
Total	127	100.0	6 698 384	100.0
<b>Not in compliance</b>	<b>0</b>	<b>0.0</b>	<b>0</b>	<b>0.0</b>
<b>In compliance</b>	<b>127</b>	<b>100.0</b>	<b>6 698 384</b>	<b>100.0</b>

*11.2.4. Treatment in cities > 150 000 p.e.*

Five Danish cities had a population equivalent of more than 150 000: Aalborg, Arhus, Fredericia, Copenhagen and Odense. These five cities already had full more stringent treatment by 1998, which means secondary treatment followed by nitrogen and phosphorus removal.

*11.2.5. Industrial waste water (Article 13)*

In Denmark only the fish-processing industry is discharging directly into receiving water bodies in the sense of Article 13 of the Directive. The concerned three plants, with a total organic load of 38 358 p.e., were already in full compliance with the Directive before 31 December 2000.

**Table 11-9: Industrial waste water with respect to Article 13 of the Directive**

Denmark - Industrial sector	Total organic load of industrial waste water treatment plants with respect to Article 13 [p.e.]	Number of plants	Total organic load respecting conditions under Article 13 at 31 December 2000 [p.e.]	%	Date of full compliance
Fish-processing industry	38 358	3	38 358	100	before 31/12/2000
<b>Total</b>	<b>38 358</b>	<b>3</b>	<b>38 358</b>	<b>100</b>	

*11.2.6. Sewage Sludge*

In 1999, the quantity of produced sewage sludge in Denmark was 155 621 t dry substance (DS). 54 % of which were re-used in agriculture, 23 % were deposited on landfills, 6 % incinerated and 16 % were re-used or disposed of in other ways.

**Table 11-10: Re-use and disposal of sludge produced in waste water treatment plants**

Denmark - Sewage Sludge (1999)	Tons DS	%
<b>Sludge total production</b>	<b>155 621</b>	<b>100</b>
Agriculture	84 466	54
Landfill	36 313	23
Incineration	9 845	6
Other	24 997	16



## 11.3. Germany

### 11.3.1. Identification of sensitive areas

By the end of 2000 Germany had designated the total catchment of the North Sea and the Baltic as a sensitive area. In addition, Bavaria and Baden-Württemberg designated the Lake Constance, some of the Bavarian lakes and the Upper Danube, including their catchment areas, as sensitive areas. Therefore, in Germany only the lower part of the Danube is not designated as sensitive.

### 11.3.2. Waste water treatment in agglomerations discharging into sensitive areas

In 2001, Germany decided to apply Article 5(4) of the Directive. Consequently there is no requirement for each waste water treatment plant with more than 10 000 p.e. to employ advanced treatment. However, the German authorities must show that the minimum percentage of reduction of the overall load entering all urban waste water treatment plants discharging into sensitive areas or their catchments, is at least 75 % for total phosphorus and at least 75 % for total nitrogen.

#### 11.3.2.1. Treatment level

Regarding the waste water treatment situation at the beginning of January 2002, Germany provided information on 1 748 agglomerations<sup>24</sup> with more than 10 000 p.e. discharging into sensitive areas. The total nominal load of these treatment plants was 118 825 715 p.e.<sup>25</sup>

1 603 of these agglomerations provided more stringent treatment facilities (nitrogen and phosphorus removal) which represented 90 % of the above-mentioned load.

#### 11.3.2.2. Treatment performance (monitoring results) in sensitive areas

In order to show the state of compliance with Article 5.4 of the Directive, Germany provided for the year 2002, monitoring information of 3 859 waste water treatment plants, taking into account treatment plants from 2 000 p.e. upwards. The total nominal load of these plants was 124 876 488 p.e. The agglomerations below 2000 p.e. which have to be included in the calculation of the percentage of reduction of the load according to Article 5.4, were not taken into account, as no data were available. However, the agglomerations below 2000 p.e. represent about 2% of the entire produced load in Germany.

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<sup>24</sup> Germany defined the catchment area of an urban waste water treatment plant as an agglomeration. Therefore, in general, one agglomeration is served by one treatment plant. Only in Sachsen several settlements can be served by one single treatment plant, being regarded as individual agglomerations and not as one combined agglomeration. The latter case is not in accordance with the Commission's interpretation of the term agglomeration.

<sup>25</sup> Germany defined the nominal load of an agglomeration by the organic design capacity of the concerned treatment plant. However, in the context of monitoring data/compliance-verification with Article 5.4, Germany assumed all treatment plants being well designed, and calculated the nominal load being about 80% of the design capacity. Therefore, these data do not seem to show the real size of the agglomerations and use to capacity of plants. They are also not directly comparable with the size of agglomeration provided in other contexts (e.g. data on 1999).

According to the provided data, Germany achieved 90 % reduction for phosphorus and 74 % reduction for nitrogen.

For the year 1999 Germany sent additional monitoring results for 1 785 agglomerations with more than 10 000 p.e. discharging into sensitive areas. The total nominal load of these agglomerations was 95 043 770 p.e. and the total organic design capacity: 120 548 115 p.e. (see footnote 25). 82.2 % of the nominal load of these agglomerations complied with the Directive. 17.8 % of the total nominal load was not yet in compliance. According to the Commission's assessment the design capacity of at least 24 plants were considered to be too small for a sufficient treatment of the entire load of the connected agglomerations and should be subject to a size upgrading<sup>26</sup>

### 11.3.3. Waste water treatment in agglomerations discharging into "normal areas" – situation at 31 December 2000

As at 31 December 2000 Germany, had 126 agglomerations with more than 15 000 p.e. in "normal areas". All agglomerations were equipped with at least secondary treatment, and therefore complying with the Directive.

**Table 11-11: Treatment level of agglomerations discharging into "normal areas"**

Germany	Agglomerations > 15 000 p.e. – Article 4			
31/12/2000	Number	%	Nominal load [p.e.]	%
Total	126	100.0	8 264 830	100.0
<b>Not in compliance</b>	<b>0</b>	<b>0.0</b>	<b>0</b>	<b>0.0</b>
<b>In compliance</b>	<b>126</b>	<b>100.0</b>	<b>8 264 830</b>	<b>100.0</b>

### 11.3.4. Collecting systems

#### 11.3.4.1. Collecting systems in agglomerations discharging into sensitive areas

According to the information sent by Germany, all 1 785 agglomerations served by waste water treatment plants with a nominal load of more than 10 000 p.e. were equipped with a complying collecting system before 31 December 1998.

**Table 11-12: Collecting systems in agglomerations discharging into sensitive areas**

Germany	Agglomerations > 10 000 p.e. - Article 3			
01/01/2002	Number	%	Nominal load [p.e.]	%
Total	1 748	100.0	118 825 715	100.0
<b>Collecting system not in compliance</b>	<b>0</b>	<b>0.0</b>	<b>0</b>	<b>0.0</b>
<b>Collecting system in compliance</b>	<b>1 748</b>	<b>100.0</b>	<b>118 825 715</b>	<b>100.0</b>

<sup>26</sup> According to recent information from Germany in September 2003, a research resulted in only three plants "Haren" and "Obere Niers" and "Heiligenhaus-Nord" being insufficiently designed, of which "Haren" complies with the provisions, "Obere Niers" was be closed in August 2002 and "Heiligenhaus" will be closed in 2004.

#### 11.3.4.2. Collecting system in agglomerations discharging into “normal areas”

As at 31 December 2000, all German agglomerations with a nominal load of more than 15 000 p.e. discharging into “normal areas” were equipped with a complying collecting system, and therefore in conformity with Article 3 of the Directive.

**Table 11-13: Collecting systems in agglomerations discharging into “normal areas”**

Germany	Agglomerations > 15 000 p.e. - Article 3			
31/12/2000	Number	%	Nominal load [p.e.]	%
Total	126	100.0	8 264 830	100.0
<b>Collecting system not in compliance</b>	<b>0</b>	<b>0.0</b>	<b>0</b>	<b>0.0</b>
<b>Collecting system in compliance</b>	<b>126</b>	<b>100.0</b>	<b>8 264 830</b>	<b>100.0</b>

#### 11.3.5. Treatment in cities > 150 000 p.e.

Germany sent updated information for 143 cities with a population equivalent of more than 150 000. At 31 January 2002 the treatment situation in these cities was as follows:

- 129 cities were situated in sensitive areas: 119 provided fully tertiary treatment (secondary treatment followed by nitrogen and phosphorus removal). Kassel, Hanau, Hagen, Lünen, Mönchengladbach and Wuppertal provided secondary treatment followed by phosphorus elimination, and the remaining four cities were equipped with secondary treatment (Flensburg, Homburg, Lübeck and Pinneberg).
- 14 cities were situated in “normal areas”: Amberg, Augsburg, Eichenau, Erdinger Moos, Ingolstadt, Kempten, Landshut, Memmingen, Mergelstetten, München, Regensburg, Rosenheim, Straubing and Ulm. Each of these cities provided at least secondary treatment.

#### 11.3.6. Industrial waste water (Article 13)

In Germany, 92 industrial plants with a total organic load of 3 525 156 p.e. were operating. By the end of 2000, 97 % of the organic load was dealt with in a satisfactory way in conformity with the criteria of Article 13. The sectors which did not comply were scheduled to comply by 31 December 2001.

**Table 11-14: Industrial waste water with respect to Article 13**

Germany - Industrial sector	Total organic load of industrial waste water from plants with respect to Article 13 [p.e.]	Number of plants	Total organic load respecting conditions under Article 13 [p.e.] at 31 December 2000	%	Date of full compliance
Milk-processing	798 500	25	798 500	100	before 31/12/2000
Manufacture of fruit and vegetable products	413 120	10	383 120	93	31/12/2001
Manufacture and bottling of soft drinks	146 500	8	146 500	100	Before 31/12/2000
Potato-processing	693 000	7	693 000	100	Before 31/12/2000
Meat industry	440 443	20	347 510	79	31/12/2001
Breweries	793 100	11	793 100	100	Before 31.12.2000
Production of alcohol and alcoholic beverages	8 800	1	8 800	100	Before 31/12/2000
Manufacture of gelatine and of glue from hides, skin and bones	124 160	3	124 160	100	Before 31/12/2000
Malt-houses	86 300	6	86 300	100	Before 31/12/2000
Fish-processing industry	21 233	1	21 233	100	Before 31/12/2000
<b>Total</b>	<b>3 525 156</b>	<b>92</b>	<b>3 402 223</b>	<b>97</b>	

### 11.3.7. Sewage Sludge

By 2000, in Germany the amount of produced sewage sludge was 2 300 000 t DS. 40 % of it was reused in agriculture, 10 % was deposited on landfills, 20 % was incinerated, and 30 % was re-used or disposed of in other ways.

**Table 11-15: Re-use and disposal of sewage sludge produced in waste water treatment plants**

Germany - Sewage Sludge (2000)	Tons DS	%
<b>Sludge production total</b>	<b>2 300 000</b>	<b>100</b>
Agriculture	920 000	40
Landfill	230 000	10
Incineration	460 000	20
Other	690 000	30

## 11.4. Greece

### 11.4.1. *Identification of sensitive areas*

Greece identified its sensitive areas late in August 1999. A total of 34 lakes, rivers, estuaries and coastal water bodies have thus been designated as sensitive due to eutrophication. Some tributaries of the Aliakmonas river (Grevenitis), the Axios river and Vozvozis river have also been identified as sensitive.

The Commission's verification study of 2000 concluded that 16 additional water bodies should have been identified as sensitive due to eutrophication and the protection of water for drinking water supply. Among those were the lower part of the Saronicos Gulf and the Gulf of Thessaloniki.

In April 2002, through a ministerial decree, the Greek authorities designated the Thessaloniki Gulf and the lower part of the Saronikos Gulf as sensitive. Additionally, the Greek authorities announced a review of sensitive areas, but have not yet officially designated any further water bodies.

Despite further discussion with the Greek authorities and additional information provided by Greece in February 2002, the Commission still believes that the remaining outstanding 14 water bodies should be identified as sensitive.

### 11.4.2. *Waste water treatment in agglomerations discharging into sensitive areas*

Greece updated its information on agglomerations discharging into sensitive areas for January 2002 and provided information on 16 agglomerations.

Previously Greece reported 33 agglomerations discharging into sensitive areas, then revised its approach on agglomerations, which led finally to only 17 agglomerations discharging into sensitive areas and therefore requiring more stringent treatment. For 16 agglomerations<sup>27</sup>, which were still evaluated in the second Commission report, Greece pointed out that they were no longer considered to have a population equivalent of more than 10 000 p.e. One of those agglomerations (Preveza) discharges into a non sensitive area according to recent information from Greece.

This change of approach led to a significant increase in compliance rates. However, the Commission is concerned about Member States changing their approach during the implementation process and has already raised these concerns in its second report. The Greek authorities provided information on that matter in 2001 and 2002, which was assessed by the Commission.

The Commission is, in particular, concerned about the apparent decrease in the size of agglomerations, and which resulted in agglomerations being assessed as being of less than 10.000 p.e, which is the threshold triggering a requirement for more stringent treatment.

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<sup>27</sup> Aliartos, Amphiloxia, Axioupoli Polikastro, Doxato, Eletheroupoli Kavalos, Emanouil Papas, Kalastra, Koufalia, Lagkadas, Nigrita, Orkomenos, Philippoi, Soufli, Aitoliko, Meliti and Paggaiio Kovalos

#### 11.4.2.1. Treatment level

According to Greece's re-organisation of their agglomerations, only 17 agglomerations discharging into sensitive areas were evaluated for the state of 1 January 2002. Ten of the 17 agglomerations were equipped with more stringent treatment facilities.

In total nine agglomerations discharging into sensitive areas were still not in conformity at the beginning of 2002:

- Arta: provided secondary treatment followed by nitrogen removal, but phosphorus removal was missing<sup>28</sup>.
- Didimoteicho: had no treatment plant in January 2002. According to recent information from Greece, a plant designed for 15 000 p.e. started operating in early 2002. According to recent information of September 2003, the plant provides nitrogen and phosphorus removal.
- Drama: had no waste water treatment plant in January 2002. According to recent information from Greece a plant for 60 000 p.e. started operating in June 2002.
- Elefsina Aspropyrgos: had no waste water treatment plant<sup>29</sup> in place.
- Grevena: had no waste water treatment plant<sup>30</sup> in place.
- Kilkis: had no waste water treatment plant<sup>31</sup> in place.
- Mesologgi: had only secondary treatment in January 2002. According to recent information, nitrogen and phosphorus removal facilities were operational by the end of 2002.
- Serres: had secondary treatment nitrogen removal, but phosphorus removal was missing
- Theva: had no waste water treatment plant at 1 January 2002<sup>32</sup>

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<sup>28</sup> Note from Greek authorities: The competent authority applied for funding for the purpose of upgrading the plant both in terms of capacity and treatment in order to provide phosphorus removal.

<sup>29</sup> Note from Greek authorities: The Thriassio waste water treatment plant called for tender in August 2001 and the technical offers are still under evaluation.

<sup>30</sup> Note from Greek authorities: The waste water treatment plant of Grevena is under call for tender, since it has been recently financed by the Cohesion Fund and national funds. According to the timetable the plant shall be ready for operation 18 months after the nomination of the contractor.

<sup>31</sup> Note from Greek authorities: The waste water treatment plant of Kilkis has recently been funded and the technical documents are under preparation. The specifications will provide for nitrogen removal, and biological and chemical phosphorus removal.

<sup>32</sup> Note from Greek authorities: The waste water treatment plant of Theva will start operating by June 2002. New environmental terms have been published prohibiting any waste water discharge into Viotikos Kifissos. The treated sewage from the plant will be reused for agricultural purposes.

These nine agglomerations represented 60.4 % of the total nominal load of the concerned agglomerations discharging into sensitive areas.

**Table 11-16: Treatment level of agglomerations discharging into sensitive areas**

Greece	Treatment level in agglomerations > 10 000 p.e. – Article 5			
	Number	%	Nominal load [p.e.]	%
01/01/2002				
Total	17	100.0	609 400	100.0
More stringent treatment	10	58.8	343 400	56.4
<i>but missing treatment steps</i>	2	11.8	102 000	16.7
<i>but insufficient treatment capacity</i>	0	0.0	0	0.0
<b>Not in compliance</b>	<b>9</b>	<b>52.9</b>	<b>368 000</b>	<b>60.4</b>
<b>In compliance</b>	<b>8</b>	<b>47.1</b>	<b>241 400</b>	<b>39.6</b>

#### 11.4.2.2. Treatment performance (monitoring results) in sensitive areas

For 1999, the Greek authorities reported on the treatment performance of 17 agglomerations each with a nominal load of more than 10 000 p.e. discharging into sensitive areas. Only six of these agglomerations provided more stringent waste water treatment<sup>33</sup>. The required treatment efficiency was only achieved in the agglomerations of Komotini and Lefkada. 89.9% of the waste water load being discharged into sensitive areas did not receive the necessary waste water treatment.

**Table 11-17: Treatment performance in agglomerations discharging into sensitive areas**

Greece	Treatment performance in agglomerations > 10 000 p.e.			
	Number	%	Nominal load [p.e.]	%
31/12/1999				
Total	17	100.0	609 400	100.0
More stringent treatment	6	35.3	214 400	35.2
<i>but insufficient treatment capacity</i>	0	0.0	0	0.0
Monitoring in compliance (Member State)	2	11.8	62 400	10.2
<i>but insufficient treatment capacity</i>	0	0.0	0	0.0
Monitoring in compliance (EC)	2	11.8	62 400	10.2
<i>but insufficient treatment capacity</i>	0	0.0	0	0.0
<b>Not in compliance</b>	<b>15</b>	<b>88.2</b>	<b>547 000</b>	<b>89.8</b>
<b>In compliance</b>	<b>2</b>	<b>11.8</b>	<b>62 400</b>	<b>10.2</b>

<sup>33</sup> Arta, Komotini, Livadia, Ptolemaida, Levkada and Agrinio.

#### 11.4.3. Waste water treatment in agglomerations discharging into “normal areas” – situation at 31 December 2000

At 31 December 2000, 91 Greek agglomerations with a nominal load of more than 15.000 p.e. were discharging into “normal areas”. In May 2003 Greece sent a corrigendum, in the context of a comment to the draft Commission report, which was based on a “careful review of population records”. This corrigendum included the following changes:

- 18 agglomerations were considered to have less than 15 000 p.e. Many of these agglomerations were previously reported as having population equivalents significantly higher than 15 000. Some of the concerned agglomerations had even more than 30 000 p.e. and up to 50 000 p.e. In total these 18 agglomerations requested by Greece to be considered no longer affected by the deadline of 2000 had a waste water load of about 495 500 p.e. None of these 18 agglomerations had a complying collecting system, and only 4 had secondary treatment at 31 December 2000.
- The review of the Greek authorities of 2003 included five agglomerations<sup>34</sup>, which are now considered to have more than 15 000 p.e.
- For 36 additional agglomerations new figures of the nominal loads were provided, in most cases the revised nominal load of the agglomeration was less than in the past.
- The agglomeration Agrinio was considered to discharge into a sensitive area. However, Greece provided no information on the treatment performance.
- The treatment plant of Megara was reported as not complying at 31 December 2000.

In their comment the Greek authorities did not give a substantial explanation for the significant change in number and size of their agglomerations discharging into “normal areas” undertaken in their review of 2003. Due to this review, the waste water load being discharged into “normal areas” and falling under the deadline 31 December 2000, is now 763, 300 population equivalents less than the Greek authorities reported one year after the deadline.

The evaluation presented below is based on the initial data provided by Greece on the situation in “normal areas” in 2001, and on the review undertaken by Greece in 2003<sup>35</sup>.

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<sup>34</sup> Messarias Thiras (20 000 p.e. existing collecting system and secondary treatment), Argostoli (18 000 p.e., existing collecting system and secondary treatment), Chrysoupoli (16 000 p.e., no collecting system, no complying treatment), Malia (15 000 p.e., no collecting system, no complying treatment) and Porou-Galata (15 000 p.e., no collecting system, no complying treatment).

<sup>35</sup> **Evaluation a):** This evaluation includes those agglomerations reported by Greece on the deadline of 31 12 2000 during the year 2001, except the agglomeration Agrinio (considered as agglomeration discharging into a sensitive area - see section 11.4.2). The change of nominal loads in 2003 is not considered in this evaluation. It recognizes that the UWWTP of Megara was not in conformity on 31.12.2000. The results are demonstrated in **Table 11- 18**.

**Evaluation b):** This is the evaluation after the review undertaken by the Greek authorities in 2003. The evaluation considers all the above mentioned corrections presented to the Commission in May 2003. The results are demonstrated in **Table 11-19**.



According to Greece's 2001 information, 90 agglomerations with a nominal load of more than 15 000 p.e. plus five additional agglomerations reported later, were situated in "normal areas" at the deadline of 31 December 2000. 35 agglomerations did not have secondary treatment at that time and were therefore not complying with the Directive. They represented 52.6 % of the concerned waste water load.

According to the Greek review of 2003, only 77 agglomerations were discharging into "normal areas" representing 51 % of the concerned load, 25 of them were not in conformity.

**Table 11-18: Treatment level in agglomerations discharging into "normal areas" – Evaluation a<sup>35</sup>**

Greece	Agglomerations > 15 000 p.e. - Article 4			
31/12/2000	Number	%	Nominal load [p.e.]	%
Total	90	100.0	9 081 100	100.0
<b>Not in compliance</b>	<b>35</b>	<b>38.9</b>	<b>4 774 000</b>	<b>52.6</b>
<b>In compliance</b>	<b>55</b>	<b>61.1</b>	<b>4 307 100</b>	<b>47.4</b>

**Table 11-19: Treatment level in agglomerations discharging into "normal areas" – Evaluation b on the basis of a review undertaken by Greece in 2003<sup>35</sup>**

Greece	Agglomerations > 15 000 p.e. - Article 4			
31/12/2000	Number	%	Nominal load [p.e.]	%
Total	77	100.0	8 317 800	100.0
<b>Not in compliance</b>	<b>25</b>	<b>36.0</b>	<b>4 277 500</b>	<b>51.0</b>
<b>In compliance</b>	<b>52</b>	<b>68.0</b>	<b>4 040 300</b>	<b>49.0</b>

#### 11.4.4. Collecting systems

##### 11.4.4.1. Collecting systems in agglomerations discharging into sensitive areas

At 1 January 2002 the collecting system of three agglomerations in sensitive areas was not complying with Article 3 of the Directive. One of the agglomerations without a complying collecting system was Elefsina Aspropyrgos (nominal load: 120 000 p.e.).

**Table 11-20: Collecting systems in agglomerations discharging into sensitive areas**

Greece	Agglomerations > 10 000 p.e. - Article 3			
01/01/2002	Number	%	Nominal load [p.e.]	%
Total	17	100.0	609 400	100.0
<b>Not in compliance</b>	<b>3</b>	<b>17.6</b>	<b>160 000</b>	<b>26.3</b>
<b>In compliance</b>	<b>14</b>	<b>82.4</b>	<b>449 400</b>	<b>73.7</b>

##### 11.4.4.2. Collecting systems in agglomerations discharging into "normal areas"

On the basis of the information delivered by Greece at the request of the Commission in 2001, the collecting systems of 50 agglomerations out of 90 discharging into "normal areas" were

not in conformity with Article 3 of the Directive at 31 December 2000. Two of the agglomerations without a complying collecting system were Iraklion (164 000 p.e.) and parts of Thessaloniki (tourist zone with 130 000 p.e.).

According to the above-mentioned review undertaken in 2003, the Greek authorities consider that 49 agglomerations out of 77 provided a complying collecting system by 31 December 2000. The review carried out by the Greek authorities changed the data concerning waste water collection for agglomerations such as Aigio, Kallithea Chalidiki, Kalymnos, Korinthos-Loutraki, Nea Kalikrateia, Siteia-Crete and Tolo, which previously were not regarded to comply.

Furthermore, the Greek authority stated that the waste water collection through septic tanks in Rhodes is in conformity with the Directive.

**Table 11-21: Collecting systems in agglomerations discharging into “normal areas” – Evaluation a<sup>35</sup>**

Greece	Agglomerations > 15 000 p.e. - Article 3			
31/12/2000	Number	%	Nominal load [p.e.]	%
Total	90	100.0	9 081 100	100.0
<b>Not in compliance</b>	<b>50</b>	<b>55.6</b>	<b>1 967 500</b>	<b>21.7</b>
<b>In compliance</b>	<b>40</b>	<b>44.4</b>	<b>7 113 600</b>	<b>78.3</b>

**Table 11-22: Collecting systems in agglomerations discharging into “normal areas” – Evaluation b on the basis of a review undertaken by Greece in 2003<sup>35</sup>**

Greece	Agglomerations > 15 000 p.e. - Article 3			
31/12/2000	Number	%	Nominal load [p.e.]	%
Total	77	100	8 317 800	100
<b>Not in compliance</b>	<b>28</b>	<b>36</b>	<b>1 093 800</b>	<b>13</b>
<b>In compliance</b>	<b>49</b>	<b>64</b>	<b>7 224 000</b>	<b>87</b>

#### 11.4.5. Treatment in cities > 150 000 p.e.

Greece has five cities with a population equivalent of more than 150 000: Athens, Thessaloniki, Iraklion, Metamorphosis and Patra.

In the second Commission report Elefsina Aspropyrgos was also included in the list of “major cities”, but in 2002 the Greek authorities reported the size of this agglomeration to be only 120 000 p.e. Since Elefsina Aspropyrgos discharges into a sensitive area, it should have already been equipped with more stringent treatment (secondary treatment followed by nitrogen and phosphorus removal) already by 31 December 1998. It is subject to an infringement procedure before Court.

On 31 December 1998 Athens and Thessaloniki had primary treatment or partial secondary treatment only. Patra and Elefsina Aspropyrgos did not have any treatment. This situation had improved by 2002.

At 1 January 2002 the situation of big cities was the following:

- Athens (3 500 000 p.e.) discharges into a sensitive area, which was designated in April 2002. More stringent treatment is under construction and, according to the information from the Greek authorities, will be completed at the end of 2003. The waste water situation of Athens/Psittalia is subject to an infraction procedure (Court application not yet lodged).
- Iraklion is situated in a “normal area” and provides full secondary treatment followed by nitrogen removal.
- Thessaloniki discharges into a sensitive area that was designated in April 2002 and provides secondary treatment followed by nitrogen removal.
- Metamorphosis and Patra are situated in a “normal area” and provide full secondary treatment followed by nitrogen removal.

#### 11.4.6. Industrial waste water (Article 13)

As regards Article 13, Greece reported 52 industrial plants with a total load of 3 482 492 p.e. All plants were complying with the Directive on 31 December 2000.

**Table 11-23: Industrial waste water with respect to Article 13 of the Directive**

Greece – Industrial sector	Total organic load of industrial waste water from plants with respect to Article 13 [p.e.]	Number of plants	Total organic load respecting conditions under Article 13 at 31 December 2000 [p.e.]	[%]	Date of full compliance
Milk-processing	410 167	10	410 167	100	31/12/2000
Manufacture of fruit and vegetable products	2 626 567	28	2 626 567	100	31/12/2000
Manufacture and bottling of soft drinks	77 550	3	77 550	100	31/12/2000
Potato-processing	32 292	2	32 292	100	31/12/2000
Meat industry	146 149	4	146 149	100	31/12/2000
Breweries	112 500	2	112 500	100	31/12/2000
Production of alcohol and alcoholic beverages	77 267	3	77 267	100	31/12/2000
<b>Total</b>	<b>3 482 492</b>	<b>52</b>	<b>3 482 492</b>	<b>100</b>	<b>31/12/2000</b>

#### 11.4.7. Sewage Sludge

The Greek authorities did not provide the necessary data on the total amount of sewage sludge generated by urban waste water treatment. In the situation report according to Article 16 Greece only stated that about 1.5 % of the sewage sludge is re-used in agriculture and 98.5 % is deposited in landfills.

## 11.5. Spain

### 11.5.1. Identification of sensitive areas

Spain identified sensitive areas in 1999 and 2000, but many of those were only identifications of regional authorities, which had not been officially notified to the Commission by the national authorities. In the course of 2001 and 2002, many sensitive areas were officially notified. However, some sensitive areas have still not yet been designated officially. The European Court of Justice ruled against Spain on this issue in May 2003.

Apart from the regional designations for which official notifications from the national authorities are still outstanding, there are many additional areas in Spain which the Commission believes should be designated as sensitive areas. In total there are 44 additional water bodies which the Commission regards as candidates for designation. Many of these are water bodies which are fed by large catchment areas, such as the Rivers Ebro and Tejo.

### 11.5.2. Waste water treatment in agglomerations discharging into sensitive areas

A number of agglomerations, which were reported to the Commission when compiling in its second report were no longer reported by the Spanish authorities in the information submitted for the present report. Some agglomerations have apparently dropped below the threshold of 10 000 p.e. and for this reason were not taken into account any longer<sup>36</sup>. Some agglomerations were merged and some, according to the Spanish authorities, no longer discharged into sensitive areas. One such case is Santa Pola (125 000 p.e.), which does not even provide biological treatment.

According to recent information from the Spanish authorities of 2003, their data include 33 agglomerations which discharge their effluents into not yet officially designated sensitive areas.

#### 11.5.2.1. Treatment level

The Spanish authorities provided updated information on 113 agglomerations with more than 10 000 p.e. discharging into sensitive areas: 57 agglomerations were indicated as being equipped with more stringent treatment representing 77% of the total load. However, at the time of finalising the present report, the Commission still had a number of outstanding questions concerning the data presented by the Spanish authorities. Therefore for carrying out its assessment, the Commission based itself on figures submitted by Spain in relation to the previous data request. These figures indicate that only 34 agglomerations were in compliance and that only 25% of the load was subject to adequate treatment. For at least nine agglomerations no wastewater treatment was provided at all: Alfarras-Almenar, Alginet, Almonte, Celra, Deltebre, Marines, Naut-Aran, Santoña (132 135 p.e.) and Sueca.<sup>37</sup>

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<sup>36</sup> Muro (< 10 000 p.e.), Sant Bartelomeu del Grau (only industrial waste water), Campo Criptana (merged with Alcázar de San Juan), Colindres and Laredo (both merged with Santona, Cuenca Baja del río Asón).

<sup>37</sup> In May/September 2003, the Spanish authorities provided updated data in the frame of monitoring information which will be considered in the future evaluations.

**Table 11-24: Treatment level of agglomerations discharging into sensitive areas**

Spain	Treatment level in agglomerations > 10 000 p.e. – Article 5			
	Number	%	Nominal load [p.e.]	%
01/01/2002				
Total	113	100.0	5 740 260	100.0
More stringent treatment	57	50.4	2 315 967	40.3
<i>but missing treatment steps</i>	23	20.4	907 983	15.8
<i>but insufficient treatment capacity</i>	n.a.*	n.a.*	n.a.*	n.a.*
<b>Not in compliance</b>	<b>79</b>	<b>69.9</b>	<b>4 332 276</b>	<b>75.5</b>
<b>In compliance</b>	<b>34</b>	<b>30.1</b>	<b>1 407 984</b>	<b>24.5</b>

\* n.a.: no information available

#### 11.5.2.2. Treatment performance (monitoring results) in sensitive areas

Spain did not provide any information on treatment performance (monitoring data for the year 1999) of urban waste water treatment plants, which was requested by the Commission on the basis of Article 15 of the Directive in December 2000. For certain agglomerations incomplete monitoring information was provided in May/September 2003, which was too late to be taken into account for this report.

#### 11.5.3. Waste water treatment in agglomerations discharging into “normal areas” – situation at 31 December 2000

At 31 December 2000, 458 agglomerations with a nominal load of more than 15 000 p.e. were reported to discharge their effluent into “normal areas”. 245 of them were equipped with at least secondary treatment. 213 agglomerations did not provide secondary treatment, and therefore did not fulfil the requirements of Article 4 of the Directive. More than 20 million population equivalents representing 38.2 % of the waste water load discharged into “normal areas” was not treated appropriately. Among the agglomerations not providing adequate treatment, were a number of cities with more than 150 000 p.e. (details in section 11.5.5).

**Table 11-25: Treatment level in agglomerations discharging into “normal areas”**

Spain	Agglomerations > 15 000 p.e. - Article 4			
	Number	%	Nominal load [p.e.]	%
31/12/2000				
Total	458	100.0	53 862 365	100.0
<b>Not in compliance</b>	<b>213</b>	<b>46.5</b>	<b>20 554 919</b>	<b>38.2</b>
<b>In compliance</b>	<b>245</b>	<b>53.5</b>	<b>33 307 446</b>	<b>61.8</b>

#### 11.5.4. Collecting systems

##### 11.5.4.1. Collecting systems in agglomerations discharging into sensitive areas

Out of 113 agglomerations discharging into sensitive areas, for which information was provided, only 62 were equipped with a collecting system being in conformity with Article 3 of Directive 91/271/EEC.

**Table 11-26: Collecting systems in agglomerations discharging into sensitive areas**

<b>Spain</b>	<b>Agglomerations &gt; 10 000 p.e. - Article 3</b>			
01/01/2002	Number	%	Nominal load [p.e.]	%
Total	113	100.0	5 740 260	100.0
<b>Not in compliance</b>	<b>51</b>	<b>45.1</b>	<b>3 126 560</b>	<b>54.5</b>
<b>In compliance</b>	<b>62</b>	<b>54.9</b>	<b>2 613 700</b>	<b>45.5</b>

#### 11.5.4.2. Collecting systems in agglomerations discharging into “normal areas”

At 31 December 2000 the collecting systems of 430 agglomerations out of 458 discharging into “normal areas” were in conformity with Article 3 of the Directive (91,9% of the nominal load of all concerned agglomerations). The non complying agglomerations included some major cities such as El Prat de Llobregat (1.7 mio. p.e.), La Coruña (580 000 p.e), Tui (274 000 p.e.), Algeciras (174 000 p.e.) or Ferrol (161 000 p.e.).

**Table 11-27: Collecting systems in agglomerations discharging into “normal areas”**

<b>Spain</b>	<b>Agglomerations &gt; 15 000 p.e. - Article 3</b>			
31/12/2000	Number	%	Nominal load [p.e.]	%
Total	458	100.0	53 862 365	100.0
<b>Not in compliance</b>	<b>28</b>	<b>6.1</b>	<b>4 348 128</b>	<b>8.1</b>
<b>In compliance</b>	<b>430</b>	<b>93.9</b>	<b>49 514 237</b>	<b>91.9</b>

#### 11.5.5. Treatment in cities > 150 000 p.e.

The Spanish authorities reported 75 cities with a nominal load of more than 150 000 p.e.

Six cities (Alginet, Benidorm, Calvia, Castellón de la Plana, Colmenar Viejo and Palma de Mallorca) were located in sensitive areas and should therefore be equipped with more advanced treatment. However, only Calvia (Santa Ponça) was provided with more stringent treatment (elimination of nitrogen and phosphorus). The other 5 cities did not fulfil this requirement and, therefore, did not comply with the Directive<sup>38</sup>. Alginet (180 000 p.e.) did not have any treatment at all.

The remaining 69 cities were discharging into “normal” areas and should have been equipped with at least secondary treatment. At the end of December 2001 the waste water situation in these cities was as follows:

- Nine had more stringent treatment: Almeria, León, Oviedo, Roquetas de Mar, Sestao (=Bilbao) (1.25 mio p.e.), Talavera de la Reina, Vitoria-Gasteiz, Xirivella and Zaragoza (1.2 mio p.e.);

<sup>38</sup> Alginet (180 000 p.e.): no treatment (more stringent by 2005); Benidorm (347 041 p.e.): primary treatment (more stringent treatment by 2004); Castellón de la Plana (156 000 p.e.): primary treatment (more stringent treatment by 2004); Colmenar Viejo (151 996 p.e.): secondary treatment only; Palma de Mallorca II (481 450 p.e.): partial secondary treatment (due to recent information the waste water of Palma de Mallorca is treated by two treatment plants, of which one - Palma I (28 027 p.e.) – discharges into a normal area).

- 36 had secondary treatment<sup>39</sup>, including Cordoba (505 000 p.e.), Madrid (6.0 mio p.e.), Malaga (978 400 p.e.), Murcia (833 000 p.e.) and Sevilla (1.28 mio p.e.), Valladolid (715 300 p.e.)
- 16 had primary treatment or incomplete secondary treatment only: Mostoles (882 000 p.e.), Alcobendas, Algeciras, Alicante (744 709 p.e.), Cartagena, Fuengirola, Alcalá de Henares, Guadalajara, Vigo, Muro del Alcoy, Pineda del Mar, Salamanca, San Roman, Santiago de Compostela, Valencia (1.5 mio p.e.), Granada (496 000 p.e.);

Eight still do not treat their waste water at all: A Coruña, Barcelona (3.4 mio p.e.), Cadiz, Donostia-San Sebastian, Ferrol, Gijón, Suances and Tui.

In the opinion of the Commission, many of the Spanish “normal areas” are in fact suffering from eutrophication problems or belong to the catchment area of sensitive areas. This means that the cities and agglomerations discharging into those areas should provide more stringent waste water treatment. Among them are cities with more than one million population equivalents, such as Barcelona, Madrid, Sevilla, and other big cities such as Cordoba and Granada. For many further cities and agglomerations the Commission currently does not have the detailed information, as to which of them are actually discharging into so-called potentially sensitive areas.

Two cities, reported for the second Commission report, were not mentioned anymore as their waste water load was reported to be below 150 000 p.e.<sup>40</sup>

#### 11.5.6. *Less sensitive areas*

Since 1997 Spain has identified less sensitive areas along the coasts of the Mediterranean and the Atlantic, and the Canary Islands in several steps. The region of Andalusia has officially identified less sensitive areas along its whole coastline by the Decree of March 1999. In November 2000, the Spanish national authorities notified the Commission that, after consultation with the regions, only the Canary Islands will have less sensitive areas. However, the Commission still has not been informed that Article 3(2) of the Decree issued by the region of Andalusia in March 1999 and identifying less sensitive areas, has been revoked.

In February 2002, in a communication to the Commission, the Spanish authorities announced that the Canary Islands will be identified as less sensitive areas after the approval of the hydrological plan of the Canary Islands.

In July 2001 Spain notified the entire coastal zone of the autonomous community of Cantabria as a less sensitive area, with the exception of the Bay of Santander, which is regarded by

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<sup>39</sup> Albacete, Badajoz, Benalmadena, Burgos, Cordoba, Elche / Elx, Elda, Estepona, Gandia, Huelva, Jaen, Jerez de la Frontera, La Llagosta, Las Palmas de Gran Canaria, Logroño, Madrid, Malaga, Marbella, Mataro, Montcada i Reixac, Murcia, Ontinyent, Palencia, Palomares del Rio, Pamplona, Sabadell, Salou, San Fernando de Henares, Sant Feliu de Llobregat, Santa Cruz de Tenerife, Sevilla, Tarragona, Terrassa, Torrevieja, Valladolid, Viladecans,

<sup>40</sup> Lorca (298 000 p.e. - now 57 000 p.e. due to disconnection of a large industry) and Velilla de San Antonio (163 378 p.e. - now 145 400 p.e.).

Spain as a “normal” area. According to the Commission’s opinion the bay of Santander is suffering from eutrophication and should have been identified as a sensitive area.

The Commission challenges the less sensitive areas identified in Andalusia, Cantabria and the Canary Islands, since it believes that discharges treated at primary level only may affect the quality of numerous bathing waters in these regions. In addition, the Commission believes that when identifying its less sensitive areas, Andalusia did not take account of the fact that discharges may affect nearby bodies of water designated as sensitive in Andalusia itself as well as in the Algarve in Portugal. In general terms, the Commission is of the opinion, that the waters of the Mediterranean do not meet the criteria laid down in the Directive for less sensitive areas due to their hydrodynamic features.

According to the directive, if Member States wish to allow treatment levels less severe than secondary treatment they should submit an official request for a derogation to the Commission. Spain has not submitted any such request. The Commission is therefore of the opinion that all Spanish agglomerations with a population equivalent of more than 15 000 must have at least secondary treatment from 31 December 2000, including those which discharge their effluent into areas which the Spanish authorities have identified as less sensitive.

#### 11.5.7. Industrial waste water (Article 13)

In Spain 155 industrial plants with a total organic load of 9 915 785 p.e are affected by Article 13 of the Directive. 68 % of the organic load is in compliance.

The fish-processing and the milk-processing industries are the two sectors with the most significant shortcomings.

The date on which the industrial plants for all sectors will be in full compliance has been announced as 31 December 2005.

**Table 11-28: Industrial waste water with respect to Article 13 of the Directive**

Spain – Industrial sector	Total organic load of industrial waste water from plants with respect to Article 13 [p.e.]	Number of plants	Total organic load respecting conditions under Article 13 at 31 December 2000 [p.e.]	%	Date of full compliance
Milk-processing	1 013 015	18	73 421	7	31/12/05
Manufacture of fruit and vegetable products	1 049 694	50	933 346	89	31/12/05
Manufacture and bottling of soft drinks	21 981	2	12 644	58	31/12/05
Meat industry	1 474 296	32	1 023 135	69	31/12/05
Breweries	529 085	6	485 421	92	31/12/05
Production of alcohol and alcoholic beverages	5 713 413	36	4 183 781	73	31/12/05
Malt-houses	11 571	2	11 571	100	31/12/05
Fish-processing industry	102 730	9	0	0	31/12/05
<b>Total</b>	<b>9 915 785</b>	<b>155</b>	<b>6 723 319</b>	<b>68</b>	



### *11.5.8. Sewage Sludge*

No information about sewage sludge was available. As referred to elsewhere in the report, the Commission is concerned that Spain continues the practice of dumping sewage sludge into surface waters.

## **11.6. France**

### *11.6.1. Identification of sensitive areas*

France identified sensitive areas in 1994 and reviewed its identification in 1999, classifying a number of further sensitive areas (see second Commission report). However, the study carried out by the Commission in 1999 showed that a number of additional sensitive areas should have been identified in terms of eutrophication. France still has not designated these areas, which include the freshwaters and coastal waters of the Artois-Picardie basin, the Bay of the Seine and its downstream river sections, rivers and coastal waters in Brittany, the river Vistre and the lagoon Etang de Thau. The identification of these areas is subject to an infringement procedure before Court.

### *11.6.2. Waste water treatment in agglomerations discharging into sensitive areas*

The provision of data by the French authorities was not satisfactory. Information was submitted with long delays, or it was incomplete or completely absent. For example, The Commission is still awaiting a response to a request for monitoring data on plants discharging into sensitive areas made in December 2000. France has not published situation reports as required under Article 16 of the Directive. These issues are subject to an ongoing infringement procedure.

After repeated requests from the Commission, the French authorities provided on 5<sup>th</sup> September 2003, information about the treatment requirements for the waste water discharged into sensitive areas. The Commission took this information into account in the evaluation presented below, but has not had the opportunity to completely verify this data.

France provided certain information on 348 agglomerations discharging into sensitive areas and identified as such in 1994, and on 50 agglomerations being additionally identified as sensitive in 1999. According to Article 5(7) of the Directive, the latter have, to be equipped with more stringent treatment at the latest by 2006; therefore they were currently evaluated under “normal areas”. However, it has to be pointed out that among those 50 agglomerations were also a number of agglomerations, which - according to the Commission’s opinion - should have been identified as sensitive areas in 1994, and therefore applying tertiary treatment already as from the end of 1998, e.g. Compiègne, Corbeil, Etampes, Evry, Beauvais.

#### **11.6.2.1. Treatment level**

Out of the 348 agglomerations 143 agglomerations were complying with the Directive. They represented 36.4 % of the load of the concerned agglomerations.

205 agglomerations were not in conformity (63.6 % of the load). These included a number of big cities such as Strasbourg, Mulhouse (Sausheim) or Montpellier. 147 of them did not have

any kind of more advanced treatment facilities, 50 were partially, but insufficiently equipped with more stringent treatment facilities.

The organic design capacity of the treatment plants in 13 agglomerations seemed too small to be able to sufficiently treat the waste water of the concerned agglomeration. The agglomerations where the design capacity was 80 % or less than of the size of the entire agglomeration were for example Angouleme (in total seven treatment plants), Briey, Guenange, Louhans, Lunel, Malansac, Niedernai, Pleucadeuc, Rambouillet, Ribauville, Thonon, Trois Ponts, Vallee De L'orne.

**Table 11-29: Treatment level of agglomerations discharging into sensitive areas, designated in 1994**

France	Treatment level in agglomerations > 10 000 p.e. – Article 5			
	Number	%	Nominal load [p.e.]	%
01/01/2002				
Total	348	100.0	16 728 379	100.0
More stringent treatment	201	57.8	8 611 268	51.5
<i>but missing treatment steps</i>	50	14.4	1 950 939	11.7
<i>but insufficient treatment capacity</i>	13	3.7	805 994	4.8
<b>Not in Compliance*</b>	<b>205</b>	<b>58.9</b>	<b>10 641 444</b>	<b>63.6</b>
<b>In Compliance</b>	<b>143</b>	<b>41.1</b>	<b>6 086 935</b>	<b>36.4</b>

\*Including incomplete more stringent treatment and insufficient treatment capacity of plants, taking into account possible overlaps of both shortcomings

#### 11.6.2.2. Treatment performance (monitoring results) in sensitive areas

France did not provide information on the treatment performance of plants discharging into sensitive areas (monitoring data for the year 1999), which was requested by the Commission on the basis of Article 15 of the Directive. The issue is subject to the above mentioned infringement procedure on reporting issues.

#### 11.6.3. Waste water treatment in agglomerations discharging into “normal areas” – situation at 31 December 2000

At the end of 2000, France had 486 agglomerations above 15 000 p.e discharging into “normal areas”. They currently include also those agglomerations above 15 000 p.e., which discharge into areas which were designated as sensitive areas later in 1999, and which currently need not yet comply with more stringent treatment requirements.

In addition, the evaluation currently also includes the agglomerations which discharge into potentially sensitive areas, areas which - in the Commission’s opinion – should have been identified by France as sensitive in 1994 and provide already subject to more stringent treatment, and which are also subject to the above-mentioned infringement case before Court. Paris is one of these agglomerations.

307 agglomerations, representing 68 % of the concerned load of the above 486 agglomerations complied with the Directive, deadline 31 December 2000. 179 agglomerations had not yet been equipped with secondary treatment.

**Table 11-30: Treatment level of agglomerations discharging into “normal areas”**

France	Agglomerations > 15 000 p.e. – Article 4			
31/12/2000	Number	%	Nominal load [p.e.]	%
Total	486	100.0	42 548 060	100.0
<b>Not in compliance</b>	<b>179</b>	<b>36.8</b>	<b>13 505 783</b>	<b>31.7</b>
<b>In compliance</b>	<b>307</b>	<b>63.2</b>	<b>29 042 277</b>	<b>68.3</b>

#### 11.6.4. Collecting systems

##### 11.6.4.1. Collecting systems in agglomerations discharging into sensitive areas, designated in 1994

According to the available information, the collecting system of at least 69 agglomerations discharging into sensitive areas was not completed. These agglomerations represented 18.9 % of the load of the concerned agglomerations. For 77 agglomerations (20.7 % of the load) no information was available whether a complying collecting system was in place by 1 January 2002.

**Table 11-31: Collecting systems of agglomerations discharging into sensitive areas designated in 1994**

France	Agglomerations > 10 000 p.e. - Article 3			
01/01/2002	Number	%	Nominal load [p.e.]	%
Total	348	100.0	16 728 379	100.0
<b>No information available</b>	<b>77</b>	<b>22.1</b>	<b>3 458 774</b>	<b>20.7</b>
<b>Not in compliance</b>	<b>69</b>	<b>19.8</b>	<b>3 168 123</b>	<b>18.9</b>
<b>In compliance</b>	<b>202</b>	<b>58.0</b>	<b>10 101 482</b>	<b>60.4</b>

##### 11.6.4.2. Collecting systems in agglomerations discharging into “normal areas”

At least 69 agglomerations with a nominal load of more than 15 000 p.e. did not provide a complying collecting system by 31 December 2000. These agglomerations represented 15.8 % of the concerned load in “normal areas”. For 249 additional agglomerations insufficient information was provided to assess the conformity of the collecting systems.

**Table 11-32: Collecting systems in agglomerations discharging into “normal areas”**

France	Agglomerations > 15 000 p.e. – Article 3			
31/12/2000	Number	%	Nominal load [p.e.]	%
Total	486	100.0	42 548 060	100.0
<b>No evaluation possible</b>	<b>249</b>	<b>51.2</b>	<b>11 613 713</b>	<b>27.3</b>
<b>Not in compliance</b>	<b>69</b>	<b>14.2</b>	<b>6 740 323</b>	<b>15.8</b>
<b>In compliance</b>	<b>168</b>	<b>34.6</b>	<b>24 194 024</b>	<b>56.9</b>

#### 11.6.5. Treatment in cities > 150 000 p.e.

France provided information on 60 cities with a population equivalent of more than 150 000:

- 29 cities were situated in sensitive areas and should therefore have been equipped with more stringent treatment (secondary treatment followed by nitrogen and/or phosphorus and/or other treatment):
  - Eleven cities were equipped with all required treatment steps: Aix en Provence, Angouleme, Besancon, Calais, Colmar, Lagny-sur-Marne, Metz, Orleans, Rennes, Thonon and Tours.
  - 17 cities were equipped with secondary treatment and/or incomplete more stringent treatment only: Amiens, Boulogne sur Mer, Caen, Clermont-Ferrand, Dijon, Dunkerque, Evry, Le-Havre, Melun, Montpellier, Mulhouse, Nancy, Reims, Rodez, St-Etienne, Strasbourg and Troyes.
  - Arcachon had primary treatment only.
- 8 cities were located in potentially sensitive areas and therefore, in to the Commission's opinion, should have been equipped with more stringent treatment by 1998:
  - Paris, Zone Centrale: (10.0 mio. p.e.) had nitrogen and phosphorus elimination only for parts of its population. According to the RNDE and other information gathered by the Commission in the past few years, Paris included in total four agglomerations with an entire population equivalent of 13.7 mio. On the basis of the information provided by the French authorities, the Commission could not understand why Paris has 3.7 mio population equivalents less than in the past and did not find any indication that this waste water load was taken into account within other agglomerations<sup>41</sup>.
  - Rouen: had secondary treatment followed by nitrogen and phosphorus removal
  - Lille: provided nitrogen elimination for parts of its population only (the agglomeration Wattrelos - 450 000 p.e. - had primary treatment only)
  - Cergy: provided partial nitrogen elimination
  - Douai and Bonneuil-en-France: had secondary treatment followed by nitrogen elimination
  - Versailles and Nimes had secondary treatment.
- 23 cities were located in "normal areas" and should have been equipped with at least secondary treatment:

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<sup>41</sup> On the 5 September 2003 the French authorities informed that the 13,5 million p.e. were based on a fiscal evaluation in order to calculate taxes and overestimate the reality.

- Four of them had even more stringent treatment (nitrogen and/or phosphorus removal): Angers, Annecy, Limoges and Nantes
- Nine cities had secondary treatment: Antibes, Brest, Chambéry, Grenoble, La Rochelle, Nice, Royan, Toulon and Toulouse
- Eight cities had primary treatment only: Bordeaux (conformity planned by 2006), Cannes (conformity planned by 2006), Frejus-St-Raphael (date of conformity unknown), Lyon (conformity planned by 2006), Marseille (conformity planned by 2005), Pau (conformity planned by 2003), Perpignan (conformity planned by 2005), Valence (conformity planned by 2002)
- Two cities had no treatment or preliminary treatment only: Le Mans (completion of secondary treatment not before 2004) and Quimper (secondary treatment not before 2003)

#### 11.6.6. Industrial waste water (Article 13)

According to the information provided by the French authorities, all discharges from industrial branches falling under Article 13 of the Directive fulfilled the requirements of the Directive. Nevertheless, no information on the total organic load of these discharges was provided<sup>42</sup>.

**Table 11-33: Industrial waste water with respect to Article 13**

France – Industrial sector	Total organic load of industrial waste water from plants with respect to Article 13 [p.e.]	Number of plants	Total organic load respecting conditions under Article 13 at 31 December 2000 [p.e.]	%	Date of full compliance
Milk-processing		171		100.0	03/03/1999
Manufacture of fruit and vegetable products		205		100.0	03/03/1999
Manufacture and bottling of soft drinks		64		100.0	03/03/1999
Potato-processing		9		100.0	03/03/1999
Meat industry (including Fish-processing industry)		510		100.0	03/03/1999
Breweries		64		100.0	03/03/1999
Production of alcohol and alcoholic beverages		233		100.0	03/03/1999
Manufacture of animal feed from plant products		439		100.0	03/03/1999
Manufacture of gelatine and of glue from hides, skin and bones		2		100.0	03/03/1999
Malt-houses		45		100.0	03/03/1999
<b>Total</b>		<b>1 742</b>		<b>100.0</b>	

<sup>42</sup> France did not deliver information, because the Directive does not set out details on the definition of the total organic load.

### 11.6.7. Sewage sludge

France provided information on sludge production and the re-use of sludge in agriculture. Information about other re-use or disposal routes of sewage sludge was not available. In the year 2001 the quantity of produced sludge was 913 159 t dry substance (DS). 56% was re-used in agriculture.

**Table 11-34: Agricultural re-use of sewage sludge produced in waste water treatment plants**

France – Sewage Sludge	2000		2001	
	Tons DS	%	Tons DS	%
<b>Total</b>	<b>904 342</b>	<b>100</b>	<b>913 159</b>	<b>100</b>
Agriculture	506 505	56	508 203	56

## 11.7. Ireland

### 11.7.1. Identification of sensitive areas

In 1994, Ireland identified four lakes as sensitive in terms of eutrophication: Lough Derg, Lough Leane, Lough Oughter and Lough Ree, and six river sections: River Boyne, River Camlin, River Castlebar, River Liffey, River Nenagh and River Tullamore.

In 2001 the Irish authorities revised<sup>43</sup> their sensitive areas and identified 26 additional sensitive areas<sup>44</sup>. Among these were Lough Muckno, Lough Monalty and Lough Ennel and rivers like Proules, Brosna and others. In addition, Ireland also identified a number of estuaries. Many areas, requested by the Commission for identification as sensitive areas were included in this review, in particular lakes and rivers. However, the Irish authorities have still not yet designated certain areas such as Cork Harbour, Boyne, Lady's Island and Garavogue/Sligo, which suffer - according to the Commission's opinion - from eutrophication problems. The non-designation of these areas is part of on-going infringement procedures. The identification of some rivers and estuaries still requires further clarification.

### 11.7.2. Waste water treatment in agglomerations discharging into sensitive areas

Ireland has eleven agglomerations with more than 10 000 p.e. discharging into sensitive areas<sup>45</sup>, which were designated in 1994.

Due to the review of sensitive areas in 2001, 16 additional agglomerations<sup>46</sup> each with a population equivalent of more than 10 000, were allocated to sensitive areas.

<sup>43</sup> S.I. No.254 of 2001

<sup>44</sup> River Blackwater (Monaghan), River Brosna (d/s Mullingar), River Cavan, River Proules, River Barrow, River Triogue, River Nore, River Hind, River Suir, Little Brosna River, River Blackwater (Munster), Lough Ennell (Westmeath), Lough Muckno (Monaghan), Lough Monalty (Monaghan), Broadmeadow Estuary (Inner), Liffey Estuary, Slaney Estuary, Barrow Estuary, Suir Estuary (Upper), Bandon Estuary, Lee Estuary Upper (Tralee), Feale Estuary Upper, Cashen/Feale Estuary, Killybegs Harbour, Castletown Estuary, Blackwater Estuary

<sup>45</sup> Athlone, Castlebar, Cavan, Killarney, Longford, Mullingar, Naas / Osberstown, Navan, Nenagh, Roscrea, Tullamore

The Irish authorities are of the opinion that due to Article 5(7) of the Directive no obligation of more stringent treatment is necessary in agglomerations discharging into the new designated sensitive areas before 2008. However, the Commission is of the opinion that the agglomerations in those areas, which were already considered to be eutrophic by the Commission in former years, and requested to be identified as such by the Commission in 2000, should have been equipped with more stringent treatment already by 1998. These areas are the subject of an ongoing infraction procedure; Ireland's recently received comments are under evaluation.

#### 11.7.2.1. Treatment level

Since Ireland designated additional water bodies as sensitive in 2001 taking into account also their catchment areas, the number of concerned agglomerations with a population equivalent of more than 10 000 increased from eleven (1998) to 28 (2001).

In 2002, ten out of the eleven agglomerations located in those areas, which were identified in 1994, were equipped with the required phosphorus removal facilities. Only Longford (16 000 p.e.) had secondary treatment alone, and is still to be upgraded in terms of phosphorus removal<sup>47</sup>. Despite its existing nutrient removal facilities, the agglomeration Osberstown was not considered to conform with the Directive, because its treatment capacity (40 000 p.e.) seemed too small for a sufficient waste water treatment compared with the total nominal load of the agglomeration (97 651 p.e.). According to the Commission's opinion the treatment plant of Osberstown has to be subject to a capacity upgrading<sup>48</sup>.

The situation in the agglomerations in the sensitive areas, which were designated in 2001, but should - according to the Commission's opinion - have been designated in 1994, was as follows:

- Five agglomerations had more stringent treatment of phosphorus: Portlaoise, Monaghan, Leixlip, Carrickmacross and Clonmel. The agglomerations Portlaoise (discharging into River Barrow) and Clonmel (discharging into the River Suir) require also nitrogen removal.
- Four agglomerations had secondary treatment: Dundalk, Carlow, Kilkenny and Swords
- Dublin - Howth Outfall (505 969 p.e.)<sup>49</sup> had pre-liminary treatment only

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<sup>46</sup> Monaghan, Carrickmacross, Athy, Carlow, Portlaoise, Kilkenny, Clonmel, Thurles, Fermoy, Swords, Dublin (Ringsend), Leixlip, Wexford, Waterford, Tralee and Dundalk

<sup>47</sup> In a comment of 22 September 2003, Ireland informed that the information is wrong and Longford provides phosphorus removal since 2001 being in compliance with the Directive. This information could not be included in the evaluation anymore, but will be considered in future.

<sup>48</sup> According to a comment of 22 September 2003, Osberstown has already been upgraded to 80 000 p.e by May 2000, now providing phosphorus removal and a complying treatment performance.

<sup>49</sup> In the Committee Meeting of 1 September 2003, the Irish authorities informed that from September 2002, Dublin Howth Outfall and Dublin Ringsend Discharge will be regarded as a single agglomeration. In a comment of 22 September 2003, the Irish authorities raised that the drainage system of Dublin - Howth Outfall is designed that way that it does not discharge into a sensitive area.

- Seven agglomerations did not have any waste water treatment at all: Dublin - Ringsend Discharge (1.8 mio. p.e.), Athy (12 379 p.e.), Fermoy (12 960 p.e.), Tralee (41 680 p.e.), Wexford (17 000 p.e.), Waterford (154 000 p.e.), and Thurles (10 600 p.e.).

This shows that 14<sup>50</sup> of the 16 concerned agglomerations discharging into sensitive areas, which were designated in 2001, but which, according to the Commissions opinion - should have had more stringent treatment of nitrogen and/or phosphorus already by the end of 1998, were still not in conformity with the Directive. In total, these agglomerations represent a total nominal load of about three million population equivalents.

**Table 11-35: Treatment level of agglomerations discharging into sensitive areas**

Ireland	Treatment level in agglomerations > 10 000 p.e. –			
	Article 5			
01/01/2002	Number	%	Nominal load [p.e.]	%
Total	28	100.0	3 362 856	100.0
More stringent treatment	15	53.6	419 129	12.5
<i>but missing treatment steps</i>	2	7.1	52 000	1.5
<i>but insufficient treatment capacity</i>	1	3.6	97 651	2.9
<b>Not in compliance*</b>	<b>16</b>	<b>57.1</b>	<b>3 093 378</b>	<b>92.0</b>
<b>In compliance</b>	<b>12</b>	<b>42.9</b>	<b>269 478</b>	<b>8.0</b>

\*Including the agglomeration Osberstown, which had a treatment capacity for only 41% for its total load.

#### 11.7.2.2. Treatment performance (monitoring results) in sensitive areas

Six of the eleven agglomerations with more than 10 000 p.e. discharging into sensitive areas existing in 1999, had a complying treatment performance in that year, which represented 41.8% of the load. In total, the treatment performance of five agglomerations<sup>51</sup> (58.2% of the waste water load), including Solely Longford, which had secondary treatment only, were not in conformity with the provisions of the Directive.

<sup>50</sup> Portlaoise (N-removal missing), Clonmel (N-removal missing), Dundalk (secondary treatment), Carlow (secondary treatment), Kilkenny (secondary treatment), Swords (secondary treatment), Dublin-Howth Outfall (primary treatment), Dublin-Ringsend (no treatment), Athy (no treatment), Fermoy (no treatment), Tralee (no treatment), Wexford (no treatment), Waterford (no treatment), Thurles (no treatment). In the before mentioned comment of 22 September 2003, the Irish authorities raised that the agglomerations Athy, Fermoy Tralee and Thurles provided secondary treatment before the end of 1998.

<sup>51</sup> Osberstown, Longford, Navan, Roscrea, Castlebar (was considered as not in conformity as total phosphorus was not monitored in 1999). According to a comment of 22 September 2003, Osberstown has been upgraded to 80 000 p.e by May 2000, now providing phosphorus removal and a complying treatment performance.



**Table 11-36: Treatment performance in agglomerations discharging into sensitive areas, designated in 1994**

Ireland	Treatment performance in agglomerations > 10 000 p.e.			
	Number	%	Nominal load [p.e.]	%
31/12/1999				
Total	11	100.0	286 399	100.0
More stringent treatment	10	90.9	270 399	94.4
<i>but insufficient treatment capacity</i>	1	9.1	97 651	34.1
Monitoring in compliance (Member State)	6	54.5	119 748	41.8
<i>but insufficient treatment capacity</i>	0	0	0	0
Monitoring in compliance (EC)	6	54.5	119 748	41.8
<i>but insufficient treatment capacity</i>	0	0	0	0
<b>Not in compliance</b>	<b>5</b>	<b>45.5</b>	<b>166 651</b>	<b>58.2</b>
<b>In compliance</b>	<b>6</b>	<b>54.5</b>	<b>119 748</b>	<b>41.8</b>

*11.7.3. Treatment in agglomerations discharging into “normal areas” – situation at 31 December 2000*

At the end of 2000, Ireland had 28 agglomerations above 15 000 p.e., which discharged into “normal areas”. Previously Ireland had sent a list of 35 agglomerations with more than 15 000 p.e., but seven agglomerations<sup>52</sup> were actually discharging into sensitive areas and therefore allocated to those.

13 of those 28 agglomerations were equipped with at least secondary treatment. 15 agglomerations did not have secondary treatment (including major parts of Cork and Dublin), which represented 81.9 % of the total load of waste water of agglomerations over 15 000 p.e. in “normal areas”.

Some of the agglomerations like Cork Harbour and Dublin discharged into water bodies suffering from eutrophication and in the Commission’s opinion should have been subject to classification as a sensitive area in 1994 and provided more stringent treatment since 1998 (see above).

**Table 11-37: Treatment level of agglomerations discharging into “normal areas”**

Ireland	Agglomerations > 15 000 p.e. – Article 4			
	Number	%	Nominal load [p.e.]	%
31/12/2000				
Total	28	100.0	3 901 479	100.0
<b>Not in compliance</b>	<b>15</b>	<b>53.6</b>	<b>3 195 447</b>	<b>81.9</b>
<b>In compliance</b>	<b>13</b>	<b>46.4</b>	<b>706 032</b>	<b>18.1</b>

<sup>52</sup> Athlone, Castlebar, Killarney, Longford, Mullingar, Navan and Osberstown,

#### 11.7.4. Collecting systems

##### 11.7.4.1. Collecting systems in agglomerations discharging into sensitive areas

Most agglomerations identified by Ireland in 1994 and 2001, were already equipped with a complying collecting system, only the agglomerations Athey, Tralee and Waterford did not yet comply.<sup>53</sup>

**Table 11-38: Collecting systems in agglomerations discharging into sensitive areas, designated in 1994 and 2001**

Ireland	Agglomerations > 10 000 p.e. - Article 3			
	Number	%	Nominal load [p.e.]	%
01/01/2002				
Total	28	100.0	3 362 856	100.0
<b>Not in compliance</b>	<b>3</b>	<b>10.7</b>	<b>208 059</b>	<b>6.2</b>
<b>In compliance</b>	<b>25</b>	<b>89.3</b>	<b>3 154 797</b>	<b>93.8</b>

##### 11.7.4.2. Collecting systems in agglomerations discharging into “normal areas”

According to additional information sent in April 2003, at 31 December 2000 the collecting system of all 28 Irish agglomerations with a nominal load of more than 15 000 p.e. discharging into “normal areas” was in conformity with the Directive.

**Table 11-39: Collecting systems in agglomerations discharging into “normal areas”**

Ireland	Agglomerations > 15 000 p.e. – Article 3			
	Number	%	Nominal load [p.e.]	%
31/12/2000				
Total	28	100.0	3 901 479	100.0
<b>Not in compliance</b>	<b>0</b>	<b>0.0</b>	<b>0</b>	<b>0.0</b>
<b>In compliance</b>	<b>28</b>	<b>100.0</b>	<b>3 901 479</b>	<b>100.0</b>

##### 11.7.5. Treatment in cities > 150 000 p.e.

Ireland has four cities with a population equivalent of more than 150 000:

- Dundalk (180 000 p.e.) completed its secondary treatment in 2000. It is situated in a sensitive area (Castletown Estuary) designated in 2001.
- Dublin (2 300 000 p.e.) had only primary treatment for parts of its population on 1 January 2002. It is also situated in a sensitive area, which was designated in 2001 (Liffey Estuary). At present both secondary treatment facilities and nitrogen removal facilities are being commissioned.

<sup>53</sup> According to the Irish comment of 22 September 2003, Athey, Tralee and Waterford had a complying collecting system.

- Waterford (154 000 p.e.) discharges into the Suir Estuary. The city had no waste water treatment at the beginning of January 2002. The completion of secondary treatment is foreseen at the end of 2004.
- Cork (328 000 p.e.) did not have any waste water treatment in January 2002. Secondary treatment is planned by the end of 2003. In view of the eutrophication of the coastal waters and estuaries in this location, the Commission believes that Ireland should have identified these areas as a sensitive area, and the city of Cork should have provided more stringent treatment (nitrogen and phosphorus) since 1998.

The Commission appreciates the identification of the three above-mentioned estuaries as sensitive areas by Ireland in 2001. However, according to the Commission's findings in terms of eutrophication of these areas, including Cork Harbour, these should have been identified already at the initial identification in 1994. For this reason the cities Dundalk, Dublin and Waterford in the Commission's opinion, should have provided more stringent treatment (nitrogen and phosphorus removal) already since 1998. The same applies to Cork, but Ireland has not yet identified Cork Harbour as sensitive. Ireland believes that the above mentioned three cities fall under Article 5.7 of the Directive and do not require more stringent treatment before 2008, as they have been identified in 2001. Cork Harbour, according to Ireland's interpretation, does not require identification as a sensitive area at all, and therefore needs only biological treatment. All concerned cities are subject to an ongoing infraction case.

#### 11.7.6. Industrial waste water (Article 13)

Ireland has 38 industrial plants with a total organic load of 2 784 317 p.e. The milk-processing sector provided conformity for only 59 % of its load. Prosecution cases and work programmes are ongoing in those plants which did not respect the required conditions.

**Table 11-40: Industrial waste water with respect to Article 13 of the Directive**

Ireland - Industrial sector	Total organic load of industrial waste water plants from plants with respect to Article 13 [p.e.]	Number of plants	Total organic load respecting conditions under Article 13 at 31 December 2000 [p.e.]	%	Date of full compliance
Milk-processing	835 716	7	492 696	59	31/12/2002
Manufacture of fruit and vegetable products	1 028 600	2	1 024 160	100	31/12/2002
Meat industry	650 968	26	487 977	75	31/12/2002
Manufacture of gelatine and of glue from hides, skin and bones	141 833	2	119 338	84	31/12/2002
Fish-processing industry	127 200	1	127 200	100	31/12/2000
<b>Total</b>	<b>2 784 317</b>	<b>38</b>	<b>2 251 371</b>	<b>81</b>	<b>31/12/2002</b>

#### 11.7.7. Sewage Sludge

In the year 1999 the quantity of produced sewage sludge was 37 595 t DS coming from urban waste water treatment plants with more than 500 p.e. 23 % of it was reused in agriculture, 45 % was deposited on landfills 1 % was reused or disposed of in other ways. Although the

discharge of sewage sludge into the marine environment is forbidden (Article 14 of Directive 91/271/EEC; Irish Sea Act, 1981), 31 % of the sewage sludge was still disposed of at the sea throughout 1999. According to the recent information of 2003 all sewage sludge, which was previously disposed of at the sea has been treated and used in agriculture since 1999.

**Table 11-41: Re-use and disposal of sewerage sludge produced in waste water treatments plants**

<b>Ireland - Sewage Sludge (1999)</b>	<b>Tons DS</b>	<b>[%]</b>
<b>Sludge total production</b>	<b>37 595</b>	<b>100%</b>
Agriculture	8 734	23%
Landfill	16 753	45%
Incineration	0	0%
Marine	11 763	31%
Other or unspecified	345	1%

## **11.8. Italy**

### *11.8.1. Identification of sensitive areas*

Italy identified sensitive areas in 1999, among them seven lakes and parts of the Adriatic coast. In 2001, Italy sent a revised map showing a number of additional sensitive water bodies, but has not yet sent an official notification of these areas. The additional identifications also did not include the areas, which - according to the Commission's opinion - should have been identified as sensitive due to eutrophication (ERM-study, 1999).

In the Court Judgement of 25 April 2002 concerning the absence of waste water treatment of the city of Milano, the European Court of Justice stated that direct and indirect discharges into a sensitive area have to be subject to more stringent waste water treatment. The Commission would like to point out that this is relevant for all sensitive areas. The Italian authorities have not yet taken into account the relevant waste water discharges in catchments draining into sensitive areas. This is the subject of a further infringement procedure.

### *11.8.2. Waste water treatment in agglomerations discharging into sensitive areas*

For 2002, Italy did not send any updated information on agglomerations above 10 000 p.e. discharging into sensitive areas. More recent information was only delivered on the treatment performance in 1999, which did not include all relevant agglomerations<sup>54</sup>. Therefore, both data sources were taken into account for the assessment presented below. Italy did not clarify the data inconsistencies before the finalisation of the Commission's report.

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<sup>54</sup> For example, agglomerations such as Ballabio, Bosisio Parini, Brenta, Cernobbio, Galbiate, Lipomo, Maslianico, Oggiono, Olginate and Tavernerio representing in total 350 000 p.e., were no longer reported.

### 11.8.2.1. Treatment level

Based on the above-mentioned criteria, 49<sup>55</sup> agglomerations with more than 10 000 p.e. discharging into sensitive areas existed in Italy at the beginning of 2002; 28 agglomerations, representing 71.6 % of that load, were complying. In 11<sup>56</sup> agglomerations providing more stringent treatment, at least one of the required treatment steps (nitrogen and/or phosphorus removal and/or any other treatment) was missing. For five agglomerations no precise information on the sort of more stringent treatment was available.

A number of agglomerations seemed to be significantly overloaded and, therefore, according to the Commission's opinion, should be subject to a capacity upgrading. This was the case for example for Arcisate, Colico, Laveno Monbello, Lovere - Costa Volpino, Luino and Travedona Monate.

**Table 11-42: Treatment level of agglomerations discharging into sensitive areas**

Italy	Treatment level in agglomerations > 10 000 p.e.			
	Number	%	Nominal load [p.e.]	%
01/01/2002				
Total	49	100.0	3 024 094	100.0
More stringent treatment	46	93.9	2 981 667	98.6
<i>But missing treatment steps</i>	11	22.4	490 073	16.2
<i>But insufficient treatment capacity</i>	6	12.2	220 925	7.3
No information available (total)	5	10.2	196 853	6.5
<b>Not in compliance*</b>	<b>16</b>	<b>32.7</b>	<b>661 748</b>	<b>21.9</b>
<b>In compliance</b>	<b>28</b>	<b>57.1</b>	<b>2 165 493</b>	<b>71.6</b>

\* Including incomplete more stringent treatment and insufficient treatment capacity of plants, taking into account possible overlaps of both shortcomings (e.g. Arcisate)

### 11.8.2.2. Treatment performance (monitoring results) in sensitive areas

Italy provided information on the treatment performance in 1999 for 39 agglomerations with more than 10 000 p.e. situated in sensitive areas. According to the Commission's interpretation, the treatment performance of 18 agglomerations was complying, 21 agglomerations, which represented 54.4 % of the reported load, did not comply with the provisions of the Directive.

<sup>55</sup> 39 agglomerations were reported by Italy in the context of monitoring information of 1999, for ten agglomerations the relevant information was taken from previous data sources of 1998.

<sup>56</sup> Arcisate, Bellaria-Igea Marina, Cattolica, Coriano, Lido di Classe, Marina di Ravenna, Misano Adriatico, Orbetello-Orbetello Scalo, Rosolina Mare, Rosolina-Donada-Contarina and Savignano sul Rubicone

**Table 11-43: Treatment performance in agglomerations discharging into sensitive areas**

Italy	Treatment performance in agglomerations > 10 000 p.e.			
	Number	%	Nominal load [p.e.]	%
31/12/1999				
Total	39	100.0	2 863 257	100.0
More stringent treatment	39	100.0	2 863 257	100.0
<i>but insufficient treatment capacity</i>	6	15.4	220 925	7.7
Monitoring in compliance (Member State)*	32	82.1	2 459 313	85.9
<i>but insufficient treatment capacity</i>	5	12.8	193 539	6.8
Monitoring in compliance (EC)*	18	46.2	1 218 280	42.5
<i>but insufficient treatment capacity</i>	4	10.3	144 289	5.0
<b>Not in compliance</b>	<b>21</b>	<b>53.8</b>	<b>1 644 977</b>	<b>57.5</b>
<b>In compliance</b>	<b>18</b>	<b>46.2</b>	<b>1 218 280</b>	<b>42.5</b>

\* The discrepancies in the evaluation come from different interpretations between Italy and the Commission which nutrient parameters have to be removed for the protection of the Adriatic Sea. Certain Italian regions believe that nitrogen removal is not necessary.

### 11.8.3. Waste water treatment in agglomerations discharging into “normal areas” – situation at 31 December 2000

Italy provided information on 632 agglomerations with more than 15 000 p.e. in “normal areas”. However, according to the Commission Como and Venezia, discharge into sensitive areas. Therefore, these two agglomerations were allocated to sensitive areas and were not considered in the following assessment.

According to the Commission’s evaluation<sup>57</sup>, 312 agglomerations out of 630 were complying with the Directive by 31 December 2000. 318 agglomerations, representing 47.8 % of the reported load discharged into “normal” areas, were not complying.

The Commission would like to point out that a high number of the agglomerations discharged their waste water into potentially sensitive areas, areas which - according to the Commission’s findings - should not only provide secondary treatment, but more stringent treatment due to the eutrophication of the affected receiving waters. Furthermore, it seemed that the Italian authorities did not report all relevant agglomerations, as for example Cagliari (Sardinia) was not reported.

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<sup>57</sup> Italy assessed the compliance of its agglomerations by applying an internal system, including the classes ‘conforme’, ‘parzialmente conforme’, ‘conforme con riserva’ ‘non conforme’. According to the Commission’s criteria only the class ‘conforme’ was regarded as complying with the requirements of the Directive.

**Table 11-44: Treatment level in agglomerations discharging into “normal areas”**

<b>Italy</b>	<b>Agglomerations &gt; 15 000 p.e. - Article 4</b>			
31/12/2000	Number	%	Nominal load [p.e.]	%
Total	630	100.0	55 142 105	100.0
<b>Not in compliance</b>	<b>318</b>	<b>50.5</b>	<b>26 377 404</b>	<b>47.8</b>
<b>In compliance</b>	<b>312</b>	<b>49.5</b>	<b>28 764 701</b>	<b>52.2</b>

*11.8.4. Collecting systems*

## 11.8.4.1. Collecting systems in agglomerations discharging into sensitive areas

Out of 49 agglomerations with more than 10 000 p.e. in sensitive areas, 16 had already complied with Article 3 of the Directive by 1998. According to the Commission’s interpretation, 33 agglomerations did not seem to be equipped with a complying collecting system.

**Table 11-45: Collecting systems in agglomeration discharging into sensitive areas**

<b>Italy</b>	<b>Agglomerations &gt; 10 000 p.e. in sensitive areas – Article 3</b>			
01/01/2002	Number	%	Nominal load [p.e.]	%
Total	49	100.0	3 024 094	100.0
<b>Not in compliance</b>	<b>33</b>	<b>67.3</b>	<b>1 593 903</b>	<b>52.7</b>
<b>In compliance</b>	<b>16</b>	<b>32.7</b>	<b>1 430 191</b>	<b>47.3</b>

## 11.8.4.2. Collecting systems in agglomerations discharging into “normal areas”

According to the Commission’s opinion<sup>58</sup>, in “normal areas”, 359 of 632 agglomerations with more than 15 000 p.e. were not equipped with a complying collecting system by 31 December 2000. The latter included some large cities such as Rome (3 166 445 p.e.), Milan (2 545 000 p.e.), Torino (1 153 000 p.e.), Valle del Chiampo (952 000 p.e.), Bari (936 480 p.e.) or Napoli (800 000). For 30 agglomerations no data were available in order to assess conformity.

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<sup>58</sup> Italy assessed the compliance of the collecting systems by distinguishing different classes: “Conforme”: 90 % or more of the agglomeration provide a sewer system; “Parzialmente conforme”: Less than 90 % of the agglomeration provides a sewer system; “Conforme con riserva”: The agglomeration provides a sewer system, but the percentage of population equivalents served is not known; “Non conforme”: The agglomeration is not equipped with a sewer system; “Data non disponibile”: No information available. According to the Commission’s criteria only the class “conforme” could be regarded as in compliance with the requirements of the Directive.

**Table 11-46: Collecting systems in agglomerations discharging into “normal areas”**

Italy	Agglomerations > 15 000 p.e. - Article 3			
	Number	%	Nominal load [p.e.]	%
31/12/2000				
Total	630	100.0	55 142 105	100.0
No evaluation possible due to missing information	30	4.8	2 802 676	5.1
<b>Not in compliance</b>	<b>359</b>	<b>57.0</b>	<b>32 244 037</b>	<b>58.5</b>
<b>In compliance</b>	<b>241</b>	<b>38.3</b>	<b>20 095 392</b>	<b>36.4</b>

#### 11.8.5. Treatment in cities > 150 000 p.e.

Since Italy did not provide any updated information on the waste water treatment situation in big cities of more than 150 000 p.e. at 31 January 2002, the Commission used the relevant information of previous years and assumed that no further significant changes took place by 2002. It seemed that Italy had also included agglomerations in the sense of the Directive amongst its large cities.

On this basis, the situation regarding waste water treatment of 92 cities can be presented as follows:

- Seven cities were situated in a sensitive area and should provide more stringent treatment: Cagliari, Como, Venezia, Rimini, Rimini-S.Giustina, Ravenna and Rosolina-Donada-Contarina. According to the available information only Como, Ravenna, Rimini and Rimini-S.Giustina provided complete more stringent treatment. Venezia had nitrogen and phosphorus removal for a part of its population only, and Cagliari<sup>59</sup> provided secondary treatment alone. The situation of Rosolina-Donada-Contarina was unclear<sup>60</sup>.
- 48 cities were situated in potentially sensitive areas, and should therefore, according in the Commission’s opinion, provide more stringent treatment. However, only the cities Bergamo, Bolzano, Brescia, Parma, Peschiera, Pescia, San Miniato and Verona were equipped with more stringent treatment. Caronno Pertusella, Ranica and Santa Corce Sull’Arno also had more stringent treatment already by 1998, but were no longer reported by Italy after that time.

The situation for the remaining cities in potentially sensitive areas was as follows:

- Milano (2 545 000 p.e.) still did not have any treatment of its waste water. In this context the European Court of Justice condemned Italy on 26 April 2002. The Italian authorities announced that three waste water treatment plants are under construction which will be finished at the latest by the end of 2004.

<sup>59</sup> The city Cagliari was reported to be equipped with secondary treatment already in 1998, but no longer mentioned in later information.

<sup>60</sup> According to the second Commission report the population equivalent of the city Rosolina-Donada-Contarina was 400 000, according to the monitoring data of 1999, the city had only 27 000 p.e.



- 29 cities had secondary treatment or partial more stringent treatment.<sup>61</sup>
  - Four cities had primary treatment or partial secondary treatment: Trieste, Busto Arsizio, Rho and Firenze.
  - For three cities the situation was unclear: Carpi Correggio, Fuceccio and Tolomezzo<sup>62</sup>.
- 37 cities with a population equivalent of more than 150 000 were located in “normal areas” and should therefore be equipped with at least secondary treatment.
    - 17 cities were complying with this requirement: Livorno and Palermo had even more stringent treatment, Porto Torres, San Benedetto del Tronto, Pescara, Caserta, Melito di Napoli, Orta di Atella, Scalea, Catanzaro, Reggio di Calabria and Sassari provided secondary treatment. According to previous information, also Acerra, Area Casertana, Area Nolana, Foce Regi Iagni and Frosinone provided secondary treatment, but were no longer included in more recent information.
    - Eleven cities in “normal areas” had primary treatment or partial secondary treatment only: Genova, Massa, Lucca, Rome, Latina, Taranto, Maglie, Rende, Lamezia Terme, Messina, Catania<sup>63</sup>
    - Four further cities also were not equipped with complete secondary treatment, for which the provided treatment level, if any, was not evident: L’Aquila (secondary treatment not before 2004), Foggia (secondary treatment not before 2003), Bari (secondary treatment not before 2003) and Lecce (secondary treatment not before 2003).
    - Napoli’s situation was unclear.<sup>64</sup>
    - Foce Sarno, Imperia Foce Imperia, Medio Sarno and Misterbianco still do not have any waste water treatment.

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<sup>61</sup> Merano, Trento, Udine, Cervignano del Friuli, Cartigliano, Chiampo, Lignano, Montebello Vicentino, Padova, Monza, Cinisello, Varese, Magenta, Pavia, Torino, Reggio Emilia, Modena, Ferrara, Bologna, Lugo, Pesca, Prato and Andria. For the second Commission report also Bassa Friulana, Capannori Porcari, Milano Niguarda, Milano/Peschiera/Borromeo, Pero-Milano, Robecco and San Colombano al Lambro were said to be equipped with secondary treatment by 1998, but were no longer reported after that time.

<sup>62</sup> For the second Commission report, Carpi Correggio and Fuceccio were reported to be already equipped with more stringent treatment by 1998, but in later information the treatment level was not confirmed and the reported load was significantly smaller. Tolmezzo will be equipped with secondary treatment but not before 2004, and the current waste water treatment, if any, was not indicated.

<sup>63</sup> According to previous information, Catania had 1 000 000 p.e. and secondary treatment by 1998, according to recent information (2000) it had 350 000 p.e. and was only partly complying with secondary treatment.

<sup>64</sup> Due to previous information, Napoli had 4 488 068 p.e. and secondary treatment, according to more recent information (2000) the load was 800 000 p.e. and secondary treatment not completed by 2000.

The Italian authorities did not clarify the above-mentioned discrepancies in their data before the finalization of the report.

#### 11.8.6. Industrial waste water (Article 13)

In Italy, all 151 industrial plants falling under Article 13 of the Directive representing a total organic load of 19 497 700 p.e. complied already before 31 December 2000.

**Table 11-47: Industrial waste water with respect to Article 13 of the Directive**

Italy - Industrial sector	Total organic load of industrial waste water from plants with respect to Article 13 [p.e.]	Number of plants	Total organic load respecting conditions under Article 13 [p.e.] at 31 December 2000	%	Date of full compliance
Milk-processing	4 970 749	39	4 970 749	100	Before 31/12/2000
Manufacture of fruit and vegetable products	11 135 099	58	11 135 099	100	Before 31/12/2000
Potato-processing	326 667	1	326 667	100	Before 31/12/2000
Meat industry	1 155 636	26	1 155 636	100	Before 31/12/2000
Breweries	92 925	2	92 925	100	Before 31/12/2000
Production of alcohol and alcoholic beverages	1 671 667	15	1 671 667	100	Before 31/12/2000
Manufacture of animal feed from plant products	97 107	4	97 107	100	Before 31/12/2000
Manufacture of gelatine and of glue from hides, skin and bones	23 718	2	23 718	100	Before 31/12/2000
Malt-houses	12 000	1	12 000	100	Before 31/12/2000
Fish-processing industry	12 003	3	12 003	100	Before 31/12/2000
<b>Total</b>	<b>19 497 571</b>	<b>151</b>	<b>19 497 571</b>	<b>100</b>	

#### 11.8.7. Sewage Sludge

The available information on sewage sludge was incomplete (source situation report according to Article 16 of the Directive).

## 11.9. Luxembourg

### 11.9.1. Identification of sensitive areas

Luxembourg has decided to implement more stringent treatment over all its territory according to Article 5(8) of the Directive. It is therefore not required to identify sensitive areas. Luxembourg applies this option for the elimination of nitrogen and phosphorus.

### 11.9.2. Agglomerations of more than 10 000 p.e.

#### 11.9.2.1. Treatment level

Luxembourg has decided to apply the option of Article 5(4) of the Directive and consider the percentage reduction in the overall load entering its treatment plants. The percentage of reduction in the overall load entering all the country's treatment plants has therefore to be at least 75% for phosphorus and at least 75% for nitrogen. However, until Article 5(4) is fully implemented, Luxembourg verifies the conformity for each agglomeration/treatment plant separately.

Luxembourg has eleven agglomerations with a population equivalent of more than 10 000. In 1998, when the deadline of the Directive for sensitive areas expired, only three of these agglomerations were in conformity. This situation has not yet changed.

In 2002, still eight of the eleven agglomerations were not in conformity with the provisions of the Directive because of missing treatment steps in terms of tertiary treatment:

Bettembourg, Diekirch, Luxembourg-Beggen, Luxembourg-Bonnevoie and Schifflange provided secondary treatment followed by phosphorus removal, Differdange, Echternach, Mersch provided secondary only. These agglomerations represent 86.5% of the waste water load of Luxembourg's agglomerations.

Luxembourg has announced its intention to achieve conformity for these agglomerations at the latest by 2005.

**Table 11-48: Treatment level of agglomerations >10 000 p.e.**

Luxembourg	Treatment level in agglomerations > 10 000 p.e. – Article 5			
	Number	%	Nominal load [p.e.]	%
01/01/2002				
Total	11	100.0	804 500	100.0
More stringent treatment	8	72.7	708 500	88.1
<i>but missing treatment steps</i>	5	45.4	600 000	74.6
<i>but insufficient treatment capacity</i>	0	0.0	0	0.0
<b>Not in compliance</b>	<b>8</b>	<b>72.7</b>	<b>696 000</b>	<b>86.5</b>
<b>In compliance</b>	<b>3</b>	<b>27.3</b>	<b>108 500</b>	<b>13.5</b>

### 11.9.2.2. Treatment performance (monitoring results)

The required minimum reduction of 75 % for both nitrogen and phosphorus has not been achieved in recent years. The monitoring data of 1999 showed that the percentage of phosphorus reduction was 74 %, but the nitrogen reduction reached only 30 %.

### 11.9.3. Collecting systems

The collecting system of each of the 11 agglomerations with more than 10 000 p.e. was in conformity with Article 3 of the Directive by 1998.

**Table 11-49: Collecting systems in agglomerations > 10 000 p.e.**

Luxembourg	Agglomerations > 10 000 p.e. - Article 3			
	Number	%	Nominal load [p.e.]	%
01/01/2002				
Total	11	100.0	804 500	100.0
<b>Not in compliance</b>	<b>0</b>	<b>0.0</b>	<b>0</b>	<b>0.0</b>
<b>In compliance</b>	<b>11</b>	<b>100.0</b>	<b>804 500</b>	<b>100.0</b>

### 11.9.4. Treatment in cities > 150 000 p.e.

The only city of the Grand Duchy of Luxembourg, which exceeds 150 000 p.e., is Luxembourg (360 000 p.e.). Its two waste water treatment plants provide phosphorus elimination only. The required nitrogen elimination is planned for 2005.

### 11.9.5. Industrial waste water (Article 13)

Luxembourg does not have any industrial waste water discharges, which fall under Article 13 of the Directive.

### 11.9.6. Sewage Sludge

In 1999 the quantity of sewage sludge produced in Denmark was 6 800 t DS. 83.8 % of it was reused in agriculture, 4.6 % was deposited on landfills and 11.6 % was reused or disposed of in other ways.

**Table 11-50: Re-use and disposal of sludge produced in waste water treatment plants**

Luxembourg - Sewage Sludge (1999)	Tons DS	%
<b>Sludge total production</b>	<b>6 800</b>	<b>100</b>
Agriculture	5 698	83.8
Landfill	313	4.6
Other	789	11.6

## **11.10. The Netherlands**

### *11.10.1. Identification of sensitive areas*

The Netherlands decided to implement more stringent treatment (elimination of nitrogen and phosphorus) over all its territory according to Article 5(8) of the Directive. The Netherlands is therefore not required to identify sensitive areas for the purposes of the Directive.

### *11.10.2. Agglomerations*

#### 11.10.2.1. Treatment level

The Netherlands decided to apply Article 5(4) of the Directive, consequently, the requirement of the Directive that each treatment plant of more than 10 000 p.e. has to provide more advanced treatment does not apply to the Netherlands. However, the Dutch authorities must show that the minimum percentage of reduction in the overall load entering all the country's waste water treatment plants is at least 75 % for total phosphorus and at least 75 % for total nitrogen (see chapter 11.10.2.2).

The required 75 % reduction of phosphorus was already achieved in 1998. The Netherlands reported that even 77.4 % reduction of P was achieved in 1999, and 78.6 % in 2000. The required rate of nitrogen reduction, however, has not yet been reached. In 1999, 63.6 % nitrogen reduction was achieved and in 2000, 65.8 %.

The Dutch authorities stated that seven water authorities, operating 61 waste water treatment plants, reached an elimination rate of nitrogen of at least 75 %. The nominal load of these water authorities represented 17 % of the total nominal load. In addition, 116 urban waste water treatment plants representing 36 % of the total nominal load of the reported agglomerations, reached the required elimination target of 75 % nitrogen reduction.

In the course of its evaluation the Commission found that, according to the data provided the organic design capacity of at least 26 agglomerations seemed to be too small for a sufficient waste water treatment. This included the agglomerations of Woerden (nominal load 72 000 p.e., organic design capacity 56 970 p.e.) and Noordoostpolder (nominal load 72 000 p.e., organic design capacity 57 600 p.e.), which were said by the Dutch authorities to be upgraded including their collecting systems.

#### 11.10.2.2. Treatment performance (monitoring results)

To show compliance with Article 5.4 of the Directive, the Dutch authorities provided monitoring information of 1999 on 394 agglomerations with a total nominal load of 15 906 991 p.e. According to this information all agglomerations achieved a percentage of phosphorus reduction of at least 75 % (77.4 % of the total nominal load). The percentage of nitrogen reduction was 63.6 % at that time.

However, for the Commission it was not evident, whether the total nominal load of 15 906 991 p.e. represented the load of the entire country, in particular, as the total nominal load of agglomerations published in the second Commission report, which had received the Dutch authorities' approval, was 17 218 000 p.e. In 2003, the Netherlands stated that the

previous information was not correct, as it included the load of industrial waste water discharged directly into surface waters.

### 11.10.3. Collecting systems

All Dutch agglomerations with a total nominal load of more than 10 000 p.e. were already equipped with a complying collecting system by 31 December 1998. This included also those five agglomerations which were reported in 1999 for the first time (see section 11.10.2.1).

**Table 11-51: Collecting systems**

The Netherlands	Agglomerations > 10 000 p.e. - Article 3			
01/01/2002	Number	%	Nominal load [p.e.]	%
Total	256	100.0	15 265 763	100.0
<b>Not in compliance</b>	<b>0</b>	<b>0.0</b>	<b>0</b>	<b>0.0</b>
<b>In compliance</b>	<b>256</b>	<b>100.0</b>	<b>15 265 763</b>	<b>100.0</b>

The Dutch authorities stated that in 2000 only 1.8 % of all households in the Netherlands were not served by a collecting system. All existing collecting systems were connected to treatment plants providing at least secondary treatment.

### 11.10.4. Treatment in cities > 150 000 p.e.

The Netherlands has 21 cities with a population equivalent of more than 150 000. Only the city of Haarlem provided both, nitrogen and phosphorus removal. One of the two urban waste water treatment plants<sup>65</sup> serving the city of Arnhem and two of the five plants<sup>66</sup> serving the city of Rotterdam provided nitrogen and phosphorus removal as well. The remaining cities were equipped with secondary treatment followed by phosphorus removal.

### 11.10.5. Industrial waste water (Article 13)

17 Dutch industrial plants, representing a total organic load of 2 096 400 p.e. were affected by Article 13. 100 % of the total organic load respected the provisions of Article 13 already before 31 December 2000.

<sup>65</sup> Arnhem: Nieuwgraaf: nitrogen and phosphorus removal, organic design capacity 270 000 p.e. (representing 71% of the total organic design capacity).

<sup>66</sup> Cap ad IJssel-Groenedijk: nitrogen and phosphorus removal, organic design capacity 63 000 p.e.; Cap ad IJssel-Kralingsveer: nitrogen and phosphorus removal, organic design capacity 324 000 p.e. (both representing in sum 41% of the total organic design capacity)

**Table 11-52: Industrial waste water with respect to Article 13 of the Directive**

The Netherlands – Industrial sector	Total organic load of industrial waste water plants from plants with respect to Article 13 [p.e.]	Number of plants	Total organic load respecting conditions under Article 13 at 31 December 2000 [p.e.]	%	Date of full compliance
Milk-processing	47 500	1	47 500	100	31/12/1985
Manufacture of fruit and vegetable products	126 000	2	126 000	100	31/12/1980
Potato-processing	1 380 000	10	1 380 000	100	31/12/1991
Meat industry	45 000	1	45 000	100	31/12/1978
Breweries	450 000	2	450 000	100	31/12/1980
Manufacture of gelatine and of glue from hides, skin and bones	47 900	1	47 900	100	31/12/1978
<b>Total</b>	<b>2 096 400</b>	<b>17</b>	<b>2 096 400</b>	<b>100</b>	

#### 11.10.6. Sewage Sludge

In 2000 the quantity of produced sewage sludge was 336 000 t DS. No sludge was reused in agriculture, 19 % was deposited on landfills, 58 % incinerated and 23 % was reused or disposed of in other ways.

**Table 11-53: Re-use and disposal of sludge produced waste water treatment plants**

The Netherlands – Sewage Sludge (2000)	Tons DS	[%]
<b>Sludge total production</b>	336 000	100
Agriculture	0	0
Landfill	64 000	19
Incineration	195 000	58
Other reuse	77 000	23

### 11.11. Austria

#### 11.11.1. Identification of sensitive areas

In 1996 Austria found that no water body in its territory corresponded to the criteria for the identification of sensitive areas of the Directive. This position was confirmed in its review of sensitive areas in 1998. Due to the Commission's verification study of 1999, however, two rivers should have been identified as sensitive due to the risk of eutrophication. The Austrian authorities showed that in those areas all measures concerning waste water treatment, even beyond the requirements of the Directive, had already been undertaken. At the end of 2002 Austria decided to apply Article 5.8 of the Directive and to implement officially more stringent treatment over its entire territory. It is therefore not required to identify sensitive areas for the purpose of the Directive.

### 11.11.2. Waste water treatment in agglomerations discharging into sensitive areas

#### 11.11.2.1. Treatment level

Even though Austria did not designate sensitive areas, the Austrian authorities reported on account of Article 5.5 of the Directive on waste water treatment in the catchment areas of the River Rhine, River Elbe and the Bavarian lakes designated as sensitive areas by Germany.

In Austria a total of 25 agglomerations with a population equivalent of more than 10 000 discharged into sensitive areas or into the catchment areas of the above-mentioned sensitive areas. 13 of these agglomerations discharged into the catchment area of the River Rhine (via Lake Constance), one agglomeration discharged into the Elbe catchment, and eleven into tributaries of the sensitive areas of the Bavarian Lakes. These 25 agglomerations shall be subject to more stringent treatment according to Article 5(5) of the Directive.

By 1 January 2002, each of these agglomerations was equipped with more stringent treatment (elimination of both nitrogen and phosphorus). Hence, all agglomerations were in compliance with the provisions of the Directive.

**Table 11-54: Treatment level of agglomerations discharging into sensitive areas or their catchments identified by other Member States**

<b>Austria</b>	<b>Treatment level in agglomerations &gt; 10 000 p.e. – Article 5</b>			
01/01/2002	Number	%	Nominal load [p.e.]	%
Total	25	100.0	1 851 885	100.0
More stringent treatment	25	100.0	1 851 885	100.0
<i>but missing treatment steps</i>	0	0.0	0	0.0
<i>but insufficient treatment capacity</i>	0	0.0	0	0.0
<b>Not in compliance</b>	<b>0</b>	<b>0.0</b>	<b>0</b>	<b>0.0</b>
<b>In compliance</b>	<b>25</b>	<b>100.0</b>	<b>1 851 885</b>	<b>100.0</b>

#### 11.11.2.2. Treatment performance (monitoring results)

The Austrian authorities provided monitoring data on the above mentioned 25 agglomerations for the year 2000. According to the Commission's opinion, at least the elimination of nitrogen is required for waste water discharges into the catchment area of the North Sea. For waste water discharges into the Bavarian lakes, at least the elimination of phosphorus is foreseen.

Due to insufficient treatment performance in the year 2000, five agglomerations were not in conformity with the above described treatment requirements. They represent 20.7 % of the total load of the concerned agglomerations. Concerning these five agglomerations, the Austrian authorities made the following comments:

- Going (phosphorus removal required) was not in conformity in 2000 due to technical problems in the first half of that year. This problem has already been solved. In the year 2001 the elimination rate of phosphorus was 86 % (0.78 mg/l).
- Hohenems (nitrogen removal required): Due to old technologies it was not possible to meet the requirements of the Directive. The plant is being upgraded with newer technologies.



- Bregenz (nitrogen removal required) did not provide denitrification facilities by the year 2000. At present denitrification facilities are being built.
- Montafon (nitrogen removal required) provided nitrogen removal facilities since 2000. During the flood events of August 2000 the plant was damaged. Therefore, the requirements of the Directive could not be fulfilled.
- Walgau (nitrogen removal required) was subject to an optimisation process in the year 2000. Therefore, the requirements of the Directive were not fulfilled in that year.

**Table 11-55: Treatment performance in agglomerations discharging into sensitive areas or their catchments identified by other Member States**

Austria	Treatment performance in agglomerations > 10 000 p.e.				
	31/12/2000	Number	%	Nominal load [p.e.]	%
Total		25	100.0	1 871 885	100.0
More stringent treatment		25	100.0	1 871 885	100.0
<i>but insufficient treatment capacity</i>		0	0.0	0	0.0
Monitoring in compliance (Member State)		20	80.0	1 483 665	79.3
<i>but insufficient treatment capacity</i>		0	0.0	0	0.0
Monitoring in compliance (EC)		20	80.0	1 483 665	79.3
<i>but insufficient treatment capacity</i>		0	0.0	0	0.0
<b>Not in compliance</b>		<b>5</b>	<b>20.0</b>	<b>388 220</b>	<b>20.7</b>
<b>In compliance</b>		<b>20</b>	<b>80.0</b>	<b>1 483 665</b>	<b>79.3</b>

*11.11.3. Treatment in agglomerations discharging into “normal areas” – situation at 31 December 2000*

In Austria 181 agglomerations with a population equivalent of more than 15 000 discharged into “normal areas”. All those agglomerations were provided with at least secondary treatment, and therefore in conformity with Article 4 of the Directive.

**Table 11-56: Treatment level in agglomerations discharging into “normal areas”**

Austria	Agglomerations > 15 000 p.e. – Article 4				
	31/12/2000	Number	%	Nominal load [p.e.]	%
Total		181	100.0	15 189 287	100.0
<b>Not in compliance</b>		<b>0</b>	<b>0.0</b>	<b>0</b>	<b>0.0</b>
<b>In compliance</b>		<b>181</b>	<b>100.0</b>	<b>15 189 287</b>	<b>100.0</b>

#### 11.11.4. Collecting systems

##### 11.11.4.1. Collecting systems in agglomerations discharging into sensitive areas or their catchments identified by other Member States

Each Austrian agglomeration, with more than 10 000 p.e. discharging into a sensitive area or its catchment of an other Member State, was already equipped with a complying collecting system by 31 December 1998.

**Table 11-57: Collecting systems in agglomerations discharging into sensitive areas or their catchments identified by other Member States**

<b>Austria</b>	<b>Agglomerations &gt; 10 000 p.e. – Article 3</b>			
01/01/2002	Number	%	Nominal load [p.e.]	%
Total	25	100.0	1 851 885	100.0
<b>Not in compliance</b>	<b>0</b>	<b>0.0</b>	<b>0</b>	<b>0.0</b>
<b>In compliance</b>	<b>25</b>	<b>100.0</b>	<b>1 851 885</b>	<b>100.0</b>

##### 11.11.4.2. Collecting systems in agglomerations discharging into “normal areas”

Each Austrian agglomeration with a population equivalent of more than 15 000 discharging into a “normal area” was provided with a complying collecting system by 31 December 2000, and therefore in conformity with Article 3 of the Directive.

**Table 11-58: Collecting systems in agglomerations discharging into “normal areas”**

<b>Austria</b>	<b>Agglomerations &gt; 15 000 p.e. – Article 3</b>			
31/12/2000	Number	%	Nominal load [p.e.]	%
Total	181	100.0	15 189 287	100.0
<b>Not in compliance</b>	<b>0</b>	<b>0.0</b>	<b>0</b>	<b>0.0</b>
<b>In compliance</b>	<b>181</b>	<b>100.0</b>	<b>15 189 287</b>	<b>100.0</b>

#### 11.11.5. Treatment in cities > 150 000 p.e.

Austria reported information on 21 “cities” with a population equivalent of more than 150 000. However, due to Austria’s recent comments in 2003, actually only three cities with more than 150 000 p.e. exist<sup>67</sup> (evaluations of the Austrian Central Statistical Office). The Austrian authorities mentioned that the above 21 “cities” were in fact agglomerations, which in certain cases treated to a large extent industrial waste water and less so urban waste water. Some of these agglomerations served several municipalities and were therefore considered as one single agglomeration/city. In the context of this report the term “city” includes all the above mentioned cases.

<sup>67</sup> Wien, Graz and Linz

The situation in Austrian agglomerations with a population equivalent of more than 150 000 was as follows:

- Three cities (Hard/Hofsteig, Dornbirn and Feldkirch) were situated in the catchment of the sensitive area of the North Sea. In January 2002 these three agglomerations provided more stringent treatment of nitrogen and phosphorus.
- 17 out of the remaining 18 cities discharging into a 'normal area' were also equipped with more stringent treatment removing nitrogen and/or phosphorus). Only Graz was equipped with secondary treatment, only. However, more stringent treatment is planned to be operational by the year 2004.

#### 11.11.6. Industrial waste water (Article 13)

Austria reported 18 industrial plants falling under Article 13 of the Directive. The total organic load of these plants was 1 788 900 p.e. All plants were in compliance with the Directive before 2000.

**Table 11-59: Industrial waste water with respect to Article 13 of the Directive**

Austria – Industrial sector	Total organic load of industrial waste water from plants with respect to Article 13 [p.e.]	Number of plants	Total organic load respecting conditions under Article 13 at 31 December 2000 [p.e.]	%	Date of full compliance
Milk-processing	26 900	3	26 900	100	before 31/12/2000
Manufacture of fruit and vegetable products	110 000	1	110 000	100	Before 31/12/2000
Manufacture and bottling of soft drinks	150 000	1	150 000	100	Before 31/12/2000
Potato-processing	1 446 600	5	1 446 600	100	Before 31/12/2000
Meat industry	51 300	7	51 300	100	Before 31/12/2000
Fish-processing industry	4 100	1	4 100	100	before 31/12/2000
<b>Total</b>	<b>1 788 900</b>	<b>18</b>	<b>1 788 900</b>	<b>100</b>	

#### 11.11.7. Sewage Sludge

In the year 2000 the quantity of produced sewage sludge in Austria was 314 806 t DS. 12 % of it was re-used in agriculture, 13 % was deposited in landfills, 48 % incinerated and 27 % was re-used or disposed of in other ways.

**Table 11-60: Re-use and disposal of sludge produced in waste water treatment plants**

Austria – Sewage Sludge (2001)	Tons DS	%
<b>Sludge total production</b>	<b>314 806</b>	<b>100</b>
Agriculture	37 315	12
Landfill	40 831	13
Incineration	151 044	48
Other	85 616	27

## 11.12. Portugal

### 11.12.1. Identification of sensitive areas

In June 1997, Portugal officially identified 41 water bodies as sensitive. The criteria applied were the combat of eutrophication and the need for the reduction of microbiological pollution for the protection of bathing waters as well as the protection of waters for human consumption.

The Commission's verification study on the identification of the sensitive areas carried out in 1999-2000 indicated that four additional water bodies should have been identified as sensitive. Portugal contests the result of the Commission's study and has presented detailed scientific studies, which are currently under evaluation by the Commission. At present the Commission still believes that these areas should have been identified as sensitive. In addition, Portugal has announced its intention to identify further sensitive areas, but so far the Commission has not received the official Portuguese notification.

### 11.12.2. Waste water treatment in agglomerations discharging into sensitive areas

#### 11.12.2.1. Treatment level

At 1 January 2002, Portugal had 27 agglomerations with more than 10 000 p.e. discharging into sensitive areas.

Only 6 of the reported agglomerations were provided with the required more stringent treatment level (secondary treatment followed by nitrogen elimination and/or phosphorus elimination and/or microbiological treatment). Due to insufficient waste water treatment, 21 agglomerations were not in conformity. In addition, Faro's treatment plants seemed to be heavily overloaded. The total design capacity was 99 000 p.e., but the nominal load of the agglomerations 155 000 p.e. Therefore the agglomerations of Faro were not considered as in conformity. The Portuguese authorities reported that the treatment plant Faro-Noroeste was going to be enlarged. In total, 22 agglomerations representing 89.2 % of the total nominal load, were not in conformity.

Out of those non-complying agglomerations, the following did not yet have any waste water treatment at January 2002: Curia e Tamengos (20 000 p.e.), S. Pedro do Sul/Vouzela (15 000 p.e.), Bacia da Rib. de Caster (18 000 p.e.), Bacia da Rib. de Lage (17 000 p.e.), Barreiro/Moita/Palhais (239 000 p.e.), Moita (48 100 p.e.), Seixal (80 000 p.e.) and Lamego (15 000 p.e.).

**Table 11-61: Treatment level of agglomerations discharging into sensitive areas**

Portugal	Treatment level in agglomerations > 10 000 p.e. – Article 5				
	01/01/2002	Number	%	Nominal load [p.e.]	%
Total		27	100.0	1 372 700	100.0
More stringent treatment		6	22.2	303 500	22.1
<i>but missing treatment steps</i>		0	0.0	0	0.0
<i>but insufficient treatment capacity</i>		1	3.7	155 000	11.3
<b>Not in compliance</b>		<b>22</b>	<b>81.5</b>	<b>1 224 200</b>	<b>89.2</b>
<b>In compliance</b>		<b>5</b>	<b>18.5</b>	<b>148 500</b>	<b>10.8</b>

### 11.12.2.2. Treatment performance (monitoring results) in sensitive areas

Only three of the 27 affected agglomerations were completely in conformity with the provisions of the Directive<sup>68</sup>. The 24 agglomerations which had had no complying treatment performance (or no treatment of their waste water at all) represented 96.1 % of the load of the concerned agglomerations.

**Table 11-62: Treatment performance in agglomerations discharging into sensitive areas**

Portugal	Treatment performance in agglomerations > 10 000 p.e.			
	Number	%	Nominal load [p.e.]	%
31/12/1999				
Total	27	100.0	1 345 784	100.0
More stringent treatment	7	25.9	293 000	21.8
<i>but insufficient treatment capacity</i>	1	3.7	155 000	11.5
Monitoring in compliance (MS)*	3	11.1	53 000	3.9
<i>but insufficient treatment capacity</i>	0	-	0	-
Monitoring in compliance (EC)*	3	11.1	53 000	3.9
<i>but insufficient treatment capacity</i>	0	-	0	-
<b>Not in compliance</b>	<b>24</b>	<b>88.9</b>	<b>1 292 784</b>	<b>96.1</b>
<b>In compliance</b>	<b>3</b>	<b>11.1</b>	<b>53 000</b>	<b>3.9</b>

\*Some of the treatment plants did not provide the required microbiological treatment and were therefore considered to have no "more stringent treatment". The monitoring data for BOD5 and COD of the plants were in conformity with the provisions of the Directive.

### 11.12.3. Waste water treatment in agglomerations discharging into "normal areas" - situation at 31 December 2000

As at 31 December 2000, 94 agglomerations with a population equivalent of more than 15 000 discharged their effluents into "normal areas", including less sensitive areas. Only 45 were provided with at least secondary treatment. 62.8 % of the total nominal load of the concerned agglomerations was not in conformity with Article 4 of the Directive.

**Table 11-63: Treatment level in agglomerations discharging into "normal areas"**

Portugal	Agglomerations > 15 000 p.e. - Article 4			
	Number	%	Nominal load [p.e.]	%
31/12/2000				
Total	94	100.0	8 455 900	100.0
<b>Not in compliance</b>	<b>49</b>	<b>52.1</b>	<b>5 306 700</b>	<b>62.8</b>
<b>In compliance</b>	<b>45</b>	<b>47.9</b>	<b>3 149 200</b>	<b>37.2</b>

<sup>68</sup> Olhão Nascente, Quinta do Lago and Amarante

#### 11.12.4. Collecting systems

##### 11.12.4.1. Collecting systems in agglomerations discharging into sensitive areas

Based on the available data, five agglomerations still did not provide a complying collecting system and, therefore, were evaluated as being not in compliance with Article 3 of the Directive. The five agglomerations were: Fuzeta (no information available), Feira-Bacia da Rib. de Caster, Feira-Bacia da Rib. de Lage, Quinta do Conde and Armação de Pera/Albufeira.

**Table 11-64: Collecting systems in agglomerations discharging into sensitive areas**

<b>Portugal</b>	<b>Agglomerations &gt; 10 000 p.e. - Article 3</b>			
01/01/2002	Number	%	Nominal load [p.e.]	%
Total	27	100.0	1 372 700	100.0
<b>Not in compliance</b>	<b>5</b>	<b>18.5</b>	<b>249 800</b>	<b>18.2</b>
<b>In compliance</b>	<b>22</b>	<b>81.5</b>	<b>1 122 900</b>	<b>81.8</b>

##### 11.12.4.2. Collecting systems in agglomerations discharging into “normal areas”

At 31 December 2000, 25 of the 94 agglomerations with more than 15 000 p.e. in “normal areas” were not in conformity with Article 3 of the Directive. The list of agglomerations without a complying collecting system included large agglomerations such as Cova da Beira (160 000 p.e.) or Costa de Aveiro (315 000 p.e.).

**Table 11-65: Collecting systems in agglomerations discharging into “normal areas”**

<b>Portugal</b>	<b>Agglomerations &gt; 15 000 p.e. - Article 3</b>			
31/12/2000	Number	%	Nominal load [p.e.]	%
Total	94	100.0	8 455 900	100.0
<b>Not in compliance</b>	<b>25</b>	<b>26.6</b>	<b>1 799 600</b>	<b>21.3</b>
<b>In compliance</b>	<b>69</b>	<b>73.4</b>	<b>6 656 300</b>	<b>78.7</b>

#### 11.12.5. Treatment in cities >150 000 p.e.

Portugal has 13 cities with a population equivalent of more than 150 000. On 1 January 2002, the waste water treatment situation in the 13 cities was as follows:

- Three cities were situated in sensitive areas:
  - Faro, which provided more stringent treatment (microbiological treatment). Aveiro (315 000 p.e.) had primary treatment only<sup>69</sup> and Barreiro (239 800 p.e.) had no treatment at all.

<sup>69</sup> Portugal is of the opinion that Aveiro is to be considered as a city discharging into a less sensitive area (Atlantic coast).

- The cities Loures, Cova da Beira (Covilhã/Fundão) and Alcanena discharged into potentially sensitive areas, which means that they should, according to the Commission's opinion, be provided with more stringent treatment (secondary treatment followed by nitrogen and/or phosphorus removal and/or any other treatment) as well:
  - From those cities only Alcanena was equipped with full and more stringent treatment, Loures had more stringent treatment for parts of its population only.
  - Cova da Beira (160 000 p.e.) had no treatment at all.
- The remaining cities were situated in "normal areas" :
  - However some of them were also equipped with tertiary treatment. Setúbal and Vilamoura (Quarteira). Lisbon and Porto were partially equipped with more stringent treatment.
  - Two cities/agglomerations had preliminary or primary treatment only: Costa do Estoril (720 000 p.e.) and Matosinhos (287 000 p.e.). For the Estoril coast, which is situated in a less sensitive area, a derogation was granted by the Commission in 2001. For Matosinhos no derogation exists.
  - Vila Nova de Gaia (200 000 p.e.) did not have any waste water treatment.

#### *11.12.6. Less sensitive areas*

In 1997, the Portuguese national authorities identified all their coastal waters, except the waters of the Algarve, as less sensitive. The regional authorities of the Azores and Madeira also consider all their coastal waters to be less sensitive.

In 2001, Portugal was granted a derogation according to Article 8(5) of the Directive for the agglomeration of Costa do Estoril (720 000 p.e.) near Lisbon. This derogation allows less stringent waste water treatment than biological treatment due to the specific hydrodynamic conditions of that coastal area and foresees a re-evaluation of the situation by the Commission in 2006<sup>70</sup>. The agglomeration Costa de Estoril does not yet fulfil the provisions set out in the Commission Decision on the derogation.

Concerning the other Portuguese coastal waters, Portugal announced it would revoke its less sensitive areas, except those of the Azores and Madeira. However, it has not yet done so officially.

The Commission does not agree to the current Portuguese identification of less sensitive as it believes that some of the areas do not fulfil the criteria set out in the Directive in view of the risk of the contamination of a large number of bathing waters and also shellfish waters. The Commission is of the opinion that all Portuguese agglomerations of more than 15 000 p.e., apart from the Estoril Coast, should have been provided with at least secondary treatment by 31 December 2000, including those which discharge into the less sensitive areas identified by

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<sup>70</sup> Commission Decision of 8 October 2001 granting Portugal a derogation regarding waste water treatment for the agglomeration of the Estoril coast (2001/720/EC). OJ L 269/14, 10.10.2001.

the Portuguese authorities.

#### 11.12.7. Industrial waste water (Article 13)

In Portugal, 92 industrial plants with a total organic load of 3 479 201 p.e. are affected by Article 13 of the Directive. 94 % of the total organic load was already in compliance. Full conformity with Article 13 was announced to be achieved by 31 December 2005.

**Table 11-66: Industrial waste water with respect to Article 13 of the Directive**

Portugal - Industrial sector	Total organic load of industrial waste water from plants with respect to Article 13 [p.e.]	Number of plants	Total organic load respecting conditions under Article 13 at 31 December 2000 [p.e.]	%	Date of full compliance
Milk-processing	494 017	26	349 867	71	31/12/2005
Manufacture of fruit and vegetable products	928 072	16	923 295	99	31/12/2004
Manufacture and bottling of soft drinks	6 000	1	6 000	100	31/12/1995
Potato-processing	32 460	1	32 460	100	31/12/1994
Meat industry	675 149	33	634 283	94	31/12/2003
Breweries	1 180 637	4	1 180 637	100	01/09/1999
Production of alcohol and alcoholic beverages	141 958	9	131 978	93	31/12/2003
Malt-houses	12 500	1	12 500	100	01/09/1999
Fish-processing industry	8 408	1	8 408	100	31/12/1994
<b>Total</b>	<b>3 479 201</b>	<b>92</b>	<b>3 279 428</b>	<b>94</b>	

#### 11.12.8. Sewage Sludge

In 2000, Portugal's sewage sludge production was 177 456 t dry substance (DS). No information on the re-use or disposal of sludge was available.

### 11.13. Finland

#### 11.13.1. Identification of sensitive areas

Finland has decided to implement more stringent treatment over all its territory pursuant to Article 5(8) of the Directive. It is therefore not required to identify sensitive areas for the purpose of the Directive.

According to the second implementation report of the Commission, the Finnish authorities foresee the elimination of phosphorus for all agglomerations of more than 10 000 p.e., but not the elimination of nitrogen. However, as phosphorus and nitrogen are the cause of the eutrophication in the Baltic, the Commission still believes that tertiary treatment of both phosphorus and nitrogen would be essential in agglomerations of more than 10 000 p.e. discharging into the catchment area of the Baltic. The information provided by the Finnish authorities on this issue is currently under evaluation.



### 11.13.2. Agglomerations of more than 10 000 p.e.

#### 11.13.2.1. Treatment level

By 2002 all 87 agglomerations reported by Finland were provided with more stringent treatment, however, in most cases only in terms of phosphorus removal. On the basis of the above raised requirement of phosphorus and nitrogen removal in all agglomerations with more than 10 000 p.e. discharging into the catchment of the Baltic, only eleven agglomerations were considered to be in conformity with the provisions of the Directive.

Furthermore, the organic design capacity of at least 39 agglomerations<sup>71</sup> seemed to be too small for a sufficient waste water treatment. This also concerned some large agglomerations such as Pori Luotsinmäki (nominal load: 222 000 p.e., organic design capacity: 167 000 p.e.), Helsinki (nominal load: 1 131 000 p.e., organic design capacity: 738 000 p.e.), and Tampere - Viinikanlahsi (nominal load: 463 000 p.e., organic design capacity: 242 000 p.e.).

In addition, the information on Finland's agglomerations and treatment plants was not totally consistent with i with the information provided to the Commission in response to previous data requests.<sup>72</sup>

**Table 11-67: Treatment level of agglomerations > 10 000 p.e.**

Finland	Treatment level in agglomerations > 10 000 p.e. –			
	Article 5			
01/01/2002	Number	%	Nominal load [p.e.]	%
Total	87	100.0	6 377 300	100.0
More stringent treatment	87	100.0	6 377 300	100.0
<i>but missing treatment steps</i>	76	87.4	5 730 700	89.9
<i>but insufficient treatment capacity</i>	39	44.8	4 183 100	65.6
<b>Not in compliance*</b>	<b>76</b>	<b>87.4</b>	<b>5 730 700</b>	<b>89.9</b>
<b>In compliance</b>	<b>7</b>	<b>8.0</b>	<b>429 600</b>	<b>6.7</b>

\* Including incomplete more stringent treatment and insufficient treatment capacity of plants, taking into account possible overlaps of both shortcomings (relevant for 35 cases)

<sup>71</sup> Äänekoski, Alavus - kp, Espoo, Haapavesi, Helsinki, Jyväskylä, Kaarina, Karis - Pinjainen, Kemi, Kemijärvi - Kp, Kempele, Kokkola, Kotka - Sunila, Kouvola, Kuusamo, Lahti, Laihia, Lapinlahti, Lempäälä, Lieksa, Mäntsälä, Oulu, Paimio, Pargas, Pieksämäki, Pori Luotsinmäki, Porvoo - Hermansö, Riihimäki, Rovaniemi, Sahalahti, Siilinjärvi, Suonenjoki, Tampere - Rahola, Tampere - Viinikanlahsi, Ulvila, Uusikaupunki, Valkeakoski, Varkaus, Ylistaro. Due to recent information of the Finnish authorities of July and September 2003, the design capacities provided to the Commission based on old data and are not reliable.

<sup>72</sup> Before the finalisation of the report, the Finnish authorities did not clarify the significant changes in agglomerations between the years 1998 and 2002: On one hand a number of agglomerations (13), which were reported in 1998, were not longer reported in 2002; as the load of the agglomerations was partly not comparable, it did not seem to be a question of naming only. On the other hand, 15 agglomerations were reported additionally. In the comment of July and September 2003, the Finnish authorities explained most discrepancies in their data, and stated that they arrived due to the change in the calculating the nominal load and due to variations in industrial loads. However, this comment was received several months too late in order to be taken into account for this evaluation.

### 11.13.2.2. Treatment performance (monitoring results)

Finland provided information on monitoring results of 1999 for 85 agglomerations. This information did not include any information on nitrogen removal, as the Finnish authorities believe that nitrogen removal is not required for their waste water discharges. According to the Commission's opinion both phosphorus and nitrogen removal is relevant for the waste water effluents of agglomerations of more than 10 000 p.e. discharging into the catchment area of the Baltic. Therefore, according to the Commission's interpretation, 74 agglomerations did not meet the required treatment efficiency (nitrogen and/or phosphorus removal), and were regarded as not complying with the Directive.

Also the data of 1999, showed a number of discrepancies compared with the data provided for 2002<sup>73</sup>.

**Table 11-68: Treatment performance in agglomerations > 10 000 p.e.**

Finland	Treatment performance in agglomerations > 10 000 p.e.			
	Number	%	Nominal load [p.e.]	%
31/12/1999				
Total	85	100.0	6 781 700	100.0
More stringent treatment	84	98.8	6 757 100	99.6
<i>But insufficient treatment capacity</i>	36	42.4	4 613 150	68.0
Monitoring in compliance (MS)	71	83.5	5 442 050	80.2
<i>But insufficient treatment capacity</i>	29	34.1	3 842 000	56.7
Monitoring in compliance (EC)	11	12.9	675 500	10.0
<i>But insufficient treatment capacity</i>	3	3.5	343 800	5.1
<b>Not in compliance</b>	<b>74</b>	<b>87.1</b>	<b>6 106 200</b>	<b>90.0</b>
<b>In compliance</b>	<b>11</b>	<b>12.9</b>	<b>675 500</b>	<b>10.0</b>

<sup>73</sup> The data sent by the Finnish authorities for the year 1999 (monitoring data) and 2002 (updated information on treatment levels) showed e.g. the following discrepancies:

The load of a high number of other agglomerations was reported to be less in 2002 than in 1999. Altogether the total nominal load reported in 2002 was 404 400 p.e. less than in 1999 (see also point 1.1.2.1).

The following nine agglomerations reported for the year 1999 were missing in the 2002 data: Kristiina, Kyrö, Mariehamn, Parainen, Pieksämäi, Pietarsaari, Säskylä, Tam-misaari and Ylivieska.

On the other hand the following 12 agglomerations on the list for the year 2002 were not reported for the year 1999: Alavus kp, Ekenäs Skeppsholmen, Hanko I ke-skuspuhdistamo, Ilmajoki kk, Karis Pinjainen, Kemijärvi Kp, Nurmijärvi Klaukkala, Ou-tokumpu kp, Paimio, Pargas, Pieksämäi and Pietarsaari.

2 agglomerations were merged between 1999 and 2002: In November 2001 the UWWTP of Porvoo (Kokonniemi) was closed. Since this time its waste water has been treated in Porvoo (Hermansö). However, the entire load of Porvoo Hermansö is significantly less than the sum of both former agglomerations.

In the comment of July 2003, the Finish authorities explained most of the discrepancies in their data, see above footnote.

### 11.13.3. Collecting systems

In 2002, 73 collecting systems were reported by the Finnish authorities to be in compliance. For the following 14 agglomerations in 2002 no information was available whether the collecting system was in conformity with the Directive or not, even though the Finnish authorities regarded all collecting systems of all reported agglomerations as already in conformity in 1998: Alavus, Ekenäs - Skeppsholmen, Haapavesi, Hanko, Ilmajoki, Karis - Pinjainen, Kemijärvi, Lempäälä, Lieksa, Mäntsälä, Nurmijärvi - Klaukkala, Outokumpu, Pargas and Toholampi.

**Table 11-69: Collecting systems in agglomerations > 10 000 p.e.**

Finland	Agglomerations > 10 000 p.e. – Article 3			
	Number	%	Nominal load [p.e.]	%
01/01/2002				
Total	87	100.0	6 377 300	100.0
No information	14	16.1	269 200	4.2
In compliance	73	83.9	6 108 100	95.8

### 11.13.4. Treatment in cities > 150 000 p.e.

At 1 January 2002, Finland had eight cities with a population equivalent of more than 150 000. Each of these cities was provided with more advanced treatment in terms of phosphorus removal: Espoo, Helsinki, Jyväskylä, Lahti, Pori, Rovaniemi, Tampere, Turku. The Commission believes nitrogen treatment is still missing for these cities as they are situated in the catchment area of the Baltic.

In addition, in the opinion of the Commission, the urban waste water treatment plants of all the cities, with the exception of Turku had a design capacity which was too small for a sufficient treatment of all the urban waste water generated.

### 11.13.5. Industrial waste water (Article 13)

As regards industrial discharges falling under Article 13, Finland reported eleven industrial plants with a total load of 409 930 p.e. All eleven plants complied with the Directive before 31 December 2000.

**Table 11-70: Industrial waste water with respect to Article 13 of the Directive**

Finland - Industrial sector	Total organic load of industrial waste water from plants with respect to Article 13 [p.e.]	Number of plants	Total organic load respecting conditions under Article 13 at 31 December 2000 [p.e.]	%	Date of full compliance
Milk-processing	11 230	1	11 230	100	before 31/12/2000
Manufacture of fruit and vegetable products	14 100	2	14 100	100	Before 31/12/2000
Potato-processing	265 500	5	265 500	100	Before 31/12/2000
Production of alcohol and alcoholic beverages	6 000	1	6 000	100	Before 31/12/2000
Manufacture of animal feed from plant products	113 100	2	113 100	100	Before 31/12/2000
<b>Total</b>	<b>409 930</b>	<b>11</b>	<b>409 930</b>	<b>100</b>	

#### *11.13.6. Sewage Sludge*

As regards Finland, no information on sewage sludge was available (source: Article 16 situation report).

### **11.14. Sweden**

#### *11.14.1. Identification of sensitive areas*

In 1994, Sweden identified all of its waters as a sensitive area. In June, 1998 Sweden confirmed its designation to the Commission, indicating that the criterion applied was eutrophication, and that the type of more stringent treatment depended on the water bodies concerned. Sweden stated that tertiary treatment of phosphorus was necessary in all its agglomerations of more than 10 000 p.e. to combat eutrophication and the risk of eutrophication of freshwaters, estuaries and coastal waters. However, it believes that only the North Sea and the Baltic from the Norwegian boarder to the municipality of Norrtälje, including coastal waters of the island of Öland and around the island of Gotthland were sensitive to nitrogen. The Commission believes that tertiary treatment of both phosphorus and nitrogen is essential under the Directive in all agglomerations above 10 000 p.e. situated in the catchment areas, which flow into the Baltic. In addition, the Commission believes that discharges of agglomerations in the south, central part, also contribute to the pollution of those sensitive areas (more details see second Commission report). The Commission is actively pursuing this concern and evaluating the information which Sweden sent on this matter.

#### *11.14.2. Agglomerations of more than 10 000 p.e.*

##### 11.14.2.1. Treatment level

Sweden has 134 agglomerations with a population equivalent of more than 10 000. As the waste water of several agglomerations<sup>74</sup> is treated in two or more waste water treatment plants, the number of plants (143) differs from the number of the agglomerations (134).

All 134 agglomerations were provided with more stringent treatment of phosphorus; nitrogen elimination was only provided for 74 agglomerations. For many agglomerations and/or treatment plants different loads were reported for the years 1998 and 1999. This was the case in large cities such as Falkenberg, Göteborg, Helsingborg, Kristianstadt, Malmö, but also in many other agglomerations. The Swedish authorities explained that these arose partly due to the connection or disconnection of industrial discharges, and partly due to the change of approach for calculating the load of agglomerations.<sup>75</sup>

As the Commission believes that discharges of nitrogen and phosphorus are both responsible for the appearance of marine eutrophication, and discharges to a coastal area are carried to other adjacent coastal areas, all Swedish agglomerations of more than 10 000 p.e. should have

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<sup>74</sup> Karlskrona, Ludvika, Malmö, Örnsköldsvik, Stockholm and Sundswall

<sup>75</sup> The data on nominal loads of agglomerations provided in the context of this report were based on measurements of incoming BOD loads, which are subject to frequent re-calculation.

been provided with nitrogen removal by 31 December 1998. For this reason 60 agglomerations were considered as not being in conformity with the Directive.

**Table 11-71: Treatment level of agglomerations > 10 000 p.e.**

Sweden	Treatment level in agglomerations > 10 000 p.e. – Article 5			
	Number	%	Nominal load [p.e.]	%
01/01/2002				
Total	134	100.0	7 672 670	100.0
More stringent treatment	134	100.0	7 672 670	100.0
<i>but missing treatment steps</i>	60	44.8	2 042 910	26.6
<i>but insufficient treatment capacity</i>	0	0.0	0	0.0
<b>Not in compliance</b>	<b>60</b>	<b>44.8</b>	<b>2 042 910</b>	<b>26.6</b>
<b>In compliance</b>	<b>74</b>	<b>55.2</b>	<b>5 629 720</b>	<b>73.4</b>

#### 11.14.2.2. Treatment performance (monitoring results)

In 1999, the monitoring results of urban waste water treatment plants of 57 agglomerations were in conformity with the requirements of the Directive. The remaining 77 agglomerations, which made 36.2 % of the total nominal load of the concerned agglomerations were not in conformity, because of the missing nitrogen elimination or bad treatment performance in the year 1999.

**Table 11-72: Treatment performance of agglomerations > 10 000 p.e.**

Sweden	Treatment performance in agglomerations > 10 000 p.e.			
	Number	%	Nominal load [p.e.]	%
31/12/1999				
Total	134	100.0	7 672 670	100.0
More stringent treatment	134	100.0	7 672 670	100.0
<i>but insufficient treatment capacity</i>	0	0.0	0	0.0
Monitoring in compliance (Member State)	116	86.6	6 923 370	90.2
<i>but insufficient treatment capacity</i>	0	0.0	0	0.0
Monitoring in compliance (EC)	57	42.5	4 898 360	63.8
<i>but insufficient treatment capacity</i>	0	0.0	0	0.0
<b>Not in compliance</b>	<b>77</b>	<b>57.5</b>	<b>2 774 310</b>	<b>36.2</b>
<b>In compliance</b>	<b>57</b>	<b>42.5</b>	<b>4 898 360</b>	<b>63.8</b>

#### 11.14.3. Collecting systems

All Swedish agglomerations with more than 10 000 p.e. were already equipped with a complying collecting system by 31 December 1998 and therefore in conformity with Article 3 of the Directive.

**Table 11-73: Collecting systems of agglomerations > 10 000 p.e.**

<b>Sweden</b>	<b>Agglomerations &gt; 10 000 p.e. - Article 3</b>			
01/01/2002	Number	%	Nominal load [p.e.]	%
Total	134	100.0	7 672 670	100.0
<b>Not in compliance</b>	<b>0</b>	<b>0.0</b>	<b>0</b>	<b>0.0</b>
<b>In compliance</b>	<b>134</b>	<b>100.0</b>	<b>7 672 670</b>	<b>100.0</b>

*11.14.4. Treatment in cities > 150 000 p.e.*

Sweden has eight cities with more than 150 000 p.e. of which six - Göteborg, Helsingborg, Lidingö, Malmö, Stockholm and Uppsala - were equipped with more stringent treatment of nitrogen and phosphorus removal. Linköping and Örebro provided phosphorus removal only.

*11.14.5. Industrial waste water (Article 13)*

Sweden provided information on seven industrial plants with a total organic load of 1 855 000 p.e. being in compliance before 31 December 2000.

**Table 11-74: Industrial waste water with respect to Article 13 of the Directive**

<b>Sweden - Industrial sector</b>	<b>Total organic load of IWW from plants with respect to Article 13 [p.e.]</b>	<b>Number of plants</b>	<b>Total organic load respecting conditions under Article 13 at 31 December 2000 [p.e.]</b>	<b>%</b>	<b>Date of full compliance</b>
Milk-processing	210 000	1	210 000	100	before 31/12/2000
Potato-processing	700 000	2	700 000	100	Before 31/12/2000
Breweries	200 000	1	200 000	100	before 31/12/2000
Fish-processing industry	745 000	3	745 000	100	Before 31/12/2000
<b>Total</b>	<b>1 855 000</b>	<b>7</b>	<b>1 855 000</b>	<b>100</b>	

*11.14.6. Sewage Sludge*

According to the Swedish situation report of Article 16 of the Directive, the quantity of sewage sludge produced in 2000 was 222 420 t dry substance (DS). 21 % was reused in agriculture, 32 % was used for landscape architecture (including coverage of landfills), 34 % was deposited in landfills and about 8 % was reused in other ways or stored temporary. No sewage sludge was incinerated.

**Table 11-75: Re-use and disposal of sludge produced in waste water treatment plants**

Sweden - Sewage Sludge (2000)	Tons DS	%
<b>Sludge total production</b>	<b>222 420</b>	<b>100</b>
Agriculture	45 664	21
Re-use in landscape architecture	70 459	32
<i>of which coverage of landfills</i>	<i>15 730</i>	<i>7</i>
Landfill	76 344	34
Incineration	0	0
Temporary storage	17 440	8
Other uses (partly quantities of temporary storage)	11 293	5
Not defined disposal (the difference between the total amount of sewage sludge and the sum of the reported uses)	1 219	1

## 11.15. United Kingdom

### 11.15.1. Identification of sensitive areas

The United Kingdom carried out an initial identification of sensitive areas in 1994 and 1995 based on eutrophication. In this context, 33 freshwater bodies were identified in England and Wales, three in Scotland and two in Northern Ireland. In 1997, 1998 and 2000 51 further water bodies were identified in England, Wales and Scotland, and additionally the geographical extent of three of the sensitive water bodies was extended. The concerned water bodies were identified due to eutrophication, but partly also with regard to the protection against nitrates in waters for the abstraction of drinking water purposes. In the recent reviews of 2001 and 2002 further sensitive areas have been identified:

- In England: a further 32 water bodies with reference to eutrophication, five with regard to the protection against nitrates and 180 for the protection of bathing waters. In total, 300 sensitive areas have been identified in England
- In Wales: a further 24 water bodies for the protection of bathing waters, five due to eutrophication. In total, 29 sensitive areas have been identified in Wales.
- In Scotland: a further nine water bodies for the protection of bathing waters. In total, 13 sensitive areas have been identified in Scotland.
- In Northern Ireland a further three water bodies with reference to eutrophication. In total, five sensitive areas have been identified in Northern Ireland.

The United Kingdom has identified 347 sensitive areas. The British authorities believe that they have, as required in the Directive, identified water body areas as sensitive where discharges from waste water treatment works serving agglomerations of greater than 10 000 p.e. have caused or may cause the water body to become eutrophic, or, in the case of surface freshwater used for drinking water supplies, have a concentration of nitrate above the permitted level. The British authorities stated that, once a water body is identified, more

stringent treatment is provided for indirect and direct discharges from relevant works in the catchment of these areas, which contribute to their pollution. Furthermore, the British authorities recorded that they have identified sensitive areas where more than secondary treatment is needed to fulfil requirements of the Bathing Water Directive.

However, the British authorities also pointed out that, in their view, the hydrological catchment is not significant, as only the impact of relevant sewage discharges is addressed under the Directive. Therefore, the catchment areas of sensitive water bodies were not considered as a sensitive area.

The Commission does not, on principal, interpret catchment areas of sensitive areas as sensitive or eutrophic, and there is no need for an official identification of catchment areas. However, according to Article 5(5) of the Directive, discharges from urban waste water treatment plants which are situated in the relevant catchment areas of that area, and which contribute to the pollution of these areas, shall be subject to paragraphs 2, 3 and 4. The Commission's position is that at least all agglomerations with more than 10 000 p.e. discharging into a catchment of a sensitive area therefore should be provided with more stringent treatment.

On the basis of the information provided by the UK authorities, the Commission is unclear whether all, or only some, of the agglomerations above 10 000 p.e. discharging into the catchment upstream of a sensitive area are required to apply more stringent treatment.

In the opinion of the Commission there are a number of water bodies in the UK which should be identified as sensitive on the basis of their eutrophic character or the risk that they may become eutrophic, and which the UK authorities have not yet identified. The water bodies concerned include the Thames, the Wash, the Humber, and the Deben and Colne estuaries, the waters off Southampton, the coastal waters of North Wales, North-Western England and South-Western Scotland.. The non-designation of these areas is the subject of an on-going infringement procedure.. Furthermore, the Commission believes that there is scientific evidence that the Bann Estuary, Carlingford Lough, the Outer Belfast Lough and Lough Foyle in Northern Ireland are eutrophic, and should have been identified as sensitive, which has not yet been done by the United Kingdom.

#### *11.15.2. Waste water treatment in agglomerations discharging into sensitive areas*

The British authorities provided information on 90 agglomerations above 10 000 p.e. discharging into sensitive areas. These agglomerations are only those which are affecting sensitive areas identified in 1994, and represent according to the current information, about 52 % of the load of agglomerations (>10 000 p.e.) discharging into sensitive areas identified in 1994 and 1998. The British authorities did not provide data for agglomerations affecting sensitive areas identified in 1997, 1998 and 2002, as these areas according to the Directive, need not meet the requirements for more stringent treatment before seven years after designation.



### 11.15.2.1. Treatment level

According to the Commission's opinion, only 26 of the above 90 agglomerations were equipped with all required treatment steps (nitrogen and/or phosphorus removal)<sup>76</sup>. The organic design capacity of at least eight treatment plants with more stringent treatment seemed to be too small for a sufficient treatment of all the waste water of the connected agglomeration. These treatment plants, in the Commission's opinion, should be subject to a capacity upgrading. In 2003 the British authorities advised that eight of these agglomerations are currently being upgraded or are to be upgraded<sup>77</sup>.

The British authorities themselves consider that in 2002, 88 of 90 waste water treatment works discharging into sensitive areas and identified in 1994 provided the required treatment level (98%), depending on the local situation, i.e. phosphorus and/or nitrogen removal. However, the Commission does not share this assessment.

**Table 11-76: Treatment level of agglomerations discharging into sensitive areas, designated in 1994**

United Kingdom	Treatment level in agglomerations > 10 000 p.e. – Article 5			
	Number	%	Nominal load [p.e.]	%
01/01/2002				
Total	90	100.0	6 221 177	100.0
More stringent treatment	88	97.8	6 197 077	99.6
<i>but missing treatment steps</i>	61	67.8	4 403 467	70.8
<i>but insufficient treatment capacity</i>	8	8.9	346.827	5.6
<b>Not in compliance*</b>	<b>64</b>	<b>71.1</b>	<b>4 438 936</b>	<b>71.4</b>
<b>In compliance</b>	<b>26</b>	<b>28.9</b>	<b>1 782 241</b>	<b>28.6</b>

\* Including incomplete more stringent treatment and insufficient treatment capacity of plants, taking into account possible overlaps of both shortcomings (in the case of the UK seven plants showed both gaps). The evaluation also includes by mistake Cleland (nominal load: 15 000 p.e.), which requires phosphorus removal only and is in compliance in terms of treatment level. The mistake will be corrected in future evaluations.

### 11.15.2.2. Treatment performance (monitoring results) in sensitive areas

In 1999 only 68 of the reported 90 agglomerations with more than 10 000 p.e. discharging into sensitive areas provided more stringent treatment<sup>78</sup>. 22 of them achieved the required treatment efficiency for all relevant parameters. 68 agglomerations were - according to the Commission's interpretation - not in compliance with the Directive in terms of treatment performance in 1999.

<sup>76</sup> The Commission's evaluation takes into account discharges into the catchment areas of potentially sensitive areas, which in certain cases require nitrogen removal in addition to phosphorus removal. As regards the agglomeration Cleland in Scotland (15 000 pe) a mistake was found in the evaluation, which could not be corrected anymore for this report. However it will be considered in future evaluations.

<sup>77</sup> Ballymena, Banbridge, Bullays Hill, Moygasal, Seagoe, Tandragree and Tullagharley.

<sup>78</sup> 20 Agglomerations have been upgraded between 1999 and 2002 to more stringent treatment in terms of phosphorus but not yet nitrogen removal: Arborfield, Bicester, Bracknell, Camberley, Chertsey, Cholsey, Fleet, Hartley Wintney, High Wycombe, Maidenhead, Pangbourne, Princes Risborough, Ross on Wye, Sandhurst, Silchester, Slough, Thame, Weybridge, Windsor and Wokingham.

**Table 11-77: Treatment performance in agglomerations discharging into sensitive areas, designated in 1994**

<b>United Kingdom</b>	<b>Treatment performance in agglomerations &gt; 10 000 p.e.</b>			
31/12/1999	Number	%	Nominal load [p.e.]	%
Total	90	100.0	6 150 957	100.0
More stringent treatment	68	75.6	5 119 548	83.2
<i>but insufficient treatment capacity</i>	11	12.2	372 647	6.1
Monitoring in compliance (MemberState)*	58	64.4	4 793 043	77.9
<i>but insufficient treatment capacity</i>	8	8.9	273 785	4.5
Monitoring in compliance (EC)*	22	24.4	1 654 160	26.9
<i>but insufficient treatment capacity</i>	2	2.2	27 260	0.4
<b>Not in compliance</b>	<b>68</b>	<b>75.6</b>	<b>4 496 797</b>	<b>73.1</b>
<b>In compliance</b>	<b>22</b>	<b>24.4</b>	<b>1 654 160</b>	<b>26.9</b>

\* The discrepancy between Member States and Commission's interpretation of compliance comes from the different interpretation of which nutrient has to be removed (phosphorus alone or nitrogen in addition). The Commission's evaluation includes the catchments of potentially sensitive areas.

*11.15.3. Waste water treatment in agglomerations discharging into "normal areas" - situation at 31 December 2000*

The United Kingdom sent a list of 685 agglomerations with more than 15 000 p.e. It did not distinguish between agglomerations in sensitive areas and agglomerations in "normal areas". For the below evaluation of "normal areas", the list was therefore reduced by those 67 agglomerations which had also been reported under "sensitive areas" (identified in 1994 - see section 11.15.2). These 685 agglomerations also include those agglomerations which are situated in so-called potentially sensitive areas. - Areas, which should have been identified as sensitive according to the Commission's opinion, and are or will be subject to Commission proceedings.

By 31 December 2000, the United Kingdom had 618 (685 minus 67 see para. above) agglomerations discharging into "normal areas" with more than 15 000 p.e. 67 of these agglomerations did not provide secondary treatment, and were therefore not complying with Article 4. However, in total 89,2 % of the load was already complying with the Directive. In 2003 the British authorities advised that by the end of 2002 compliance had increased to almost 98 %, but did not provide any supporting data.

**Table 11-78: Treatment level of agglomerations discharging into "normal areas"**

<b>United Kingdom</b>	<b>Agglomerations &gt; 15 000 p.e. - Article 4</b>			
31/12/2000	Number	%	Nominal load [p.e.]	%
Total	618	100.0	65 980 345	100.0
<b>Not in compliance</b>	<b>67</b>	<b>10.8</b>	<b>7 163 427</b>	<b>10.9</b>
<b>In compliance</b>	<b>551</b>	<b>89.2</b>	<b>58 816 918</b>	<b>89.1</b>

#### 11.15.4. Collecting systems

##### 11.15.4.1. Collecting systems in agglomerations discharging into sensitive areas

At 1 January 2002 the collecting systems of the 90 agglomerations for which data was provided (see section 11.15.2) were complying with Article 3 of the Directive.

**Table 11-79: Collecting systems in agglomerations discharging into sensitive areas, designated in 1994**

United Kingdom	Agglomerations > 10 000 p.e. - Article 3			
	Number	%	Nominal load [p.e.]	%
01/01/2002				
Total	90	100.0	6 221 177	100.0
<b>Not in compliance</b>	<b>0</b>	<b>0.0</b>	<b>0</b>	<b>0.0</b>
<b>In compliance</b>	<b>90</b>	<b>100.0</b>	<b>6 221 177</b>	<b>100.0</b>

##### 11.15.4.2. Collecting systems in agglomerations discharging into “normal areas” - situation at 31 December 2000

For the below evaluation of collecting systems in “normal areas” the provided of 685 agglomerations, was reduced by 67 agglomerations, which were reported under sensitive areas as well.

At 31 December 2000 all agglomerations with more than 15 000 p.e. were provided with a complying collecting system, and were therefore complying with Article 3 of the Directive.

**Table 11-80: Collecting systems in agglomerations discharging into “normal areas”**

United Kingdom	Agglomerations > 15 000 p.e. - Article 3			
	Number	%	Nominal load [p.e.]	%
31/12/2000				
Total	618	100.0	65 980 345	100.0
<b>Not in compliance</b>	<b>0</b>	<b>0.0</b>	<b>0</b>	<b>0.0</b>
<b>In compliance</b>	<b>618</b>	<b>100.0</b>	<b>65 980 345</b>	<b>100.0</b>

#### 11.15.5. Treatment in cities > 150 000 p.e.

As at 1 January 2002 the United Kingdom had 89 cities with a population equivalent of more than 150 000:

- Ten of these cities were situated in sensitive areas and, therefore, should be equipped with more stringent treatment: Coventry, Milton Keynes, Bedford, Corby, Oxford, Reading, Swindon, Wellingborough, Northampton and Rickmansworth. However, only Coventry and Milton Keynes were provided with sufficiently stringent treatment. The remaining cities in sensitive areas failed to be in conformity because of the missing nitrogen removal.
- 68 cities reported under “normal areas” had secondary treatment. Amongst them were London (10 mio. p.e.), Birmingham (2 mio. p.e.) and Glasgow (1.6 mio. p.e.). However, the Commission believes that many of these cities, such as London, should provide tertiary

treatment as they are discharging into an area which, in the Commission's opinion, should have been identified as a sensitive area)

- Six cities had primary treatment or secondary treatment only for parts of its agglomeration: Cardiff (84 % of the load untreated, 16 % secondary treatment), Dundee (34 % untreated, secondary treatment for about 66 % of its load, treated by the Tay agglomeration), Eastburne (primary treatment only), Dover/Folkstone (primary treatment only), Worthing (primary treatment only) and Sandown (primary treatment only).
- Five cities did not have any waste water treatment<sup>79</sup>: Brighton, Hastings, Kilmarnock/Irvine, Levenmouth and Torbay.

The British authorities advised that during 2002 the following cities were upgraded to secondary treatment: Cardiff, Eastburne, Dover/Folkstone, Kilmarnock/Irvine, Levenmouth, Sandown and Worthing.

#### *11.15.6. Less sensitive areas*

In 1994 and 1995 the United Kingdom identified 49 coastal water bodies and estuaries as less sensitive in England, nine in Wales, 24 in Scotland and three in Northern Ireland, for the purpose of discharging urban waste water with less than secondary treatment. The United Kingdom revoked the designation of its less sensitive areas step by step. Since July 2002, the United Kingdom has no "less sensitive areas".

#### *11.15.7. Industrial waste water (Article 13)*

The United Kingdom reported 99 industrial plants operating with a total organic load of 6 273 037 p.e. In 2000, 86 % of the organic load was complying with Article 13. The date of full compliance is set for December 2003.

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<sup>79</sup> Due to recent information of September 2003 the British authorities stated that some of the agglomerations without any treatment at the beginning of 2002 improved in the meanwhile: Discharges from Brighton currently receive primary treatment, Hastings/Bexhill secondary treatment since March 2003; 51 % of Torbay (covering Brixham, Paignton) received secondary treatment from August 2002, 49 % (Torquay) is expected to have secondary treatment in March 2004.

**Table 11-81: Industrial waste water with respect to Article 13 of the Directive**

United Kingdom – Industrial sector	Total organic load of industrial waste water from plants with respect to Article 13 [p.e.]	Number of plants	Total organic load respecting conditions under Article 13 at 31 December 2000 [p.e.]	%	Date of full compliance
Milk-processing	1 464 380	30	644 880	44	12/2003
Manufacture of fruit and vegetable products	1 144 564	9	1 144 564	100	12/2000
Potato-processing	302 037	3	302 037	100	12/2000
Meat industry	623 348	18	573 348	92	12/2001
Breweries	94 000	1	94 000	100	09/1997
Production of alcohol and alcoholic beverages	1 930 727	23	1 930 727	100	12/2000
Manufacture of animal feed from plant products	476 000	3	476 000	100	12/2000
Manufacture of gelatine and of glue from hides, skin and bones	13 315	1	13 315	100	12/2000
Malt-houses	206 666	9	206 666	100	12/2000
Fish-processing industry	18 000	2	5 000	28	02/2001
<b>Total</b>	<b>6 273 037</b>	<b>99</b>	<b>5 390 537</b>	<b>86</b>	

*11.15.8. Sewage sludge*

In the year 2000 the quantity of produced sewage sludge was 1 130 066 t dry substance. 52 % of it was reused in agriculture, 17 % was deposited on landfills, 21 % incinerated and 10 % was reused or disposed of in other ways.

**Table 11-82: Re-use and disposal of sludge produced in waste water treatment plants**

United Kingdom - Sewage Sludge (2000)	Tons DS	%
<b>Total sludge production</b>	<b>1 130 066</b>	<b>100</b>
Agriculture	587 634	52
Landfill	192 111	17
Incineration	237 314	21
Other	113 007	10

## 12. INFRINGEMENT PROCEDURES

Pursuant to Article 226 of the consolidated version of the Treaty establishing the European Community, the Commission may open an infringement procedure against Member States which have failed to meet their obligations under the Directive.

Since 1994, the Commission has sent 34 reasoned opinions in the framework of infringement procedures under Article 226 of the Treaty in which the Urban Waste Water Treatment Directive was involved, alone or with other directives. 15 cases (including European Court of Justice cases C-236/99 – Belgium/Brussels, C-161/95 – Greece, C-297/95 – Germany, and C-302/95 – Italy) were already closed due to an improvement of the implementation by the countries concerned.

At 17 July 2003, 16 such infringement procedures against Member States were being pursued in the field of the Urban Waste Water Treatment Directive exclusively. In a further three infringement procedures the Urban Waste Water Treatment Directive was involved together with other Directives such as the Bathing Water Directive, the Shellfish Water Directive or others.

Two cases of the 16 ongoing cases have resulted in a condemnation by the European Court of Justice, against Italy/Milan (25 April 2002) and Spain (15 May 2003).

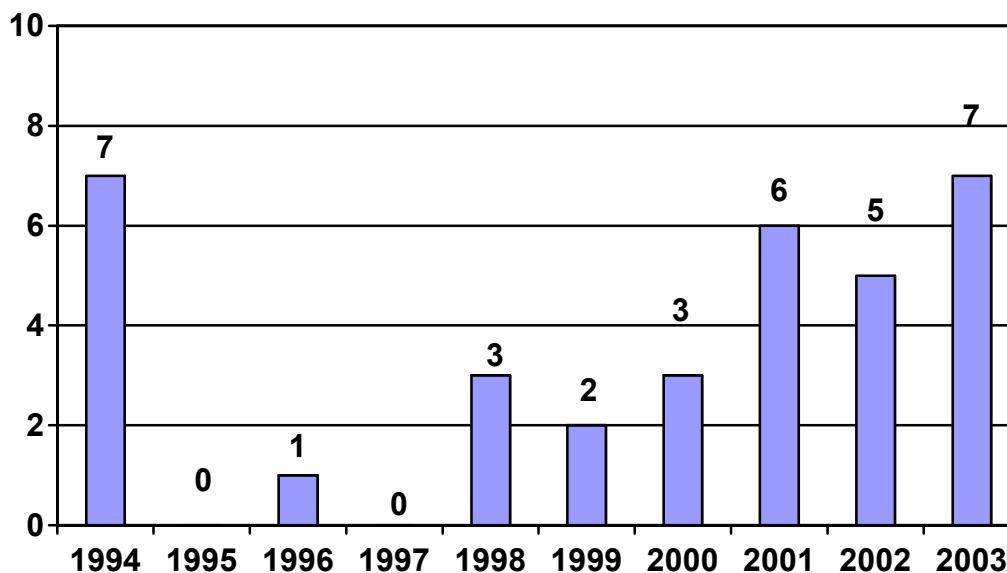
As of 17<sup>th</sup> July 2003, four cases were pending before the court, namely the case against Belgium including the city of Brussels, France, Greece, and Spain.

For one case, against Greece/Athens, a court application has already been decided, but not yet lodged. Nine cases were at the stage of reasoned opinion (E, EL, F, IRE, I, NL, P, UK (2)).

In addition 18 further cases had not yet reached the stage of reasoned opinion.

It has to be underlined that the situation concerning infringement procedures is changing very quickly and the above picture on legal actions pursued presents only a snapshot at a specific date (17 July 2003).

**Figure 12-1: Notification of reasoned opinions sent by the European Commission in the 1994-2001 period**



The Commission initiated the ongoing infringement procedures either on the basis of complaints by European citizens or on its own initiative. The “own initiative” cases concern mainly significant implementation shortcomings in big cities, the identification of sensitive areas and discharges into these areas, as well as reporting obligations. Infringement procedures in relation to the deadline of 31 December 2000 which affects agglomerations in “normal areas” are currently under preparation.

The two tables below summarise the situation for each Member State regarding the implementation process and the ongoing infringement procedures before court concerning the Urban Waste Water Treatment Directive on July 2003.

**Table 12-1: Status of infringement procedures in relation to Council Directive 91/271/EEC concerning Urban Waste Water Treatment. A-Cases before court, Status 17 July 2003**

MS	Number	Breach	Status
B	C-027/03	Lack of infrastructure, Article 3 and 5 Lack of implementation programmes, Article 17	Court application 23/01/2003
E	C-419/01	Identification of sensitive areas, Article 5	Court judgement 15/05/2003
E	C-416/02	Lack of infrastructure in Vera, Almeria, Article 5	Court application 19/11/2002
EL	C-119/02	Lack of infrastructure in Elefsina	Court application 03/04/2002
EL	2000/2014	Lack of infrastructure in Athens	Court application not yet lodged
F	C-280/02	Identification of sensitive areas Lack of infrastructure	Court application 18/07/2001
I	C-396/00	Lack of infrastructure, Article 4, 5 in Milano	Court judgement 25/04/2002

**Table 12-2: Main obligations of the Urban Waste Water Treatment Directive (91/271/EEC) and their implementation by Member States as of 17 July 2003**

Member State	B	DK	D	EL	ES	F	IR	I	L	NL	Ö	P	SF	S	UK
National legislation in place	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Implementation programmes communicated	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Identification of sensitive areas	•+	•+	+	+	+	+	+	+	•+	•+	•+	+	•+	+	+
Identification of less sensitive areas (option)					+							+			+ <sup>1</sup>
General compliance of waste water collection and treatment in sensitive areas (deadline 1998)	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Infringement procedure for failure to meet 1998 deadline in relation to an individual agglomeration															
Waste water collection and treatment in 'normal' areas (deadline 2000). Under evaluation															
Treatment performance of waste water treatment plans. Under evaluation															
Prior regulations or specific authorisations for industrial discharges	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Disposal of sewage sludge regulated	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Reporting obligations fulfilled	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

+ = exercise performed but not necessarily approved by the Commission

• = whole territory identified as sensitive or application of more stringent treatment all over the territory (Art. 5.8)

<sup>1</sup> = UK has withdrawn all its less sensitive areas by 2002

Shaded: Infringement procedure ongoing (beyond RO). This includes situations where an exercise has been performed incorrectly.



### **13. FORTHCOMING TASKS FOR THE COMMISSION**

The Commission has started verifying the treatment performance of plants from the agglomerations affected by the deadline of 31 December 2000. It will present the results in the next implementation report of the Directive.

In future, the Commission will also request updates of the information in the past collected in relation to the 1998 and 2000 deadlines, in order to follow the progress and improvements of the Directive's implementation in the Member States. After 2005 it will verify the compliance of small and medium sized agglomerations with more than 2000 population equivalents falling under the deadline of 31 December 2005. The Commission will also verify the implementation of the Directive in the new Member States.

In co-operation with the Member States, the Commission established a waste water treatment database including all data related to the implementation of the Urban Waste Water Treatment Directive. This database will facilitate reporting for the Member States and the Commission in future and help to provide a clear picture on waste water treatment in the European Union. The Commission will update and extend the database, if necessary.

In addition, the reporting obligations under the Urban Waste Water Treatment Directive will, to the extent possible, be integrated into the reporting requirements of the water framework directive as part of an initiative to develop a consolidated information and reporting system for all water legislation.

Infringement procedures, conditional ties linked to the disbursement of EU regional funds and bringing pressure to bear on decision-makers by increasing public awareness will continue to be the tools by which the Commission will encourage progress on the implementation of the directive:

- The situation will be monitored and infringement procedures will be commenced in respect of any failure to comply with the requirements of the Directive. This will be done if the Member States do not provide the Commission with the information it needs to verify compliance with the deadlines.
- The authorisation and payment of Community aid under the Structural Funds and the Cohesion Fund are dependent on strict compliance with the requirements of the Directive, in particular as regards the level of treatment of waste water and the operation of plants once the work has been completed. In this context the Commission services have produced a guideline on the application of the Directive 91/271/EEC on urban waste water treatment and finance from Structural funds which refers in particular to the application in the context of infringement procedures. The guideline was sent to Member States during summer 2003.
- Greater attention must be focused on decision-makers and on local and regional authorities and organisations in order to raise awareness and to encourage them to act in a manner which will enhance compliance with the Directive at their level. This can be done by increasing public awareness, by acting through the communication networks between decision-makers in towns and cities and by means of bilateral meetings between the Member States and the Commission to which regional and local representatives are invited.

It is also essential, that technical assistance be given to small and medium-sized agglomerations to help them achieve compliance with the Directive by the deadline of 2005. The municipalities and local authorities involved, which are responsible for making the investment needed, are often less well placed than large cities when it comes to choosing the appropriate sewage treatment systems and having them built. The Commission wishes to increase the support for the development of treatment technology suitable for small and medium-sized agglomerations. This process has already been started by work-shops and by publishing a thematic guide on the subject, and will be continued by similar activities. Through the LIFE programme the Commission will also continue to support pilot and demonstration projects directed at the development of new technologies for the treatment of waste water.

The Commission is aware of the considerable challenge faced by the acceding Member States for complying with the Directive. All the acceding states have asked for a transitional period for the implementation of the Directive. In the coming years, the Commission will continue to support programmes, to provide technical and administrative assistance. Support will also continue to be provided, in particular through ISPA, and in future through the Structural and the Cohesion Funds for the investment needed.

#### **14. SUMMARY AND CONCLUSION:**

##### **Waste water treatment and water quality in European waters**

The North Sea, the Baltic and considerable parts of the Mediterranean Sea suffer from severe eutrophication problems, European rivers and lakes show eutrophication symptoms up to 40%. Besides diffuse pollution coming from agricultural sources, urban waste water discharges are the second most important pollution source in terms of eutrophication of water bodies. Total nitrogen coming from urban waste water sources can contribute up to 50% of the entire impact (EEA report no 4 “nutrients in European ecosystems”, 1999).

Different pieces of EU environment legislation, the marine conventions and river conventions aim at combating the eutrophication problem of European waters.

Since the Urban Waste Water Treatment Directive has been in force for more than ten years, significant efforts to reduce pollution have already been undertaken. Efforts in waste water treatment, therefore, have resulted in a considerable improvement of the water quality in freshwaters. For example, BOD<sub>5</sub> levels in European rivers have been reduced by 20-30% since the 90s, phosphorous concentrations have declined by 30-40% and ammonium concentrations around 40%. Despite efforts to reduce nitrogen from urban waste water, the total nitrogen concentrations in European rivers have remained high. This reflects the nitrogen impact by agriculture, but also the still insufficient nitrogen removal by waste water treatment plants (EEA fact sheet “E8 – urban waste water treatment” and EEA “Environmental signals”, 2002).

The eutrophication of marine and coastal waters, therefore, still remains a severe problem. No positive trend of “chlorophyll a” summer concentrations, as an indicator for eutrophication, was observed during the last 15 years until 2000 (EEA “Environmental signals”, 2002).

## **Improvements and continued challenges in the implementation of the Urban Waste Water Treatment Directive**

Since 1998, when the first major deadline had expired, considerable efforts have been undertaken by Member States and improvements on the waste water treatment sector were achieved in many countries.

- Significant improvements have been reached, in particular, in terms of the **identification of sensitive areas**, requiring specific water protection for reasons such as eutrophication, but also bathing water zones, etc. Many Member States have been less restrictive in identifying sensitive areas than in the past. This will lead to a positive effect on water quality in the European Union in future. Member States currently consider that about 38% of the produced waste water load falling under the scope of the Directive is discharged into sensitive areas. However, a high number of areas considered by the Commission to suffer from eutrophication still have still not been identified by the Member States. Furthermore, some Member States still ignore the fact that waste water which has not been properly treated will be carried via the river basin and cause pollution in downstream river sections or marine waters. They have not, therefore, provided the necessary measures to tackle the problem of water pollution for a large number of agglomerations. Member States have also underestimated the necessary treatment requirements for large cities such as Paris, London, Madrid, Milan and others.

Also certain improvements in terms of **waste water infrastructure in sensitive areas** and their catchments have taken place in many Member States. Since 1998, Denmark, Germany and Austria were already close to conformity or in conformity with the Directive. However, apart from Germany and the Netherlands, which apply Article 5(4) and have already achieved a good level of compliance by 2002, still only about 42% of the agglomerations discharging into sensitive areas provided the required more stringent waste water treatment; 58% of their waste water was discharged without receiving sufficient treatment.

The monitoring information on the performance of treatment plants 1999, showed that in the Member States not applying Article 5(4) the real performance of plants was not in compliance in more than 50% of the evaluated agglomerations.

Taking into account waste water treatment infrastructure plus insufficient treatment performance of plants, one can assume that throughout the entire European Union it is still the case that more than 50% of the waste water discharged into sensitive areas, may not be treated sufficiently.

- The verification of the 2000 deadline relevant for larger agglomerations in “normal areas“, gave a considerably better picture for many Member States. As “normal” areas do not require specific protection, only secondary treatment is required for waste water discharges into these areas. By the end of 2000, secondary treatment facilities have been put in place for about 69% of the waste water load produced in normal areas. Greece, Ireland and Italy provided secondary treatment for less than 50% of the waste water load affected by the deadline.
- As regards waste water treatment in large EU cities, the Commission’s verification showed that the situation had significantly improved since 1998, and 387 of the 556 cities with a population equivalent of more than 150 000, provided a sufficient standard of waste water

treatment to comply with the Directive. The number of cities without any waste water treatment decreased from 37 to 25, but still includes large cities such as Donostia-San Sebastian, Cadiz, Cork, Milan, Barreiro, Brighton and others.

- Waste water collection in the European Union currently presents the following picture. Member States reported 91% and 77% of the affected agglomerations in sensitive areas and “normal areas” respectively to be provided with complying collecting systems. Almost half of the Member States reported that 100% of the agglomerations in sensitive areas comply in terms of waste water collection. In Belgium, Spain and Italy less than 50% of the waste water load in sensitive areas was sufficiently collected. In “normal areas” only Italy showed a compliance rate of less than 50%. The Commission currently relies on the information supplied by Member States and has not verified this information independently.

Considering the insufficient waste water treatment by treatment plants and, additionally, the fact that a high percentage of waste water is not even collected, the waste water treatment situation in Europe is still very unsatisfactory.

- Waste water discharges from certain agro-food industry sectors falling under the scope of the Directive, represent a waste water load of about 59 million population equivalents. Member States reported a compliance rate of the industrial discharges of 68% and often 100%. Currently, the Commission has to base its findings on the Member States information without having independently verified the situation on industrial discharges.
- As increasing waste water treatment is followed by increased sewage sludge production and with it the problem of its disposal, the Commission wished to present a picture on the development of sludge production and its disposal. In 2000, the total amount of produced sewage sludge was seven million tonnes dry substance. No significant change of sludge re-use was observed, but sludge incineration has almost doubled since 1992. However, as 20% of the sludge disposal routes could not be specified by the Member States, the data did not allow any detailed analysis.
- The current EU soil policy is looking at soil in a comprehensive way. The issue on sludge spreading on land and, particular, the revision of the legislative sewage sludge proposal has therefore been integrated and will further be dealt with in the ongoing Soil Thematic Strategy of the Commission.
- Member States’ co-operation with the Commission in terms of data transmission has improved considerably. However, it is still the case that deadlines are not respected and that the data is incomplete and the data quality is often poor. In some cases, Member states have simply not provided the requested information. The Commission will continue to work with the Member states in order to improve data transfer and reporting.

## **Investments**

The Urban Waste Water Treatment Directive represents the most cost intensive legislation in the environmental sector, due to its rigorous requirement for providing waste water treatment infrastructure for urban areas. As it is not obligatory for Member States to provide information on investments, the data received by the Commission were not sufficiently complete to be presented here.. However, the European Commission study on “investment and employment related to EU policy on air, water and waste” (2000), estimates that about 152 billion Euro were invested for waste water infrastructure over the period 1990-2010. The

European Commission provides support for the implementation of the Urban Waste Water Treatment Directive in Member States and Candidate States of about 5 billion Euro per year.

## **Conclusion**

The above results show that, despite improvements having taken place, major delays in implementing the Directive still exist for most Member States. The Commission is concerned about the implementation situation as described in this report and would encourage Member States to speed up their efforts and provide the investment needed to comply with the Directive.

Some Member States have shown, namely Denmark, Germany, Austria and with certain restrictions also the Netherlands, that a successful implementation of the Urban Waste Water Treatment Directive is possible, leading to significant improvement of waters.

The Commission will continue to verify conformity with the obligations imposed by the Directive, in particular the deadline of 31 December 2005, and the implementation of the Directive in the new Member States in the future.

As waste water from urban resources represents one of the most significant pollution impacts on the aquatic environment, the successful implementation of the Urban Waste Water Treatment Directive will significantly influence the implementation of the Water Framework Directive and future water quality in all EU Member States.

For the Candidate countries, the Directive represents a particular challenge and many Member States still have to improve significantly. Therefore the implementation of the Directive will remain a significant challenge in most parts of Europe. In addition, waste water treatment, as well as waste water re-use in order to ensure human health and protect the environment will receive further importance due to increased floods and droughts as a consequence of climate change.