"TERMS AND DEFINITIONS OF THE URBAN WASTE WATER TREATMENT DIRECTIVE (91/271/EEC)"

The document is agreed on UWWTD-REP working group meeting on 20 December 2006. The document may be used as guidance for the reporting process under Urban Waste Water Treatment Directive (91/271/EEC).

Compiled FINAL version

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GENERAL NOTE:

The informal document represents the outcome of discussions with Member State experts and reflects the results of a sharing of experiences in relation to the implementation in the Member States of Directive 91/271/EEC concerning urban wastewater treatment. It may be used as guidance for implementation and for reporting under the Directive. The document does not necessarily represent the official, formal position of any of partners. Hence the views expressed in the document do not necessarily represent the views of the European Commission. Finally, the interpretation of certain terms and concepts referred to in the guidance document may be reviewed. This may occur in the light of new information and enhanced understanding as well as in the light of important developments such as new ECJ decisions. The European Court of Justice (ECJ) has the sole right to make definitive interpretations of the text of, and the terms and concepts used in, the Directive.

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ABBREVIATIONS

BOD	*biochemical oxygen demand*
CAofSA	*catchment area of sensitive area*
COD	*chemical oxygen demand*
CS	*collecting system*
DP	*discharge point*
EU	*European Union*
ECJ	*European Court of Justice*
E-PRTR	*European Pollution Release and Transfer Register*
IAS	*individual or appropriate systems*
LSA	*less sensitive areas*
NA	*normal areas*
ODC	*organic design capacity*
p.e.	*population equivalent*
SA	*sensitive areas*
TOC	*total oxygen demand*
TOD	*total organic carbon*
UWWTD	*Urban Waste Water Treatment Directive*
UWWTP	*urban waste water treatment plant*
WWTP	*waste water treatment plant*

Terms and definitions of the Urban Waste Water Treatment Directive (91/271/EEC)

Introduction

Directive 91/271/EEC concerning urban waste water treatment[1] (UWWTD) plays a major role in the management of urban waste water and in the protection of receiving surface waters and the aquatic environment. Its implementation in the EU-15 even more than 15 years after adoption still presents significant challenges. Challenges are even more marked for the EU-10 as the Directive is one of the most expensive (challenging) pieces of EU legislation to implement. Furthermore, the EU-10 Member States have negotiated individual transitional periods for its implementation. The last deadline expires on 31 December 2015. At the same time, considerable financial support will be available from instruments like the Cohesion Fund and the Regional Development Fund.

The principal objective of this informal document is to support reporting exercises under the Directive by providing guidance on key terms and concepts. It also aims to help those authorities responsible for implementing the Directive to better understand certain of its key provisions. The explanations of the terms and concepts given in the guidance document will be referred to in the manual for filling in reporting questionnaires under the Directive.

The document covers a limited number of terms and concepts and does not set out to be comprehensive. It should also be read in the light of relevant judgments of the European Court of Justice (ECJ) presented in Annex 1.

The document has been drafted by the services of the Environment Directorate-General of the European Commission. It draws on the very valuable discussions and exchanges that took place between 2004 and 2006 in the informal working group on reporting created by the Urban Waste Water Committee and made up of Member States experts and Commission officials.

This document is not intended to give absolute answers to site-specific questions. Indeed, such matters should be dealt with on a case-by-case basis, while bearing in mind the orientations provided by the document.

The document may be revised in the future to take account of any future ECJ case-law as well as experience gained from the implementation of the Directive in the Member States.

[1] OJ L 135, 30.05.1991, p.40

Clarification of certain concepts and terms

1. Agglomeration

1.1. Definition of agglomeration

1. The definition of 'agglomeration' is given in Article 2(4) of the Directive:

   'Agglomeration' means: an area where the population and/or economic activities are sufficiently concentrated for urban waste water to be collected and conducted to an urban waste water treatment plant or to a final discharge point"

2. The term agglomeration refers in the first place to a **sufficiently concentrated area** for urban wastewater to be collected and conducted to an urban waste water treatment plant.

   The existence of an agglomeration is independent from the existence of the collecting system. Nor is the presence of an agglomeration related to the existence of a treatment plant. The existence of an agglomeration relates to a de facto situation of '*population and/or economic activities, which are sufficiently concentrated for urban waste water to be collected and conducted to an urban wastewater treatment plant or a final discharge point*'. The concept of agglomeration therefore also includes those areas which are sufficiently concentrated but where a collecting system is not yet in place. Moreover, because the demands of the Directive shall be fulfilled also in the future it is important[2] to take the growth of the agglomeration into account when designing wastewater collection systems and urban wastewater treatment plants. Therefore planning of investments becomes crucial in case of low connection rates and/or expansion of agglomerations.

   It should be underlined that the agglomeration coincides with the sufficiently concentrated area itself and not with the de facto situation of the existing "catchment area" of a collecting system (i.e. network of sewers) within the agglomeration.

   However, when the collecting system is fully in place, the limits of the agglomeration under the Directive may coincide with the limits of the collecting system. In other words, the "catchment area" of a collecting system coincides with the limits of the agglomeration where the connection rate for the agglomeration is 100 %.

   It might happen that an agglomeration decreases in size over time and that the collecting system no longer coincides with the limits of the agglomeration. In this case, the limits of the agglomeration should be reviewed and the size of the agglomeration should be re-calculated/updated.

3. In particular, it is underlined that, when implementing the Directive, Member States need to assess on case-by-case basis, and according to local conditions, the limits of each sufficiently concentrated area (i.e. agglomeration). During this process the criteria for identifying the agglomeration's limits could be:

[2] i.e. to avoid future non-compliance

a) Concentration of population (e.g. population density per certain area)

b) Concentration of economic activities

c) Sufficient concentration of criterion a) or a) and b) for urban waste water to be collected and conducted.

Regarding criterion c), it should be stressed that the provision in question refers to the possibility from a technical point of view of collecting and conducting waste water. Therefore, this criterion does not refer to the de facto situation of a collecting system being in place or not.

4. The delineation of the agglomeration should therefore reflect the borders of the sufficiently concentrated area. The Directive does not, however, lay down further details for its delineation.

5. The term 'agglomeration' should not be confused with administrative entities (such as municipalities or other local authority areas), which may carry the same name. The limits of an agglomeration may or may not correspond to the boundaries of an administrative entity. Thus, several administrative entities could form one agglomeration, and vice versa – a single administrative entity may be covered by several distinct agglomerations if they represent sufficiently concentrated areas separated in space as a result of historical or economic developments. It should be underlined that an agglomeration may also contain areas which are sufficiently concentrated but where a collecting system is not yet in place and/or where waste water is addressed through individual systems or other appropriate systems or collected in any other way.

6. For purposes of planning (including establishing and updating implementation programmes under Article 17 of the Directive), due attention is also to be paid to future extensions of an agglomeration, for example due to population growth and/or increased economic activity. Therefore, the generated load and limits/delineation of an agglomeration (i.e. the agglomeration's size in p.e.) should be regularly reviewed and updated. The updated situation is to be reflected in the reports required under Articles 15, 16 and 17.

7. The agglomeration can be served by one (relation 1:1) or by several urban waste water treatment plants (relation 1:n). Furthermore, a single agglomeration can be covered by several collecting systems, each of them connected to one or several plants. Similarly several collecting systems can be connected to the same plant. An illustration of the main different relationships between agglomerations and treatment plants is provided in Figure 1.

8. The technical choice opted for cannot lead to a lowering of the applicable treatment level which is defined exclusively by the size of the load generated by the entire agglomeration and the type and quality of the water body at the discharge point.

9. It is possible that an agglomeration will be served by several waste water treatment plants each of which discharges treated urban waste water into a different receiving water. It is also conceivable that such receiving waters will fall into different categories, i.e. sensitive as well as normal. In relation to sensitive receiving waters, the wording of Articles 3 and

5(2)[3] indicates that it is the population equivalent of the entire agglomeration (i.e. total generated load expressed in p.e.) rather than the capacity of any individual treatment plant serving that agglomeration that will determine whether more stringent treatment is required. Thus, if the agglomeration has more than 10,000 p.e., more stringent treatment must be provided by the appropriate deadline for waste water discharged to the sensitive area even if that accounts for only a portion of the agglomeration's treated wastewater.

This main principle[4] is illustrated by means of an example:

An agglomeration of 16,000 p.e. is served by two waste water treatment plants one serving 7,000 p.e. and discharging into a sensitive area the other one serving 9,000 p.e. discharging into a normal area. In this case, the entire load of the agglomeration (16,000 p.e.) is subject to secondary treatment by 31 December 2000. Furthermore the load of 7,000 p.e., discharging into the sensitive area or its catchment, is subject to more stringent than secondary treatment by 31 December 1998 (or by the deadline applicable for areas identified as sensitive following review), as the agglomeration size and type of receiving area defines the treatment level requirements (see also Figure 2).

10. In situations where the collecting system in an individual agglomeration has been almost fully developed the "catchment area" of a collecting system will largely coincide with the limits of the agglomeration. In situations where the entire generated load of the entire sufficiently concentrated area is served by a single treatment plant, the simple case "one agglomeration – one treatment plant" will also be considered as compatible with the Directive. However it needs to be kept in mind that agglomeration is defined on the basis of a sufficiently concentrated area and not of the catchment area of an existing collecting system connected to a certain treatment plant.

[3] Article 3(1) states that *"Member States shall ensure that all agglomerations are provided with collecting systems for urban waste water..."*, and Article 5(2) states that *"Member States shall ensure that urban waste water entering collecting systems shall before discharge into sensitive areas be subject to more stringent treatment than that prescribed in Article 4, by 31 December 1998 at the latest for all discharges from agglomerations of more than 10,000 p.e."*

[4] i.e. the size of an agglomeration in p.e., the receiving area and the type of receiving water body (freshwater, estuary or coastal) define the treatment level required

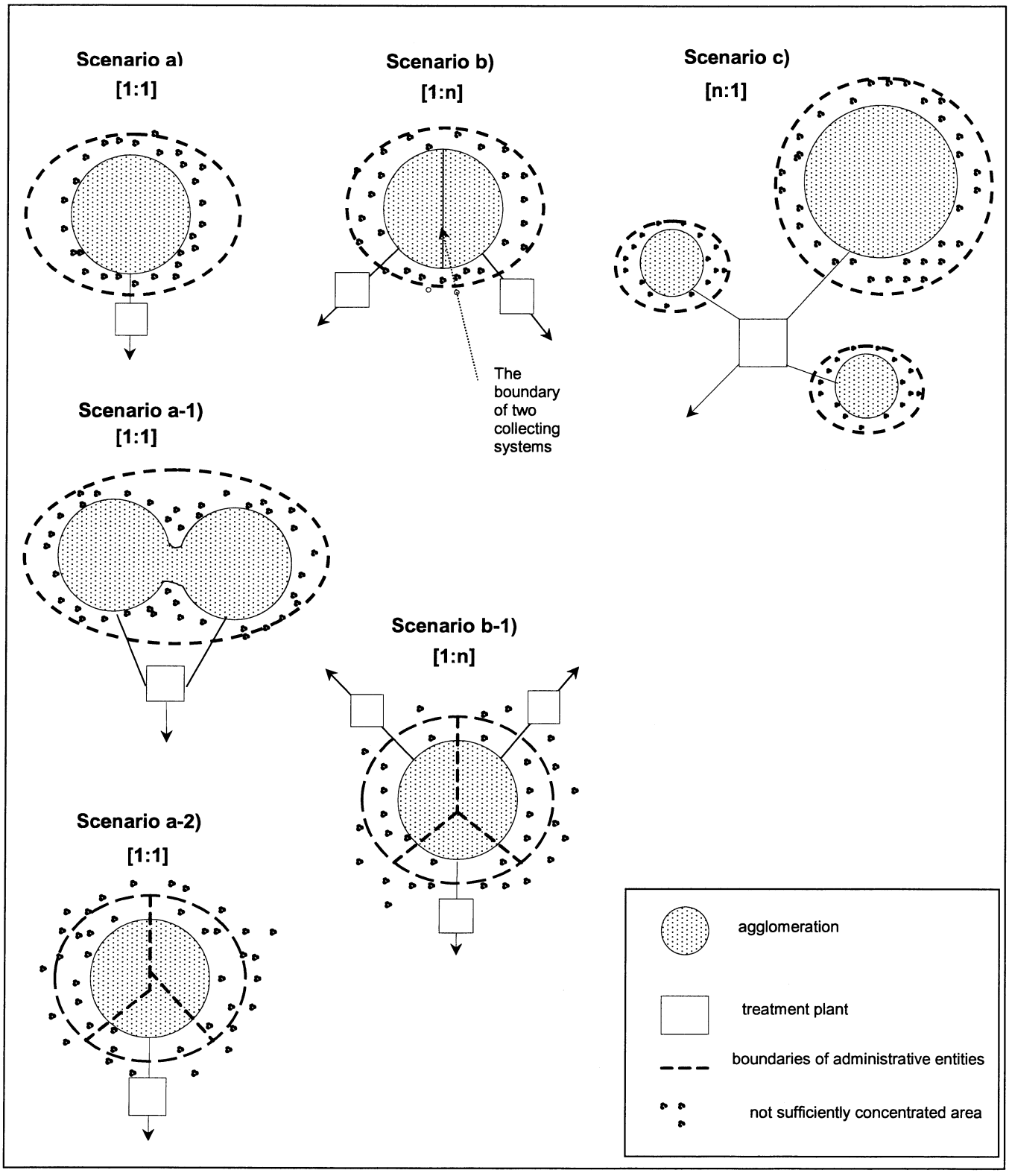

Figure 1. Possible relationships between agglomerations and urban waste water treatment plants.

Scenario a) represents the simple case where one agglomeration is served by one collecting system[5] and one treatment plant (WWTP).

Scenario a-1) represents a variation of a) in which a number of proximate and sufficiently concentrated settlements that are loosely but continuously connected are served by a

[5] As defined in Article 2(5) of the Directive

single treatment plant. An example of loose continuity would be an otherwise coherent settlement divided by a river or highway. Another example would be closely connected villages or towns, which are treated as a unity for purposes of collection and treatment. In these circumstances, it is relevant to treat the resulting network (i.e. collecting systems and treatment plant) as representing a single agglomeration since there is continuity and since the resulting load could have an impact to one single water body. This type of consolidation is to be encouraged where it results in a coherent approach to treating waste water arising in closely connected villages and towns. As concerns reporting, the basic element for reporting is the consolidated agglomeration and not the component administrative entities.

Scenario a-2) represents a single agglomeration, covering several adjacent administrative entities, served by a single collecting system and single plant

Scenario b) represents one agglomeration served by two collecting systems, each of them connected to a treatment plant. The division of a single sufficiently concentrated area into more than one agglomeration is to be considered unacceptable **if it results in any lowering or deferment** of the collection and treatment requirements that would otherwise apply to the city or settlement if it were treated as a single agglomeration. Such division may be unobjectionable where it does not affect the requirements of the Directive. However, in the interests of coherence and transparency, it should be clearly indicated in any report to the Commission that the agglomerations concerned relate to the same city or settlement. In addition there should be a single presentation for purposes of presenting data for cities, towns and settlements.

Scenario b-1) represents a single agglomeration covering several adjacent administrative entities served by several collecting systems and several plants.

Scenario c) represents several distinct and physically separate agglomerations having separate collecting systems but served by a single urban wastewater treatment plant. While legal obligations under the directive will be determined by the size of each agglomeration and the nature of the receiving water, it is important that account be taken of the cumulative impact resulting from having a single discharge point. In particular this may have implications for the achievement of water quality objectives under other Community environmental legislation, for example the Bathing water directive, or the Water framework directive. Each physically distinct agglomeration should be separately reported.

NB: It is not the purpose of these scenarios to illustrate the presence of the individual or appropriate systems referred in Article 3 of the Directive.

11. In summary, the agglomeration should include:

(1) Sufficiently concentrated areas where the collecting system[6] (or systems) as laid down under Articles 2(5), 3 and Annex I.A **is in place** and wastewater is or should be conducted (or transported in case of individual or other appropriate systems, IAS) to a treatment plant.

(2) Sufficiently concentrated areas where the collecting system **is not in place.** There are

[6] See section 2 of this document in relation to the clarification of the term 'collecting systems' in the light of Article 3(1) of the Directive.

three possibilities:

(2.a) sufficiently concentrated areas where urban waste water is addressed through individual or other appropriate systems **which achieve** the same level of environmental protection as a collecting system (i.e. not a "collecting system" according to Article 2(5) but conforming to Article 3(1) final sub-paragraph),

(2.b) sufficiently concentrated areas where urban waste water is addressed through individual or other appropriate systems **which do not achieve** the same level of environmental protection as a collecting system (i.e. non-compliant),

(2.c) other sufficiently concentrated areas, where urban waste water **is not addressed** in any way (compliance yet to be achieved).

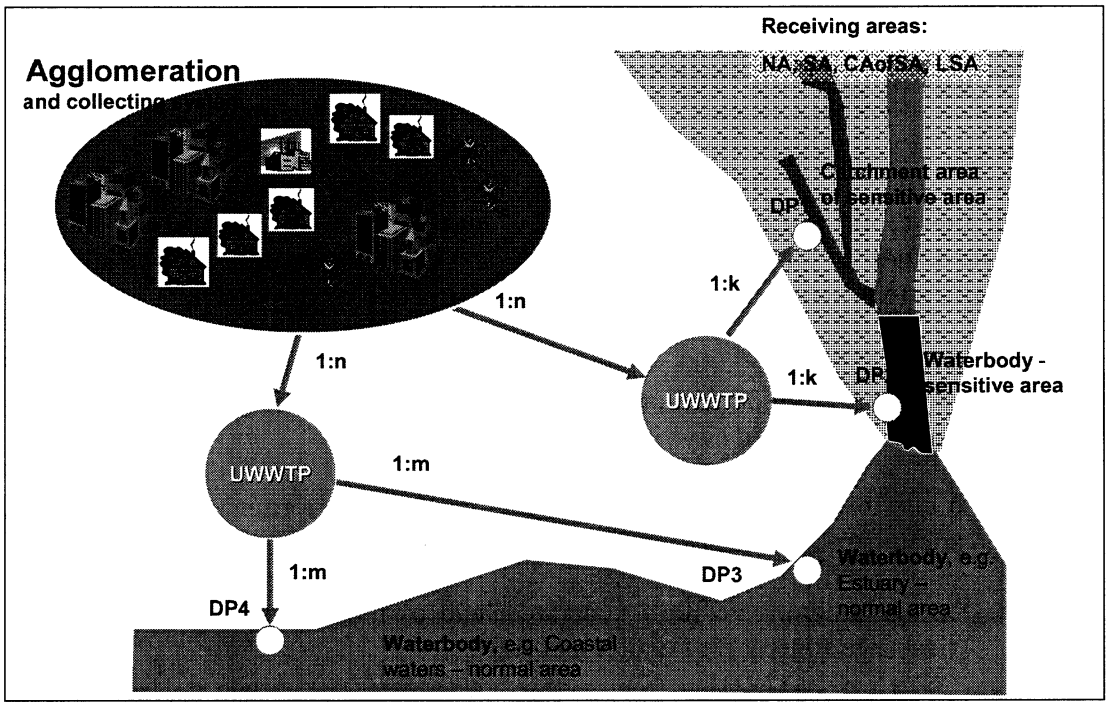

Figure 2: Possible relationships between an agglomeration and the location of related discharge points according to different types of receiving water bodies.

12. All urban waste water generated in the agglomeration must be collected, conducted and treated as required by the Directive, taking into account provision for storm water overflows[7].

13. It is advisable to provide guidance to the relevant authorities in order that the spirit and letter of the Directive are respected. In this context, the objective of the Directive (Article 1) **to protect the environment** from the adverse effects of waste water discharges deserves mention.

14. The primary level for reporting on the basis of the Directive is the level of the agglomeration.

[7] See Annex I.A of the Directive, including footnote.

1.2. Big city / big discharger

1. Large agglomerations leading to major discharges of urban waste water are an important indicator for assessing the progress of waste water treatment in Europe. They can be regarded as "hot spots" in terms of pressures on the aquatic environment.

   This indicator is of particular importance for informing EU citizens on the progress achieved and the measures implemented. As European co-financing is involved in many of the major infrastructure works (collecting systems, treatment plants and systems) required for the implementation of the Directive, there is a need to inform the European tax-payer on how Community financing is applied under the Regional and Cohesion funds. Finally, full and transparent information on the implementation of the Directive will help to raise public awareness on the state of the environment.

2. The term "big city" is not found in the Directive. It appeared for the first time in the 2nd Commission Synthesis Report[8]. This stated that the Commission wished to provide EU citizens with " *a 'snapshot' of the level of treatment of urban waste water in all major European cities* ... ". However "big city" is indirectly linked to the definition of agglomeration, as it represents sufficiently concentrated area for people to live and economic activities to perform and where all generated wastewater shall be collected via collecting systems and treated according to the Directive requirements.

3. The threshold value of 150,000 population equivalent (p.e.) was selected to identify big city/big discharger. Agglomerations of 150,000 or more p.e. are also called "big cities". Therefore, by the term 'big city' is understood

   a. a city/town with more than 150,000 inhabitants (formed from one or several administrative entities) and/or

   b. an agglomeration with a generated load of more than 150,000 p.e. (or other discharge source(s) of equivalent size).

4. According to this definition, a "big city/big discharger" is therefore a broader concept than a large "real" city. The motivation of the evaluation of "Big cities" is the detection of the biggest "stressors" to the environment, which covers not only "real" cities/ towns, but also other big dischargers of urban waste water.

5. As with any agglomeration, a big city may be served by one or several collecting systems, which in turn may be connected to one or several treatment plants.

6. Big cities frequently cover several adjacent administrative entities (such as communes/municipalities).

7. The Commission will continue to report on the status of waste water treatment in big cities as these represent sufficiently concentrated areas and are the main stress points or hot spots of urban wastewater pollution from urban areas to receiving water bodies and the environmental media. Continued use of the concept will also allow a presentation of

[8] COM(2001) 685, adopted by the European Commission on 21 November 2001, ISBN 92-894-2108-8

progress achieved over several reporting cycles, i.e. since 2001 as set out in the 2nd, 3rd and upcoming 4th Commission Synthesis Reports.[9]

1.3. Load of an agglomeration

1. The total waste water load generated by an agglomeration[10] expresses the size of an agglomeration in technical terms and is the first and main criterion for determining the waste water collection and treatment requirements and the corresponding reporting obligations.

2. Guidance on the calculation of the load generated by an agglomeration should help to achieve an appropriate quantification of the size of that agglomeration in terms of population equivalent (p.e). Member States should ensure that the method applied does not lead to any underestimation of the applicable treatment level and the overall volume to be treated.

3. **Generated load** means the organic biodegradable load of the agglomeration, expressed in p.e. It consists of urban waste water[11] requiring collection, or otherwise to be addressed, under Article 3(1) of the Directive[12]. It does not include the load of unmixed industrial waste water which is treated separately and directly discharged into waters.

4. The generated load or the "size" of the agglomeration is expressed in p.e. According to Article 2(6) of the Directive, "*one population equivalent (p.e.) means the organic biodegradable load having a five-day biochemical oxygen demand (BOD_5) of 60 g of oxygen per day*".

   If Member States apply other criteria, such as a BOD_5[13] of 55 g or 70 g of oxygen per day, or BOD_7 or BOD_{20}, they should convert it and express it in BOD_5 of 60 g oxygen per day.

5. The generated load should take into account all normal local climatic conditions as well as seasonal variations in order to have the correct capacity of collecting system and wastewater treatment plant (see Articles 4(4) and 10, as these are indirectly linked to the calculation of the agglomeration load).

6. The generated load takes into account the load of:
   - The resident population
   - The non-resident population (tourists etc.)
   - Industries covered by Art.11.

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[9] The 2nd Commission Synthesis Report, ISBN 92-894-2108-8, was published in 2002 and, the 3rd ISBN 92-894-7830-6, in 2004.

[10] In previous reporting exercises, the technical term used for 'generated load' was 'nominal load'.

[11] 'urban waste water', according to Article 2(1), means domestic waste water or the mixture of domestic waste water with industrial waste water and/or run-off rain water

[12] As a general rule, via collecting systems, but in special cases described in paragraph 3 of Article 3(1) individual or other appropriate systems may be used.

[13] BOD means biochemical oxygen demand

- Industrial waste water from enterprises and economic activities (including small and medium sized-enterprises) that is or should be discharged into the collecting system or urban wastewater treatment plant
- All remaining urban waste water whether collected (via collecting systems as referred to in Article 3(1)) or not collected but generated in an agglomeration.

The generated load should therefore also include waste water which is generated in an agglomeration and addressed through individual or other appropriate systems.

7. In many cases the generated load of an agglomeration will diverge from the connected or incoming[14] load measured at the inlet of the treatment plant(s). This is due to the fact that the generated load of an agglomeration should be based on the general calculation scheme presented in section 1.4. In addition the estimated generated load must also include a safety margin in order to be able to comply with the Directive at all times. However, also in case the urban waste water collecting system does not cover the entire agglomeration, the generated load is not identical to the connected / incoming load.

8. The generated load is a parameter that can, in practical terms, not always be calculated in full detail, and can in such cases be based partly on estimations.

[14] i.e. 'connected load' means the load conducted through the collecting systems (art.2(5)), 'incoming load' means the total load entering the treatment plant regardless of whether it is conducted by way of the collecting system or by any other means such as tanker delivery.

1.4. Calculation scheme for the generated load of an agglomeration

1. **The general calculation scheme:**

   The calculation of the generated load should include at least:

   - the resident population + seasonal changes + non-resident population (e.g. tourism) and
   - industrial waste water (such as from small and medium sized enterprises and/or economic activities) being discharged into an urban wastewater collecting system or urban wastewater treatment plant (= industries covered by Article 11 of the Directive) and
   - loads of domestic wastewater or urban wastewater from the above-mentioned sectors which should be collected by the collecting system (and/or addressed through IAS), but are not collected or do not reach the treatment plant (incomplete collecting systems, etc.)

   This approach is generally applicable. It applies to the entire agglomeration and includes the areas not yet served with collecting systems and/or IAS and the areas not yet served by treatment plants.

2. If for practical reasons a Member State uses a different methodology to calculate the generated loads of agglomerations, it should provide the Commission **with information on the approach/method, which has been used**. The Member States should ensure that the generated load of an agglomeration is not underestimated or the provisions of the Directive not undermined. The Commission will assess whether a Member State's approach and/or its verification is appropriate. In case of doubts it may request further information.

1.5. Change of the generated load of an agglomeration

1. It is possible that the load generated by the agglomeration changes with time. A change of the load can be due to a range of factors, including:

   - change (decrease or increase) of the population of the agglomeration,
   - change (decrease or increase) of the sufficiently concentrated area
   - connection to the collecting system or disconnection from it by industries and other economic activities within the agglomeration.

   A change in the estimated generated load can also occur due to changes in the calculation method.

2. When the generated load changes, it is possible that the requirements for collecting systems and/or treatment (Articles 3, 4, 5 and 7 of the Directive) drop below or exceed the thresholds in p.e. foreseen by the Directive.

   For example, in the following circumstances, it may happen that the treatment requirement for a given agglomeration is altered:

   – The relevant threshold value in p.e. is exceeded and the agglomeration now requires a higher treatment level.

   – The generated load of the agglomeration drops below the relevant threshold value in p.e. and the required treatment level is therefore reduced.

3. When the changes of the generated load (size of an agglomeration) result

   - in lower treatment requirements, Member States may maintain the previous (stricter) treatment level.

   - in higher treatment requirements, these should be implemented by the deadline foreseen under the Directive and/or Accession Treaty. For reporting purposes, non-compliance should be indicated to the Commission along with the realistic timetable in which compliance is planned to be achieved.

4. Where deadlines have already expired, collection and treatment capacity should keep pace with urban growth. Otherwise there is a high risk of deterioration in the condition of the receiving environment. It is considered that urban land-use planning and decisions should take full account of this. Changes in growth of agglomerations should be reflected under Article 17 programmes and updates.

5. As a minimum, secondary treatment has to be maintained in normal and sensitive areas for all agglomerations of more than 2,000 p.e. discharging into freshwaters and estuaries, and (in any case) for all agglomerations of more than 10,000 p.e. discharging into coastal waters.

6. If an agglomeration size after the change in generated load is not coming within any reporting threshold any longer it should be reported nevertheless in the next report to confirm the transition.

2. Collecting systems

2.1. Provisions and scope

1. Article 2(5) of the Directive defines *"collecting system"* to mean: *"a system of conduits which collects and conducts urban waste water"*.

2. The requirements concerning the provision of collecting systems are laid down in the first two sub-paragraphs of Article 3 (1):

   "Member States shall ensure that all agglomerations are provided with collecting systems for urban waste water,

   - *at the latest by 31 December 2000 for those with a population equivalent (p.e.) of more than 15,000, and*

   - *at latest by 31 December 2005 for those with a p.e. of between 2,000 and 15,000.*

   For urban waste water discharging into receiving waters which are considered 'sensitive areas' as defined under Article 5, Member States shall ensure that collection systems are provided at the latest by 31 December 1998 for agglomerations of more than 10,000 p.e."

3. An exception to the general requirements for provision of collecting systems within agglomeration is foreseen under the final sub-paragraph of Article 3(1).

   "Where the establishment of a collecting system is not justified either because it would produce no environmental benefit or because it would involve excessive cost, individual systems or other appropriate systems which achieve the same level of environmental protection shall be used"

4. According to Article 3(2) of the Directive, "*the collecting systems described in Article 3(1) shall satisfy the requirements of Annex IA*":

   "*Collecting systems shall take into account waste water treatment requirements. The design, construction and maintenance of collecting systems shall be undertaken in accordance with the best technical knowledge not entailing excessive costs, notably regarding:*

   - *volume and characteristics of urban waste water,*
   - *prevention of leaks,*
   - *limitation of pollution of receiving waters due to storm water overflows*".

5. Footnote (1) to Annex I.A on collecting systems states:

   "*Given that it is not possible in practice to construct collecting systems and treatment plants in a way such that all waste water*[15] *can be treated during situations such as unusual heavy rain, Member States shall decide upon the measures to limit pollution from storm water overflows. Such measures should be based on dilution rates or capacity in relation to dry weather flow, or could specify a certain acceptable number of overflows per year.*"

[15] 'waste water' here means urban waste water according to the Article 2(1).

6. This implies that the collecting system should be established so that it can operate under all normal local weather conditions and including all normal seasonal variations of waste water volume. This requirement for operation under all normal local weather conditions is paralleled by the provisions of Article 10 of the Directive in relation to treatment plants:

   "*Member States shall ensure that the urban waste water treatment plants built to comply with the requirements of Art.4, 5, 6, and 7 are designed, constructed, operated and maintained to ensure sufficient performance under all normal local climatic conditions. When designing the plants, seasonal variations of the load shall be taken into account.*"

7. The requirement to have a collecting system is distinct from any requirements concerning final destination of the waste water.

8. Case C-119/2002 *Commission v Greece* confirms that if no direct discharges to the water body occur but there are indirect discharges via the ground/soil, treatment requirements must nonetheless be met[16].

2.2. Compliance in respect of collecting systems

1. To comply with the Directive's requirements for collecting systems, Member States must ensure that all the agglomerations concerned (i.e. of 2,000 p.e. or more on 31 December 2005) are provided with complete collecting systems, subject to the exception in the last sub-paragraph of Article 3(1). It thus has to be ensured that the entire area of the agglomeration is equipped with collecting systems (as described in Article 3(1)), i.e. all generated urban waste water in an agglomeration is collected.

2. A complete collecting system, subject to the exception in the final subparagraph of Article 3(1), must be the basis of the development plan for any sufficiently concentrated area.

3. Under the final sub-paragraph of Article 3(1), in exceptional cases, where establishment of a collecting system is not justified, urban waste water shall be addressed through individual or other appropriate systems (IAS). These shall achieve the same level of environmental protection as provided for urban waste water discharged into the collecting system.

   This clause gives rise to rights and duties for individuals, so it is important that it is correctly transposed into the national law[17]. Furthermore, the question of whether to allow an individual system or other appropriate system (IAS) is to be decided on a case-by-case basis and the Member State has to be able to justify the non-provision of a collecting system in accordance with the first two sub-paragraphs of Article 3(1).

[16] Assistance under the Cohesion Fund has been allocated for construction of an urban wastewater treatment plant providing more stringent treatment.

[17] Support for his statement is found in paragraph 8 of ECJ judgement in Case C-131/88, *Commission v Germany*, which related to implementation in national law of Directive 80/68/EEC on the protection of groundwater against pollution caused by certain dangerous substances. There are clear analogies between the circumstances covered in the final sub-paragraph of Article 3(1) of the Directive and the circumstances covered by Directive 80/68/EEC.

Member States should be in a position to fully explain the extent and coverage of collecting systems and, in exceptional cases, of individual systems, (especially for planning purposes) as it may concern the rights of the individuals living within an agglomeration and is often of particular relevance to those living on the periphery.

4. For agglomerations of less than 2,000 p.e., a collecting system is not required under Article 3(1). However, wherever a collection system is in place, the provisions of Article 7 on appropriate treatment apply. While Annex I.A is not formally indicated as being applicable to such a collecting system, it is considered that the wording of Article 7 implies a standard of care in relation to the collecting system itself. This is because, once wastewater enters such a collecting system, its discharge becomes subject to "appropriate treatment". This condition may not be met if the collecting system is subject to chronic leaks or a high level of storm-water overflows, or if pollution of the receiving waters by storm water overflows is not limited.

2.3. Individual and other appropriate systems (IAS) located WITHIN agglomerations

This section concerns agglomerations having more than 2,000 p.e..

1. When part of the wastewater load arising **within** an agglomeration is addressed through individual or appropriate systems (IAS), it has to be included in the calculation of the generated load of the agglomeration. The load collected via IAS within the agglomeration therefore contributes to the size in p.e. of the agglomeration.

2. Waste water addressed through IAS can be treated locally or transported to a treatment plant.

3. To regard a system as an '*individual or other appropriate system*' for the purposes of the final sub-paragraph of Article 3(1) of the Directive, the respective system has to represent an exception and then only on the basis that establishment of a collecting system is not justified. In this context, it may again be recalled that '*collecting system*' is defined in Article 2(5) to mean a '*system of conduits that collects and conducts urban waste water*'.

4. Furthermore, an '*individual system*' or an '*other appropriate system*' can be accepted to be in conformity with the final sub-paragraph of Article 3(1) only where '*the same level of environmental protection*' is achieved.

5. For purposes of making a comparison, the question arises as to what are the essential characteristics of the environmental protection offered by a collecting system. A collecting system represents a form of containment of urban waste water - that is, a means of separating it from the natural environment until it reaches the connection point to the treatment plant. It could therefore be argued that to qualify as appropriate, a system must ensure that urban waste water is similarly contained and separated from the surrounding environment.

6. In interpreting the phrase *'the same level of environmental protection'*, it is also relevant to recall the full context of Article 3(1). The waste water delivered by all the collecting systems covered by this provision is subject to various standards of treatment. This lends force to an argument that, in so far as collecting systems may be claimed to be 'appropriate' for purposes of Article 3(1) of the Directive, the waste water addressed through IAS should meet treatment standards[18] that are at least as high as those that apply to waste water delivered by a conventional collecting system[19]. This is subject to the qualification that the required treatment level is to be determined and assessed in relation to the agglomeration as a whole.

7. The decision as to whether a system can be regarded as in conformity with the final sub-paragraph of Article 3(1) has to be made individually on a case-by-case basis, taking into consideration the specific circumstances. A justification is always required (given the precise wording of the last sub-paragraph of Article 3(1)). The necessity for justification should be embodied in the transposing legislation. This is crucial from the point of view of the individual rights of citizens. The Commission should also receive summary information on the exceptions applied under the final sub-paragraph of Article 3(1).

8. Contained systems

   Storage tanks and other types of contained systems can be considered to be in conformity with the final sub-paragraph of Article 3(1) if they are impervious, do not have an overflow, and if the waste water is regularly collected and transported to a treatment plant.

   By way of illustration, it is worth noting that in Case C-119/02, *Commission v Greece,* the European Court of Justice considered that arrangements that the Greek authorities had made for removing wastewater from a large number of cess-pits were unsatisfactory. In particular, it was not evident that the fleet of tankers used by the Greek authorities had enough capacity to drain the volumes of waste water arising.

9. Uncontained systems

   Uncontained systems are typically not watertight or not hermetic (direct contact with the surrounding environment) and/or are equipped with an outflow/overflow. They are commonly referred to as septic tanks. It may be argued that such uncontained systems inherently lack the characteristics to qualify as 'appropriate systems' for purposes of the final sub-paragraph of Article 3(1).

   An additional reason for exercising considerable caution in relation to uncontained systems (such as septic tanks and seepage pits) can be found in the reasoning of the European Court of Justice in the Case C-119/02, *Commission v Greece*. The Court noted that the use of septic tanks and seepage pits resulted in the indirect discharge of urban waste water through ground-water into the Gulf of Elefsina. The Court considered that such indirect discharges were subject to the same legal duty as applies to direct urban waste water discharges to a sensitive area, i.e. a duty to ensure treatment more stringent than secondary treatment. The Court noted that, in the specific case, there was no

[18] As, according to the directive, all waste water generated within agglomeration must be collected through the collecting systems and all wastewater representing the size of agglomeration must have treatment level defined by generated size of agglomeration expressed in p.e. and receiving area sensitivity and type.

[19] See also section 2.1 paragraph 8 of this document.

indication whatsoever that the urban-waste water discharged via seepage pits and septic tanks had been subjected to more stringent treatment.

It is therefore advisable that the Court's findings in Case C-119/02 are borne in mind by authorities contemplating reliance on individual and other appropriate systems (IAS) located within the limits of an agglomeration.

10. Conclusion

IAS within the meaning of the final sub-paragraph of Article 3(1) are only be in compliance with the requirements of the Directive when they ensure:

- the same level of protection of the environment as is provided by collecting systems (i.e. systems of conduits as defined in Article 2(5) of the Directive); and
- the treatment requirements applicable to the agglomeration as a whole are fulfilled.

2.4. Summary

Two approaches are possible to comply with the requirements of Article 3:

<table>
<tr><td colspan="3">Article 3
Agglomeration with load >=2,000 p.e. shall be provided with</td></tr>
<tr><td>Collecting system (CS) – general rule
Requirements for design, construction and maintenance "in accordance with the best technical knowledge not entailing excessive costs, notably regarding" (Annex I.A):
- size/capacity of collecting system has to consider volume and characteristics of urban waste water
- prevention of leaks
- limitation of pollution of receiving waters due to storm water overflows</td><td>or</td><td>Individual or other appropriate system (IAS) – exception to the rule
Requirements for design, construction and maintenance to ensure
- same level of environmental protection as a collecting system
Can be used only after a case-by-case assessment and justification concerning:
- absence of environmental benefit from having a collecting system, or
- collecting system would involve excessive costs at the time being</td></tr>
</table>

3. Systems addressing waste water collection and treatment OUTSIDE agglomerations covered by Directive 91/271/EEC

The section concerns:
- *firstly*, - agglomerations having less than 2,000 p.e. and having no collecting system, and
- *secondly*, - individual dwellings situated in the countryside (i.e. outside agglomerations falling under the directive).

This section is included in order to draw attention to the need to respect the requirements of other EU directives.

As regards reporting of the situations described in this section, there are no obligations under Directive 91/271/EEC.

1. Outside the limits of the sufficiently concentrated areas (i.e. agglomerations), for single dwellings in rural areas, small settlements and sparsely populated regions, as well as in agglomerations smaller than 2,000 p.e. without collecting systems, it is common practice that certain small settlements or single houses are equipped with individual systems to address the collection and treatment of waste water. Waste water can then be treated locally or transported to a treatment plant.

2. Those systems fall outside the scope of Directive 91/271/EEC[20]. This situation should therefore not be confused with the provisions for "individual and other appropriate systems" (IAS) under the final sub-paragraph of Article 3(1) and which are addressed in section 2.3 of this document.

3. Discharges of waste water originating from areas outside agglomerations and agglomerations with less than 2,000 p.e. without a collecting system should, however, allow the receiving waters to meet the relevant quality objectives and the relevant provisions of other Community directives. Important examples include the provisions of Directive 2000/60/EC establishing a framework for Community action in the field of water policy[21] and Directive 80/68/EEC[22] on the protection of groundwater against pollution caused by certain dangerous substances[23].

   Therefore, and even if a range of waste water disposal arrangements are excluded from the scope of the Directive because they occur outside agglomerations covered by Article 3(1) (i.e. agglomerations of less than 2,000 p.e.), it needs to be borne in mind that there are considerable challenges to ensuring that such arrangements (such as use of septic tanks, cess-pits, etc.) do not cause water pollution.

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[20] Where wastewater from outside an agglomeration is transported for treatment to a treatment plant serving an agglomeration, it should nevertheless be ensured that the treatment plant has the capacity to treat the additional load without compromising its ability to meet the requirements of the Directive.
[21] OJL 327, 22.12.2000, p.1
[22] OJL 20, 26.1.1980, p.43
[23] Directive 80/68/EEC provides for a system of controls for direct and indirect discharges of certain listed substances into groundwater. These include substances found in domestic wastewater such as ammonia and phosphorous.

4. In situations where the Directive does not apply, important factors to be considered when assessing the appropriateness of systems to address the disposal of waste water include septic tank design, density of septic tank placement, type of soil, height of water table, aquifer vulnerability and arrangements for maintenance and removal of sludge. Furthermore, certain solutions may not be hygienically safe. This is especially so if uncontained systems are present in any density.

5. Disposal systems may sometimes be referred to as septic tanks, seepage pits, cesspits or cesspools. These systems do not represent contained systems and sometimes relate to very primitive arrangements that allow wastewater to leak into the environment. Organic sewage/waste is decomposed by bacteria and settles down in the tank. Effluents flow out of the tank into the ground and the sludge is periodically pumped out.

6. Some systems are the subject of European standards, such as those for prefabricated septic tanks (EN12566-1) and packaged waste water treatment plants (EN12566-3). These standards have been prepared under Mandate M/118 "Wastewater engineering products" by CEN for the European Commission and the European Free Trade Association in relation to the Construction Products Directive (89/106/EEC). Additional standards and CEN Technical Reports are under preparation concerning small wastewater treatment systems for up to 50 p.e.

7. In case that small settlements (less than 2,000 p.e.) are equipped with collecting systems Article 7 on appropriate treatment applies (see section 4.4.)

4. Treatment of urban waste water

According to Article 1 of the Directive "*The Directive concerns the collection, treatment and discharge of urban waste water and treatment and discharge of waste water from certain industrial sectors; The objective of the Directive is to protect the environment from the adverse effects of the abovementioned waste water discharges*".

4.1. Definition of urban waste water

The Directive defines '*urban waste water*', '*domestic waste water*', and '*industrial waste water*' as follows:

> Article 2(1) '*Urban waste water' means domestic waste water or the mixture of domestic waste water with industrial waste water and/or run-off rain water*;
>
> Article 2(2) *'Domestic waste water' means waste water from residential settlements and services which originates predominantly from the human metabolism and from household activities*
>
> Article 2(3) '*Industrial waste water' means any waste water which is discharged from premises used for carrying on any trade or industry, other than domestic waste water and run-off rain water.*

4.2. Defining the correct level of treatment

1. Before addressing how to define the correct level of treatment, this document will present a technical parameter for defining the capacity of a treatment plant:

   The **organic design capacity** (ODC)[24] is a technical parameter that indicates the treatment capacity (in p.e.) of the plant. This parameter is relevant for the construction and dimension of treatment plants (i.e. the size of a plant) and is usually linked to a permit system. It refers to the maximum flows and loads of the influent the treatment plant is designed for, which conform to the specified consent standard. It is calculated in the planning phase of a treatment plant or when a plant is re-dimensioned or upgraded. When determining the ODC, growth of the agglomeration should be taken into account. Apart from its relevance for the size of treatment plants, the ODC provides information about the waste water infrastructure being (or planned to be) in place for a certain area. On a technical level, detailed guidance(s) exists for its calculation; however, there is no standardised international method and, as a result, Member States use different methods.

   Generally the organic design capacity of the treatment plant (or plants) serving the agglomeration should be equal at least to the generated load.

   In case of a complete collecting system, in the absence of leaks and the limitation of overflows, the ODC of the plant will provide a reliable indication of the generated load.

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[24] The Directive does not explicitly define the organic design capacity, but refers to it indirectly (see Article 10, Annex I).

2. The agglomeration's size (generated load) together with the type (freshwater, estuary, coastal water) and quality of the receiving water body (i.e. sensitive area, normal area, etc.) determine the treatment requirements, which summary of Directive's requirements is presented in Table 1.
3. In general terms, compliance with the Directive does not mean that Member States are exempt from having to comply with other applicable environmental legislation.
4. Population equivalents (p.e.) mentioned in Tables 1 and 2 of Annex I of the Directive refer to the size of the agglomeration, and not to the capacity of the plant (see section 1.1.3). The requirements concerning capacity of the treatment plant cannot exist in isolation from the generated load of the agglomeration as the treatment plant should correspond to the size of agglomeration and future growth to ensure on-going compliance.
5. For reporting purposes size-classes of the agglomerations shall be grouped as defined in the Decision on implementation programmes (Commission Decision 93/481/EEC)[25]:
   i. 2,000 ≤ p.e. ≤ 10,000
   ii. 10,000 < p.e. ≤ 15,000
   iii. 15,000 < p.e. ≤ 150,000
   iv. >150,000 p.e.

Table 1. Summary of the Directive's requirements according to the agglomeration size and status of receiving water body (final deadlines).

Cases	Size of agglomeration	Receiving water body	Requirements for the treatment[26] of urban waste water and Directive deadlines (and deadlines Accession Treaty)[27]	Requirements for discharge point
1	2	3	4	5
Case A	< 2,000 p.e. (freshwaters and estuaries)	NA and SA +CAofSA	Art.7 - appropriate treatment * (deadline 31/12/2005)	Art.2(9). Urban waste water after discharge allows the receiving waters to meet the relevant quality objectives and relevant provisions of this and other Community Directives
	< 10,000 p.e. (coastal waters)		Art.7 - appropriate treatment * (deadline 31/12/2005)	Art.2(9). Urban waste water after discharge allows the receiving waters to meet the relevant quality objectives and relevant provisions of this and other Community Directives
Case B	>= 2,000 p.e. (freshwaters and estuaries)	NA and SA + CAofSA	Art.4 - secondary treatment (deadline 31/12/2005)	Art. 4(3) and relevant requirements for Annex IB
	>= 10,000 p.e. (coastal waters)		Art.4 - secondary treatment (deadline 31/12/2005)	Art. 4(3) and relevant requirements for Annex IB
Case C	>10,000 p.e.	SA +CAofSA	Art.5(2,3) - more stringent treatment (deadline 31/12/1998 or within 7 years after new sensitive areas have been identified	Art.5(2,3) and relevant requirements of Annex IB

Note: NA – normal areas, SA – sensitive areas, CAofSA – catchment areas of sensitive areas
** in case if agglomeration is equipped with a collecting system*

[25] OJ L 226, 07.09.1993, p.23
[26] In case of application of Art.5(4), please consider in addition chapter on 'Application of Art.5(4)'
[27] Accession Treaty, OJ L 236, 23.09.2003, p.809-922, Annexes V-XIV

4.3. Meeting treatment requirements for collected wastewater and for agglomerations

This section addresses the treatment level for agglomerations having more than 2,000 p.e. discharging into fresh/estuarine waters, and for agglomerations having more than 10,000 p.e. discharging into coastal waters.

1. Article 4(1) provides that "*Member States shall ensure that urban waste water entering collecting systems shall before discharge be subject to secondary treatment or an equivalent treatment as follows:*

   - *At latest by 31 December 2000 for all discharges from agglomerations of more than 15,000 p.e.,*
   - *At latest by 31 December 2005 for all discharges from agglomerations of between 10,000 and 15,000 p.e.,*
   - *At latest by 31 December 2005 for discharges to fresh-water and estuaries from agglomerations of between 2,000 and 10,000 p.e.*"

2. Article 5(2) specifies that "*Member States shall ensure that urban waste water entering collecting systems shall before discharge into sensitive areas be subject to more stringent treatment than that described in Article 4, by 31 December 1998 at the latest for all discharges from agglomerations of more than 10,000 p.e.*"

3. Sections 1 and 2 of this document address issues concerning agglomerations and collecting systems and indicate that, at specific deadlines, all urban waste water generated in agglomerations of 2,000 p.e. or more must be provided with collecting systems according to Article 3(1) of the Directive.

4. Therefore:

   (1) all urban waste water from agglomerations falling within the scope of the Directive must be
   - collected, conducted[28] and
   - delivered to a treatment plant(s) or system where it is treated before it is discharged into a receiving water body

   (2) discharges of treated urban waste water[29] have to meet the requirements of Annex I.B and I.D.

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[28] This is subject to the Directive's provisions allowing for individual or appropriate systems in some exceptional circumstances. It is also subject to references in the Directive to normal local climatic conditions and seasonal variations

[29] from agglomerations of >2,000 p.e. discharging into fresh/estuarine waters, and >10,000 p.e. discharging into coastal waters

5. The agglomeration will generally be in conformity with the treatment requirements of the Directive if the following circumstances apply:

   (1) all of the generated load of urban waste water from the agglomeration is collected through collecting systems as described in section 2 and conducted (or transported in case of IAS) for treatment.

   (2) all urban waste water generated in the agglomeration enters collecting systems as required by Article 3(1) and Annex I.A and the latter are connected to urban waste water treatment plant(s) serving the agglomeration. In cases where wastewater is collected through IAS, wastewater is transported to treatment plant(s).

   (3) each collecting system is connected to a treatment plant or system where waste water is treated in line with the Directive and according to the required treatment level[30].

   (4) the discharges after treatment from each waste water treatment plant are in line with the requirements set up in Annex I.B Table 1 and/or Table 2 (treatment performance)

   (5) more stringent treatment requirements than those in Table 1 and/or Table 2 are applied where required to ensure that the receiving waters satisfy any other relevant directives (Annex I.B.4)

6. Note regarding requirements in effluents of treated waste water for BOD_5 and COD: if Member States apply other criteria than BOD5 and/or COD, such as total organic carbon (TOC) or total oxygen demand (TOD), they should convert it and express it in BOD_5 and COD. Therefore, a relationship between BOD_5, COD and the substitute parameters has to be defined.

4.4. Application of Article 7: appropriate treatment

1. The wastewater delivered by all collecting systems is subject to various standards of treatment, the minimum being '*appropriate treatment*' by 31 December 2005 for smaller agglomerations.

   According to Article 7, appropriate treatment shall be ensured when agglomerations with less than 2,000 p.e. which discharge to fresh-water and estuaries or agglomerations with less than 10,000 p.e. which discharge to coastal waters have a collecting system.

2. According to Article 2(9): "*appropriate treatment*" means " *treatment of urban waste water by any process and/or disposal system which after discharge allows the receiving waters to meet the relevant quality objectives and the relevant provisions of this and other Community Directives*".

[30] Treatment level is determined by the agglomeration's size in p.e. and by the receiving area and water body characteristics

3. Appropriate treatment can mean a range of treatments from the basic (rustic) to the technologically sophisticated. Several treatments are described in the "*Guide - Extensive waste water treatment process adapted to small and medium sized communities - Implementation of Council Directive 91/271/EEC of May 1991*"[31].

4. It must be ensured that, after undergoing appropriate treatment, the discharge does not adversely affect the aquatic environment in so far as this is protected by Community legislation. Therefore, the quality of the discharged water should be such as :

   - Protects the environment from adverse effects (Article1 of the Directive) and,
   - allows fulfilment of the relevant provisions of other Community directives such as Directive 2000/60/EC.

[31] http://europa.eu.int/comm/environment/water/water-urbanwaste/waterguide_en.pdf:

5. Application of Article 5: sensitive areas and catchment areas of sensitive areas

5.1. Article 5(4) alternative

1. Article 5(4) states:

   "*Alternatively, requirements for individual plants set out in paragraphs 2 and 3 above need not apply in sensitive areas where it can be shown that the minimum percentage of reduction of the overall load entering all urban waste water treatment plants in that area is at least 75 % for total phosphorus and at least 75 % for total nitrogen*[32]".

2. This means that agglomerations discharging into a sensitive area (i.e. into a sensitive water body) are in conformity if the overall load from all urban waste water treatment plants is reduced by at least 75% for total nitrogen and for total phosphorus. The same requirements are valid for the relevant catchment of this sensitive area.

3. The application of the reduction rate for total nitrogen and total phosphorus to all plants does not relieve Member States from the requirement to apply at least secondary treatment to urban waste water generated by agglomerations of more than 2,000 p.e. discharging into freshwaters and agglomerations of more than 10,000 p.e. discharging into coastal waters.

5.2. Determination of reduction rate under Article 5(4)

1. Determination of the reduction rate for total nitrogen and for total phosphorus of the overall (cumulative) load entering all urban waste water treatment plants in principle should be based on the application of measurement methodology and a reliable calculation method to the incoming load and the measured outgoing load for each urban wastewater treatment plant discharging its treated waste water in this sensitive area.
2. The annual quantities for the determination of the reduction rate should be determined with a frequency and duration of data collection sufficient over the year to give reasonably representative and comparable data. Sampling frequency shall be in line with the directive requirements as a minimum. It is important to balance the requirements of emission characteristics, risk to the environment and practicalities of sampling.
3. Where, in respect of the incoming load, use of a reliable calculation method is preferred to the taking of measurements, such use should be based on accurate and verifiable data and calculation factors. Thus, where it is proposed to determine the incoming load by multiplying the population equivalence with an average N and P per p.e., it is essential that:

[32] *Total nitrogen* is considered to be as tot N=Kjeldahl nitrogen (org. N + ammonia) + NO_2 (nitrite nitrogen) + NO_3 (nitrate nitrogen)

- *firstly*, the population equivalence is based on accurately compiled data reflecting seasonal or other p.e. variations and that,
- *secondly*, the average nutrient factor applied is both clear and realistic.

Whatever means is chosen to determine the incoming load the result should be reliable and enable overall consistency and comparability to be attained for the EU.

4. '*All urban waste water treatment plants*' refers to all plants discharging into the sensitive area no matter what their size.
5. For the determination of the reduction rate of the overall load the following formula should be used:

$$\text{Percentage of reduction of total N (and total P)} = \left(1 - \frac{\sum L_{\text{outgoing loads}}}{\sum L_{\text{incoming loads}}}\right) \times 100\%$$

$L_{\text{incoming loads}}$ – are loads (in mass per time) entering the treatment plant
$L_{\text{outgoing loads}}$ – are loads (in mass per time) leaving the treatment plant
Calculation of incoming and outgoing loads: averaging the available daily loads of total P and/or total N
Calculation of daily loads / multiplying the concentration of 24-hour sample by the respective 24-hour flow

6. Sensitive area for application of Article 5(4) means the entire designated sensitive water-body. For calculation of the reduction of the overall load (total N and total P), this area cannot be subdivided into parts or administrative entities.
7. To be in conformity with the Directive, the secondary treatment requirements of Article 4 have to be respected with regard to relevant agglomerations situated in sensitive areas to which Article 5(4) is applied.
8. In summary, the overall annual reduction rate on measurements or on measurement s and reliable estimates should be determined:
   a) For treatment plants > 10,000 p.e., the monitoring /measurement results on N and P shall be used;
   b) For treatment plants < 10,000 p.e., monitoring /measurement data may be complemented or replaced by reliable estimates.
9. Methods used should consider all samples taken as foreseen by the Directive and additional samples done for surveillance and operational purposes as far as they lead to more accurate annual figures. The directive requirements defining measurement methods shall be used as they are based on the European Standards (EN and ISO for emissions to water)[33]. Concerning calculation methods, several Member States have developed some methods[34] that are indicated in E-PRTR guidance document[35] that may be used as a starting point.

[33] EN 12260:2003, EN ISO 11905-1:1998, EN ISO 15681-1:2004, EN ISO 15681-2:2004, EN ISO 11885:1997, EN ISO 6878-2004, EN ISO 1484:1997,
[34] http://ruisseau,oieau.fr/life/summ_uk.pdf
http://eippcb.jrc.es/pages/webquery4_1.cfm?ID=mon&TYPE=tm&N=56
http://www.sft.no/english/ in particular document HARP-HAW Prototype

5.3. Application of Article 5(5)

1. *Article 5(5): "Discharges from urban wastewater treatment plants which are situated in the relevant catchment areas of sensitive areas and which contribute to the pollution of these areas shall be subject to paragraphs 2, 3 and 4. "*
2. Each designated sensitive area (i.e. sensitive water body) may have one or more hydrological catchment areas, forming a relevant catchment area of the sensitive area (CAofSA) (see Figures 3, 4 and 5).
3. The relevant catchment area of a sensitive area (CAofSA) corresponds to the hydrological catchment (drainage basin or sub-basin) draining its waters into the sensitive area. This also underlines the importance of accurate geographical delineation of both the sensitive areas and their relevant catchment areas.
4. When Article 5(4) is opted for, i.e. application of the reduction rate to the sensitive area itself, again a choice between 2 options remains open for the catchment area of the sensitive area:
   a) to apply methods under Article 5(2) and (3) for agglomerations with more than 10,000 p.e. discharging into water-bodies located in relevant catchment area of the sensitive area, or
   b) to apply methods under Article 5(4) for reduction of overall load from all urban waste water treatment plants discharging into the water bodies of this relevant catchment area of the sensitive area.
5. For the application of Article 5(4) in sensitive areas and relevant catchment areas of sensitive areas, theoretically the Member States can choose any one of the four combinations listed in Table 2 below.

Table 2. Theoretical combinations possible for the application of Articles 5(4) and (5).

	sensitive area	and	relevant catchment area of sensitive area
1)	**Art.5(4)**	**and**	**Art.5(4)**
2)	Art.5(4)	and	Art.5(2)(3)
3)	Art.5(2)(3)	and	Art.5(4)
4)	**Art.5(2)(3)**	**and**	**Art.5(2)(3)**

It is however strongly advised that a single method is applied to the sensitive area and its relevant catchment area **(i.e. combinations 1) or 4) in Table 2** above).

6. A designated sensitive area can, in certain cases, have several separate hydrological catchments or parts of them, forming a relevant catchment area of a sensitive area (see Figure 5). This may, for example, frequently arise in respect of sensitive areas situated in

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http://www.ospar.org/

[35] European PRTR Guidance Document (English version). EC – May 2006, pages 33-40, 44

coastal zones. In these circumstances, Article 5(5) shall apply to all relevant catchment areas draining into the sensitive area. It is strongly advised that a single compliance method is used (Article 5(2,3) or Article 5(4)) throughout all relevant catchment areas draining into the sensitive area.

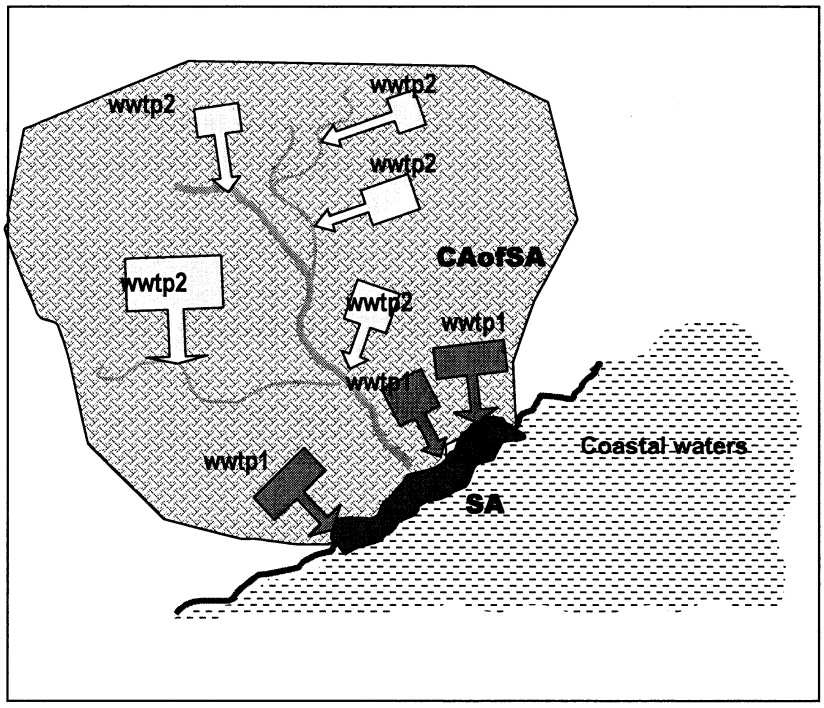

Figure 3. Coastal sensitive area (water body) and its relevant catchment area including water bodies situated in this catchment area

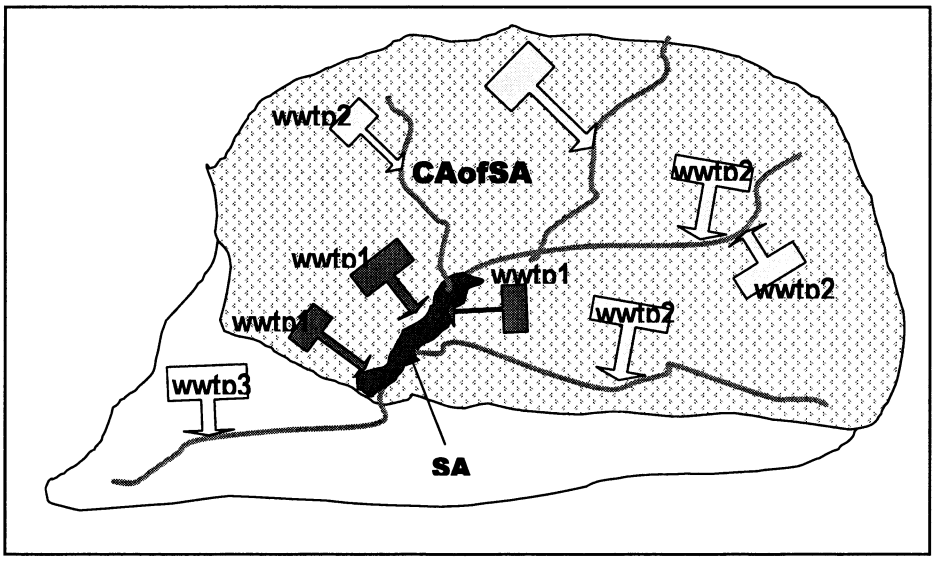

Figure 4. Inland sensitive area (freshwater body) and the relevant catchment area (with water bodies included) of this sensitive area (water body)

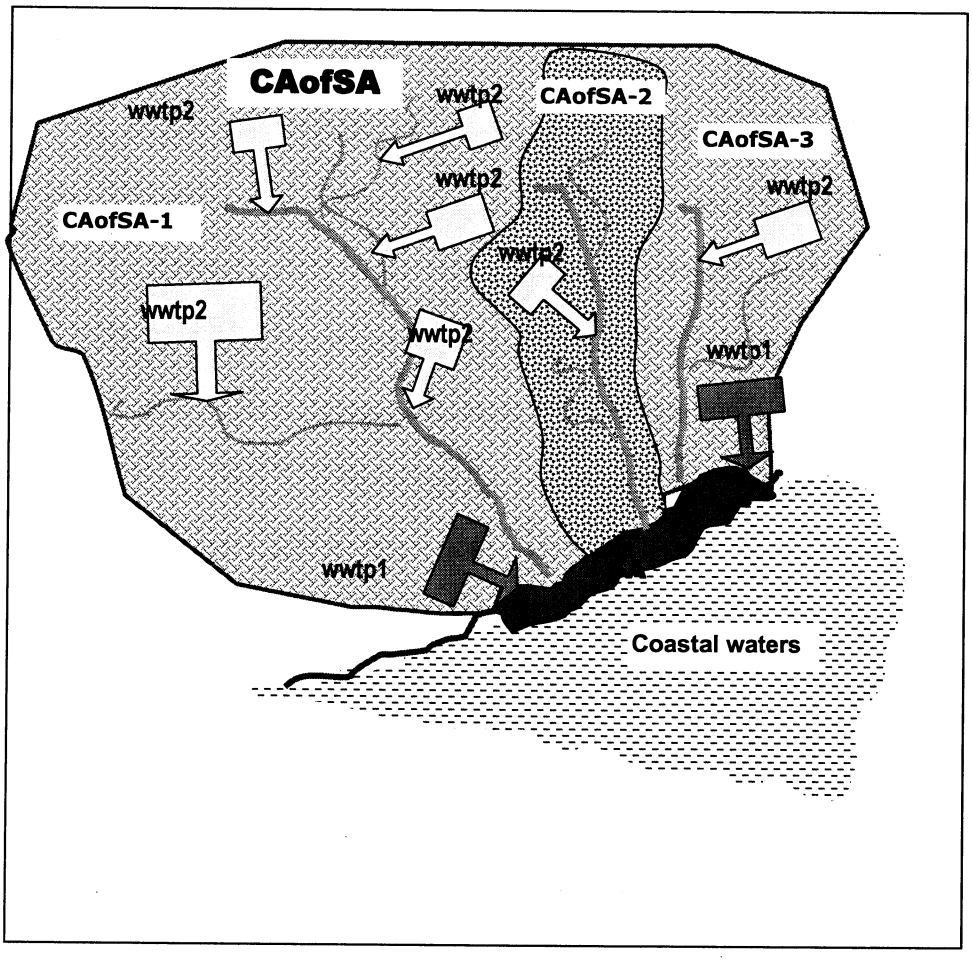

Figure 5. Coastal sensitive area (water body) and its relevant catchment area containing several relevant hydrological catchments (CAofSA=CAof SA-1 + CAof SA-2 + CAof SA-3) and including water bodies situated in this catchment area

Legend to Figures 3, 4 and 5	
SA	sensitive area (sensitive water body)
CAofSA	relevant catchment area of sensitive area (including water bodies draining into the sensitive area)
wwtp1:	waste water treatment plants discharging waste water of agglomerations concerned into the sensitive area (water body)
wwtp2:	waste water treatment plants discharging waste water of agglomerations concerned into the water bodies located in the relevant hydrological catchment of the sensitive area
wwtp3:	waste water treatment plants discharging waste water of agglomerations concerned downstream of the sensitive area and its relevant catchment area and having no impact to the pollution of this sensitive area

Annex: ECJ judgements of relevance to Directive 91/271/EEC

1. Case C-161/95, Commission v Greece, judgement of ECJ 1996-03-28
2. Case C-297/95, Commission v Germany, judgement of ECJ 1996-12-12
3. Case C-302/95, Commission v Italy, judgement of ECJ 1996-12-12
4. Case C-307/98, Commission v Belgium, judgement of ECJ 2000-05-25
5. Case C-236/99, Commission v Belgium, judgement of ECJ 2000-07-06
6. Case C-427/00, Commission v UK, judgement of ECJ 2001-11-13
7. Case C-396/00, Commission v Italy, judgement of ECJ 2002-04-25
8. Case C-280/02, Commission v France, judgement of ECJ 2004-09-23
9. Case C-419/01, Commission v Spain, judgement of ECJ 2003-05-15
10. Case C-119/02, Commission v Greece, judgement of ECJ 2004-06-24
11. Case C-27/03, Commission v Belgium, judgement of ECJ 2004-07-08
12. Case C-191/04, Commission v France, judgement of ECJ 2005-06-16
13. Case C-282/02, Commission v Ireland, judgement of ECJ 2005-06-02
14. Case C-121/03, Commission v Spain, judgement of ECJ 2005-09-08
15. Case C-452/05, Commission v Luxembourg, judgement of ECJ 2006-11-23
16. Case C-293/05, Commission v Italy, judgement of ECJ 2006-11-30