

Service Contract for the support to the Implementation of Directive
91/271/EEC on Urban Waste Water Treatment

EVALUATION OF INFORMATION REPORTED IN THE FRAME OF UWWTD QUESTIONNAIRES

GENERAL METHODOLOGY AND WORKING STEPS

Date: March 2012, revised October 2014.
Authors: Katharina Lenz, Ivo Offenthaler, Edith Hödl-Kreuzbauer,
Georg Windhofer, Michael Nagy, Christiane Stork
Contract Manager: Michael Nagy / Ian Codling

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1 Methodology for evaluating information reported in the frame of UWWTD Questionnaire

The data evaluation takes into account all active agglomerations $\geq 2,000$ population equivalents (p.e.), which were reported for one reference date.

The data evaluation of the UWWTD Questionnaires consists of two 'chains':

- Legal compliance check
- Description of the wastewater installations in place

The '**Legal compliance check**' assesses whether the Directive 91/271/EEC is correctly implemented in a Member State and whether the wastewater of each agglomeration receives the treatment it requires according to the Directive. In contrast to the '*Description of the wastewater installations in place*' the legal compliance check is confined to those wastewater loads which are subjected to Art. 3 – Art. 5 of the UWWTD due to agglomeration size, type of receiving water, sensitivity of the receiving area and transition period for the implementation of the Directive.

The '**Description of the wastewater installations in place**' comprises a descriptive evaluation of the wastewater installations in a Member State. It describes e.g. the number of agglomerations treated by secondary treatment or the number of agglomerations which have a collecting system in place. This assessment does not refer to the legal requirements of Directive 91/271/EEC (UWWTD) and does not allow any conclusion about the correct implementation of the Directive.

This evaluation 'chain' helps to appraise the wastewater situation of a Member State beyond the mere legal compliance check. No matter whether it is legally required by the UWWTD or not, a Member State may be highly advanced as regards its wastewater treatment (e.g. by affording more stringent treatment for agglomerations in 'Normal Area').

This evaluation 'chain' is of special importance in those Member States where transition periods for the implementation of the Directive are still pending and where, hence, legal compliance cannot yet be assessed.

1.1 Methodology for legal compliance check

The legal compliance check investigates whether the UWWTD is correctly implemented for a specific reference date. This means a check of several parameters for compliance with Articles 3-5. The following parameters are taken into account:

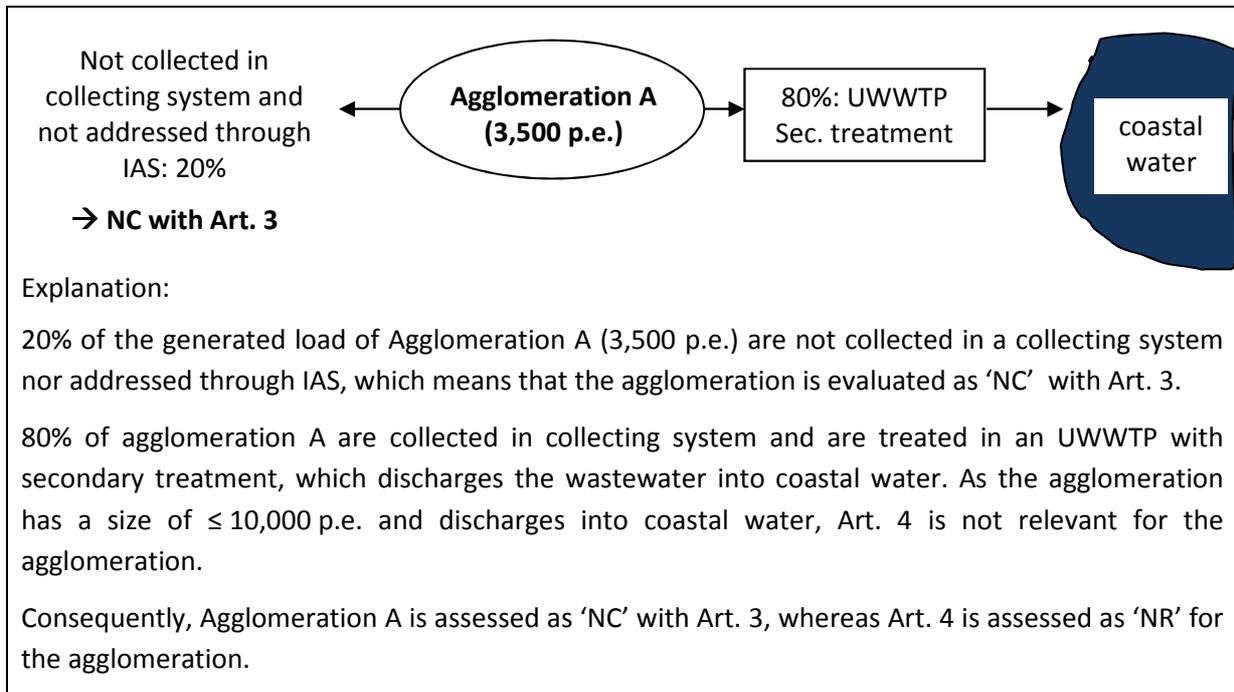
- the size of the agglomeration (p.e.)
- the deadline to comply with UWWTD/ transitional period for this agglomeration
- the type of receiving area (i.e. normal area, sensitive area,..)
- the date of designation/ review of the receiving area
- the type of receiving water (i.e. freshwater, coastal water,...)

The legal compliance check follows a hierarchical approach (this approach was approved in a decision of the European Court of Justice). This means that violation of Art. 3 (assessment as non-compliant 'NC') entails non-compliance with Art. 4 and Art. 5 (even if the other requirements for

Articles 4–5 are met). Similarly, an agglomeration cannot be compliant with Art. 5 if it fails to comply with Art. 4.

However, in the hierarchical approach it always needs to be carefully investigated, whether Art. 4 and Art. 5 are of relevance for an agglomeration at all.

Example:



1.1.1 Compliance with Article 3 of Directive 91/271/EEC

Article 3 of UWWTD requires that all agglomerations ≥ 2.000 p.e. are provided with a collecting system for urban wastewater until 31/12/2005. However, 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. In specific cases (e.g. in arid areas like Cyprus) it can also be an adequate solution to collect 100% of the generated load of an agglomeration in IAS (cesspools) and to transport the wastewater to an UWWTP by truck. For this reason the use of IAS cannot be considered as a criterion against compliance and is hence considered as 'compliance-neutral'. In cases where the fraction of the generated load addressed through IAS is very high, the Commission may come back to MS for further clarification.

The current work step investigates the number and generated load of agglomerations compliant with Article 3. Assessment of compliance is done in the following way (see also Figure 1):

- a) In case the UWWTD deadline (or transitional period for new Member States) had not expired by the reference date of UWWTD-reporting, Art. 3 is evaluated as not relevant ('NR')
- b) In case the UWWTD deadline or transitional period had expired by the reference date of reporting:

- 1) If the total of parameters **Not collected in collecting system and not addressed by IAS** and **Addressed through IAS** is > 0 and $\leq 2\%$ (of the generated load) AND ≤ 2.000 p.e., the agglomeration is considered as being in compliance ('C')
- 2) If the total of parameters **Not collected in collecting system and not addressed by IAS** and **Addressed through IAS** exceeds 2% OR 2.000 p.e., the parameter **Not collected in collecting system and not addressed by IAS** will be assessed in more detail:
 - a. In case the fraction **Not collected in collecting system and not addressed by IAS** is > 2.000 p.e. OR $> 2\%$, then the agglomeration is assessed as not in compliance ('NC')
 - b. In case the fraction **Not collected in collecting system and not addressed by IAS** is ≤ 2.000 p.e. AND $\leq 2\%$, the agglomeration is assessed as 'Questionable Compliance' ('QC')
- 3) If the agglomeration is assessed as 'NC', the parameter **Addressed through IAS** will be additionally investigated in detail: If the parameter exceeds 2% OR $1,000$ p.e., the agglomeration is assessed as additionally being of questionable compliance ('AddQC')

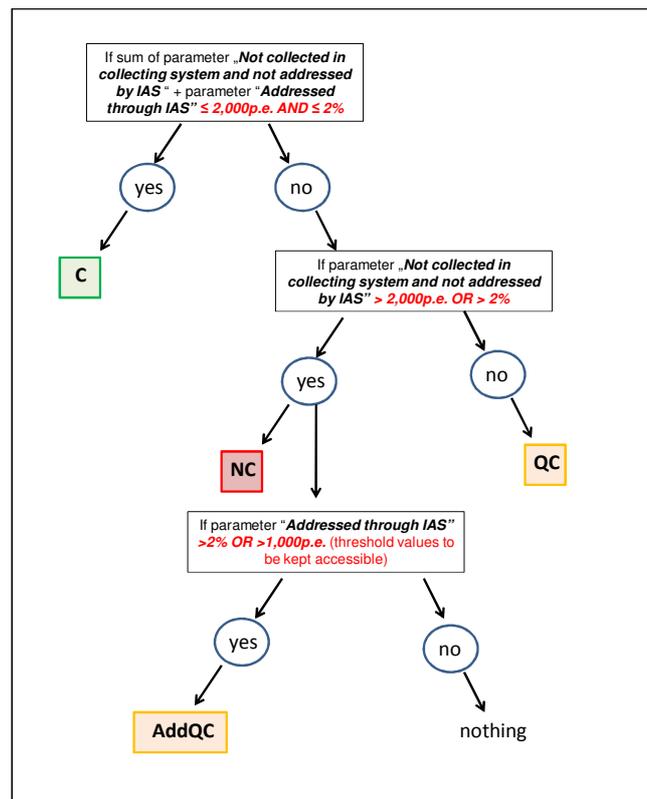


Figure 1. Assessment of Article 3

In the summary tables, item 'Agglomerations compliant with Art. 3' lists count and cumulative generated load of all agglomerations assessed as 'C' or 'QC'.

These figures may be lower than those given in the description of the wastewater installations (chapter 1.2) as agglomerations can fall short of legal compliance despite having substantial fractions of their wastewater collected properly.

Example:

Situation:						Presentation in summary tables:																							
Agglomeration	Generated load (p.e.)	Generated load (pe) collected in collecting system	Generated load (pe) addressed through IAS	Generated load (pe) not collected in collecting system and not addressed through IAS	Compliance Article 3	MS (reference date: yyyy/yy/xx)		wastewater load																					
						whole territory	number	[%]	p. e.	[%]																			
A	17.300	16.771	512	17	QC	(reference: generated wastewater load)																							
B	17.500	15.896	1.550	54	QC																								
C	17.600	1.390	15.713	496	NC																								
D	17.800	17.800	0	0	C																								
E	18.400	18.400	0	0	C																								
						Article 3 <table border="1"> <tr> <td>actual:</td> <td>4</td> <td>80,0</td> <td>71.000</td> <td>80,1</td> </tr> <tr> <td>target:</td> <td>5</td> <td>100,0</td> <td>88.600</td> <td>100,0</td> </tr> <tr> <td>exempted due to transition period:</td> <td>0</td> <td>0,0</td> <td>0</td> <td>0,0</td> </tr> <tr> <td>PT total:</td> <td>5</td> <td>100,0</td> <td>88.600</td> <td>100,0</td> </tr> </table> <p>Explanation actual...compliant agglomerations in number and p.e.. The % value refers to the target (=agglomerations subject to compliance with the Directive) target...agglomerations in number and p.e., which are subject to compliance with Art. 3 and/ or Art. 4 and/ or Art. 5 of the Directive exempted...agglomerations, which are not subject to compliance with a specific Article due to different reasons. The most common reasons are listed additionally total...total number and p.e. of agglomerations in one MS/ one type of receiving area</p>				actual:	4	80,0	71.000	80,1	target:	5	100,0	88.600	100,0	exempted due to transition period:	0	0,0	0	0,0	PT total:	5	100,0	88.600	100,0
actual:	4	80,0	71.000	80,1																									
target:	5	100,0	88.600	100,0																									
exempted due to transition period:	0	0,0	0	0,0																									
PT total:	5	100,0	88.600	100,0																									

1.1.2 Compliance with Article 4 of Directive 91/271/EEC

Article 4 of UWWTD requires that urban wastewater entering collecting systems shall be subject to secondary or an equivalent treatment before discharge. Article 4 applies to all agglomerations $\geq 2,000$ p.e. except for agglomerations with a size of 2,000 p.e. – 10,000 p.e. discharging into coastal waters and except for agglomerations discharging into ‘Less sensitive areas’ (see Article 6).

The current work step investigates the number and generated load of agglomerations compliant with Article 4. In order to assess compliance with Article 4, two criteria need to be fulfilled:

- The total generated load of the agglomeration, which is collected in a collecting system, has to receive at least secondary treatment. This means that all UWWTPs serving this agglomeration have to provide at least secondary treatment.
- The monitoring results for BOD₅ and COD have to be reported with ‘pass’ for all UWWTPs serving the agglomeration.

In case the agglomeration is compliant (‘C’) or of questionable compliance (‘QC’) with Art. 3¹, compliance with Art. 4 is checked as follows:

- a. In case $\leq 1\%$ AND < 2.000 p.e. of the load collected in a collecting system do not receive secondary treatment, the agglomeration will be considered as being in compliance (‘C’) with Article 4 of the UWWTD. It is assumed that a ‘non – compliance’ of up to 1% of the load collected and below 2000 p.e. results from the individual way of Member States to report data under the UWWTD Questionnaire.

¹ The precondition results from the hierarchical approach explained in subsection 1.1

- b. In case > 1% or > 2.000 p.e. of the collected load do not receive secondary treatment, the agglomeration is considered as not compliant ('NC') with Article 4 of UWWTD.
- c) In the specific situation, where 0% of the generated load are collected in collecting system and the agglomeration is assessed as 'QC' with Art. 3, as the major part is addressed through IAS, Art. 4 (and Art. 5) are assessed as 'NR'.

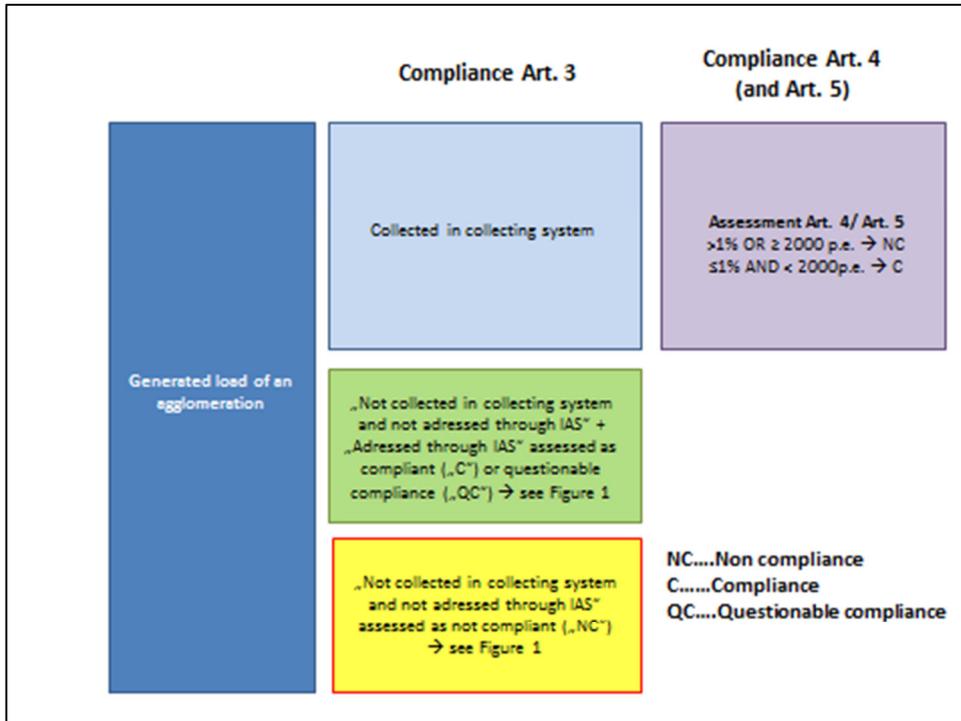


Figure 2. Elaboration of compliance check for Art. 3 and Art. 4 (and Art. 5)

Item 'Art. 4 - actual' of the summary tables shows number and cumulative collected (*not* generated) load of all agglomerations assessed with 'C'. Again, the figures of the compliance check include only the loads of compliant agglomerations, not compliant partial loads of agglomerations (in contrast to the 'wastewater installation in place').

Example:

Situation:							Presentation in summary tables:			
Agglomeration	Generated load (p.e.)	Generated load (p.e.) collected in collecting system	Generated load (p.e.) compliant with Art.4	Generated load (p.e.) not compliant with Art.4	Generated load (p.e.) where Art. 4 is not relevant	Compliance Article 4				
A	20.000	19.340	19.340	0	0	C				
B	20.200	19.008	14.362	4646	0	NC				
C	23.200	23.200	23.200	0	0	C				
D	23.600	23.081	22.892	189	0	C				
E	23.800	23.800	23.800	0	0	C				

MS (reference date: yyyy/yy/xx)	agglomerations		wastewater load	
whole territory	number	[%]	p. e.	[%]
(reference: wastewater load collected in collecting system)				
Article 4				
actual:	4	80,0	89.421	82,5
target:	5	100,0	108.429	100,0
exempted total:	0	0,0	0	0,0
PT total:	5	100,0	108.429	100,0

Explanation

actual...compliant agglomerations in number and p.e.. The % value refers to the target (=agglomerations subject to compliance with the Directive)

target...agglomerations in number and p.e., which are subject to compliance with Art. 3 and/ or Art. 4 and/ or Art. 5 of the Directive

exempted...agglomerations, which are not subject to compliance with a specific Article due to different reasons. The most common reasons are listed additionally

total...total number and p. e. of agglomerations in one MS/ one type of receiving area

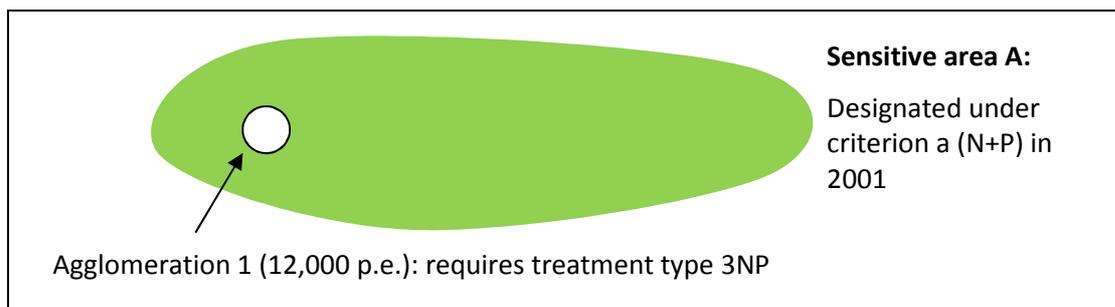
1.1.3 Compliance with Article 5 of Directive 91/271/EEC

Article 5 of UWWTD requires that urban wastewater entering collecting systems shall be subject to more stringent treatment than that described in Article 4 before discharge into sensitive areas. This had to be implemented for agglomerations > 10.000 p.e. until 31 December 2005.

The current work step investigates for all agglomerations concerned (see above) whether more stringent treatment is in place for the entire wastewater collected in a collecting system. Two criteria have to be met for compliance with Art. 5:

- The total load of the agglomeration, collected in collecting systems, has to be served by more stringent treatment of at least the type required by the sensitivity of the receiving area. This means that all UWWTPs serving this agglomeration have to provide the required more stringent treatment independent of the size of the UWWTP.
- The monitoring results for N_{tot} and/ or P_{tot} have to be reported with 'pass' for all UWWTPs serving the agglomeration.

Example:



The data evaluation and the presentation of results in summary tables for Art. 5 will be done in the same way as for Art. 4 (see chapter 1.1.2).

1.1.4 Defining treatment requirements for agglomerations on basis of the receiving area

The sensitivity of the receiving area is one of the key criteria defining the treatment requirements of an agglomeration. For this reason emphasis is placed on the correct identification of the receiving area. The issue is tackled in two work steps during data evaluation:

Evaluation, whether the discharge point is located in the receiving area indicated by the Member States

The UWWTD Questionnaire foresees that the ID of the receiving area is indicated for each discharge point. At the same time the UWWTD Questionnaire requests coordinates of discharge points and GIS-files on sensitive areas and their catchments.

In the QA/QC-process of UWWTD-data one workstep foresees that the coordinates of discharge points are overlapped with the GIS-files of sensitive areas and their catchments. This work steps enables an assessment, whether Member States indicated the receiving areas for each discharge point correctly. This work-step is only required for Member States, which have defined different

sensitive areas under Art. 5(1). For UWWTD Q2007 and UWWTD Q2009 this work step was elaborated by UBA in the context of the legal compliance check². From UWWTD Q2011 onwards, this work step is elaborated in the QA/QC by ETC/ICM. In case of discrepancies, MS will be asked for clarification and correction so that in the UWWTD Production DB contains the correct information on the receiving area for each discharge point.

Historical assessment

The idea behind the historical data assessment is taking into account the receiving areas reported for each agglomeration > 10,000 p.e. in the last Implementation Reports (going back to the 4th Implementation Report). This work step is required for MS applying Art. 5(2,3) in the EU-15 as several MS reviewed and/ or re-designated their SA and CSA from one Implementation Report to the other, which results in varying treatment requirements. Especially cases, where a review of SA/CSA leads to a lowering of treatment requirements, have to be examined carefully.

For the historical assessment the coordinates of discharge points are overlapped with GIS-shape files of SA and CSA reported in the different Implementation Reports, in order to identify designation criteria and designation dates as well as resulting treatment requirements.

It appears from the earlier reporting exercises that there are two types of historical changes:

- A) sporadic changes of RCAs' extents and/or sensitivities (e.g. as experienced in Italy: SA were designated for a designation criterion in one Implementation Report, whereas in the following Implementation Report the SA was designated for another criterion and the extent of the SA was modified)
- B) presumably systematic repetition of RCA-revisions, thereby deferring the deadlines for Art. 5-compliance (e.g. as experienced in Spain: SA, which had already been designated in 1998 were reviewed in 2006 and only the latter date was reported)

Type A changes will be considered as follows:

The several different changes that were reported throughout the years in each SA and CSA will be briefly summarized (where applicable). For SA/ CSA, where the level of protection decreased over years, MS will be asked i) to confirm such changes, ii) to confirm what the final situation is and iii) to briefly describe why the level of protection has been reduced (to be included in the registers as some kind of additional information). Even if MS do not reply to this request, the changes leading to a lower level of protection and the consequences hereof will be reflected in the national reports of the Implementation Report.

On agglomeration-level in the Excel-registers type A changes will be highlighted, in case they lead to a decreased level of protection (at least compared to the former report). The changes will be accepted with all related consequences for the assessment. The number and generated load (p.e.) of

² In the Excel-registers, the results of the GIS-overlap were given in an extra-column named 'ID of receiving area – COM-opinion'. If the reported sensitivity (Member State's opinion) of a discharge location differed from that evident from the GIS-check (opinion COM), the higher sensitivity was assumed for the compliance test. This is valid for both cases: a) when the opinion of the COM results in higher sensitivity and b) when the opinion of the Member State results in higher sensitivity

agglomerations concerned by type A changes, where the changes lead to a lowered level of protection, will be given in the registers (to be included in the registers as additional information).

Type B changes will be considered as follows:

Type B changes will be rejected for agglomerations which were reported at least once to discharge in a SA/CSA designated before 2002/2003 (For UWWTD Q2011 the reference date is 2009 or 2010. For all SA/ CSA designated in 2002/2003 the transition period of 7 years has expired at the reference date of reporting). On agglomeration-level in the Excel-registers type B changes will be highlighted.

Special cases: Change of application of Art. 5 (from Art. 5(2,3) to Art. 5(4)):

A change of application of article 5 does not necessarily mean to re-start the transitional period, if the criteria for identification remains the same: (a) eutrophication (only the requirements might change)

Example: an area designated under criterion a (N+P) in 1999 changes in 2009 to Art. 5(4). Until 2009, N and P removal was applied for all agglomerations >10,000 p.e.. Since 2009, the percentage of reduction for N and P should be immediately applied in the whole area because the features of the area remain the same (only the art changes), and there is no transitional period. The same approach applies in case an area designated under criterion a (P) in 1999 changes in 2009 to Art. 5(4). After the transition period of 7 years has expired, the MS has to either show that 3P-removal is applied in all agglomerations > 10,000 p.e. or the MS decides to apply Art. 5(4), which means that both, N- and P-loads have to be reduced by at least 75% in the area. The date of applying Art. 5(4) does not change the designation of the sensitive area, but only the way, how compliance with the Directive has to be verified by the MS. As soon as the MS has decided for one option, compliance with the Directive has to be verified accordingly.

The same approach is also valid for areas which apply Art. 5(4) and change to Art. 5(2, 3). In case a receiving area designated in 1999 and applying Art. 5(4) changes to Art. 5 (2,3) with a designation criteria a (N), then all agglomerations > 10,000 p.e. need to have 3N-treatment immediately.

1.1.5 Compliance in specific cases

Agglomeration connected to an UWWTP located in another Member State

In case one agglomeration discharges (parts of) its wastewater into an UWWTP located in another Member State, the treatment requirements for the UWWTP are defined on basis of the sensitivity of the receiving area, where the discharge point is located.

Agglomeration ≥ 2000 p.e. and ≤ 10.000 p.e. discharging on land (catchment area of freshwater or catchment area of coastal water)

The Directive does not stipulate treatment requirements for agglomerations ≥ 2000 p.e. discharging on land (catchment of freshwater or catchment of coastal water). Any agglomeration > 10.000 p.e. discharging into SA or CSA requires the application of more stringent treatment, no matter whether the discharge is on land or into water. Agglomerations up to 10,000 p.e. discharging on land (catchment area of freshwater) require secondary treatment, agglomerations up to 10,000 p.e. discharging on land (catchment area of coastal water) do not require secondary treatment (see Article 4.1. of the UWWTD).

One UWWTP with two or more discharge points located in different receiving areas

In the exceptional case where one UWWTP discharges waste water via two discharge points, one located in a sensitive area (N and P) and the other one located in a normal area, the requirements of the receiving area demanding for stricter emission standards will be applied for the whole UWWTP. (i.e. the UWWTP has to provide more stringent treatment with N- and P-removal).

Assessment of compliance in case a SA is designated under criterion b

In case agglomerations are located in a SA designated under criterion b (surface freshwater intended for the abstraction of drinking water which could contain more than the concentration of nitrate laid down under the relevant provisions of Council Directive 75/440/EEC of 16 June 1975...), an agglomeration > 10,000 p.e. is assessed as compliant if secondary treatment is in place with satisfactory monitoring results (BOD₅ and COD) and 3N treatment is reported to be in place (no monitoring result will be investigated, as the requirements for discharges from urban waste water treatment plants to sensitive areas as given in Table 2 of Annex I of the Directive only refer to sensitive areas which are subject to eutrophication)

Compliance with Art. 5 under criterion b is assessed for SA and for CSA.

Assessment of compliance in case a SA is designated under criterion c

In case agglomerations are located in a SA designated under criterion c (areas where further treatment than that prescribed in Article 4 of the Directive is necessary to fulfil Council Directives), an agglomeration > 10,000 p.e. is assessed as compliant if:

a) the Council Directive reported under c refers to **E coli, coliforms or microbiology**: secondary treatment is in place with satisfactory monitoring results (BOD₅ and COD) and any other more stringent treatment (e.g. chlorination, sand filtration,...) is reported to be in place (no monitoring result will be investigated, as the requirements for discharges from urban waste water treatment plants to sensitive areas as given in Table 2 of Annex I of the Directive only refer to sensitive areas which are subject to eutrophication)

b) the Council Directive reported under c refers to a **N parameter** (NH₄, NO₃): secondary treatment is in place with satisfactory monitoring results (BOD₅ and COD) and 3N treatment is reported to be in place (no monitoring result will be investigated, as the requirements for discharges from urban waste water treatment plants to sensitive areas as given in Table 2 of Annex I of the Directive only refer to sensitive areas which are subject to eutrophication)

Compliance with Art. 5 under criterion c is only assessed for SA, but not for CSA.

1.2 Methodology to describe the wastewater installation in place

1.2.1 Collecting systems in place

For each Member State this data evaluation gives an overview on the number and generated load of agglomerations connected to collecting systems.

The UWWTD Questionnaires cover three possible pathways of wastewater generated in an agglomeration:

- Collected in collecting system (database table agglomerations, parameter aggC1)
- Addressed through individual and appropriate systems (IAS) (table agglomerations, parameter aggC2)
- Not collected and not addressed through IAS (table agglomerations, parameter aggPercWithoutTreatment)

In case > 0% of the generated load of an agglomeration are collected in collecting system (parameter aggC1 > 0), the agglomeration is assessed to have a collecting system. To give an accurate country-wide picture, not only the number of agglomerations but also the generated load collected in collecting systems is described in relative (%) and absolute (p.e.) numbers. In practical terms this means that an agglomeration, where 1% of the generated load is collected in a collecting system, is assessed as having a collecting system, but the absolute number of p.e. entering the collecting system indicates that the fraction is very small.

Example:

<p>Situation:</p> <div style="border: 1px solid black; border-radius: 50%; width: 150px; height: 50px; display: flex; align-items: center; justify-content: center; margin: 10px auto;"> <p>Agglomeration A 50,000 p.e.</p> </div> <p style="margin-left: 100px;">1% collected in collecting system</p>	<p>Contribution of Agglomeration A to summary tables:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #e0ffe0;"> <th style="font-size: small;">MS (reference date: yyyy/yy/xx)</th> <th colspan="2" style="font-size: small;">agglomerations</th> <th colspan="2" style="font-size: small;">wastewater load</th> </tr> <tr style="background-color: #e0ffe0;"> <th style="font-size: x-small;">whole territory</th> <th style="font-size: x-small;">number</th> <th style="font-size: x-small;">[%]</th> <th style="font-size: x-small;">p. e.</th> <th style="font-size: x-small;">[%]</th> </tr> </thead> <tbody> <tr> <td>MS total</td> <td style="text-align: center;">45</td> <td></td> <td style="text-align: center;">800.000</td> <td></td> </tr> <tr> <td style="border-left: 1px solid black;">collecting system in place</td> <td style="border-left: 1px solid black; text-align: center;">1</td> <td style="border-left: 1px solid black; text-align: center;">2,2</td> <td style="border-left: 1px solid black; text-align: center;">500</td> <td style="border-left: 1px solid black; text-align: center;">0,1</td> </tr> </tbody> </table>	MS (reference date: yyyy/yy/xx)	agglomerations		wastewater load		whole territory	number	[%]	p. e.	[%]	MS total	45		800.000		collecting system in place	1	2,2	500	0,1
MS (reference date: yyyy/yy/xx)	agglomerations		wastewater load																		
whole territory	number	[%]	p. e.	[%]																	
MS total	45		800.000																		
collecting system in place	1	2,2	500	0,1																	

1.2.2 Secondary treatment in place

For each Member State this data evaluation gives an overview on the number and generated load of agglomerations served by secondary treatment. Two parameters are of relevance: 1) treatment type and 2) monitoring results for BOD₅ and COD (the monitoring results of BOD₅ and COD indicate whether monitoring results meet the treatment requirements).

The differentiation between treatment type and monitoring results is also reflected in the summary tables. The idea behind showing both parameters is that it makes a big difference whether an agglomeration is assessed as lacking secondary treatment because the UWWTP does not exist or only because monitoring results fail for one specific year.

- **Treatment type:** In case at least a fraction of the generated load of an agglomeration enters secondary treatment (or more stringent treatment), this agglomeration is assessed as having secondary treatment. The absolute number of p.e. receiving secondary treatment reflects the loads involved.

In case a specific fraction of the generated load of an agglomeration enters any more stringent treatment, which is not clearly specified (3other (not specified)), BOD₅ and COD monitoring results have to be reported as ‘pass’ to assume secondary treatment in place (Table 1).

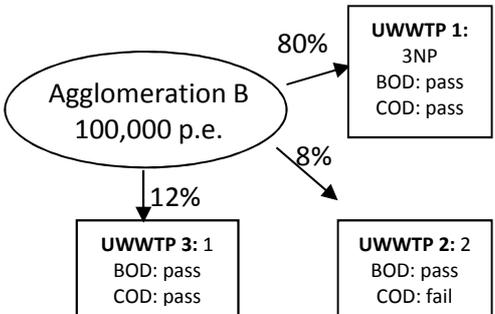
Table 1. Example for assessment of situation of wastewater treatment as concerns monitoring results

	Treatment installation	Monitoring results	Secondary treatment in
--	------------------------	--------------------	------------------------

		BOD	COD	Ntot	Ptot	place
UWWTP 1	3other (not specified)	Pass	pass			yes
UWWTP 2	3other (not specified)	Fail	pass			no
UWWTP 3	3other (not specified)	not reported	pass	pass		no

- Monitoring results:** In the second step it is assessed, whether monitoring results for BOD₅ and COD are reported with 'pass'. In case both parameters are reported with 'pass' for a specific fraction of the generated load of an agglomeration, it is assumed that the treatment requirements are met for this fraction. The absolute number of p.e. receiving secondary treatment illustrates the wastewater volume affected.

Example:

<p>Situation:</p> 	<p>Contribution of Agglomeration B to summary tables:</p> <table border="1"> <thead> <tr> <th rowspan="2">Member State</th> <th colspan="2">agglomerations</th> <th colspan="2">wastewater load</th> </tr> <tr> <th>number</th> <th>[%]</th> <th>p. e.</th> <th>[%]</th> </tr> </thead> <tbody> <tr> <td>whole territory</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>MS total</td> <td>45</td> <td></td> <td>800.000</td> <td></td> </tr> <tr> <td colspan="5">secondary treatment</td> </tr> <tr> <td>installation in place</td> <td>1</td> <td>2,2</td> <td>88.000</td> <td>11,0</td> </tr> <tr> <td>Monitoring results meet requirements for discharge</td> <td>1</td> <td>2,2</td> <td>92.000</td> <td>11,5</td> </tr> </tbody> </table> <p>Explanation installation in place...wastewater installation reported to be in place Monitoring results meet requirements for discharge....respective monitoring results were reported with 'pass'</p>	Member State	agglomerations		wastewater load		number	[%]	p. e.	[%]	whole territory					MS total	45		800.000		secondary treatment					installation in place	1	2,2	88.000	11,0	Monitoring results meet requirements for discharge	1	2,2	92.000	11,5
Member State	agglomerations		wastewater load																																
	number	[%]	p. e.	[%]																															
whole territory																																			
MS total	45		800.000																																
secondary treatment																																			
installation in place	1	2,2	88.000	11,0																															
Monitoring results meet requirements for discharge	1	2,2	92.000	11,5																															

In the summary tables the parameter 'installation in place' reflects the results of taking into account the treatment type only. The parameter 'monitoring results meet the requirements for discharge' only takes into account the monitoring results.

1.2.3 More stringent treatment in place

For each Member State this data evaluation gives an overview of the number and generated load of agglomerations served by more stringent treatment.

As the current methodology only describes the situation of wastewater treatment and does not check compliance, every type of treatment exceeding secondary treatment is considered for data evaluation (i.e. N-removal and/ or P-removal and/or chlorination and/ or UV-treatment,...) without consideration of the requirements for compliance with Art. 5.

In order to assess more stringent treatment to be in place for an agglomeration, two parameters are required:

- Treatment type:** In case any of the generated load of an agglomeration enters any more stringent treatment (nitrogen – removal and/ or phosphorus-removal and/or other more stringent treatment), more stringent treatment is assessed to be in place and quantified in terms of agglomeration count and load (p.e.) involved.

- **Monitoring results:** In the second step it is assessed, whether monitoring results for Ntot and/ or Ptot are reported with ‘pass’. In case an UWWTP has the treatment type 3N, then the monitoring results for Ntot have to be reported as ‘pass’ to assume proper 3N-removal. Likewise, an UWWTP of treatment type 3P requires monitoring results for Ptot to be reported with ‘pass’ to assume proper function.

For different plausible reasons (application of Art. 5(4), pending transition periods, agglomerations < 10,000 p.e.,...) the monitoring results for Ntot and/ or Ptot may be reported as ‘not relevant’. For this reason, the following approach is proposed:

- If BOD₅ and COD are reported with ‘pass’ and Ntot and Ptot are reported to be “not relevant”, more stringent treatment is assumed to work properly.
- In case either BOD₅ or COD is reported with “fail”, it is assumed that more stringent treatment fails to work.

In case the type of treatment is indicated to be ‘3other’, the UWWTP is assessed as working properly in case the monitoring results for BOD and COD are reported with ‘pass’. Monitoring results for N and/ or P are not taken into account.

Table 2. Assessment of monitoring results for more stringent treatment

	Treatment installation	Monitoring results				Monitoring results indicate properly functioning more stringent treatment
		BOD	COD	Ntot	Ptot	
UWWTP 1	3N	pass	pass	pass	fail	yes
UWWTP 2	3NP	fail	pass	pass	pass	yes
UWWTP 3	3NP	pass	pass	pass	fail	no
UWWTP 4	3NP	pass	pass	pass		no
UWWTP 5	2	pass	pass	pass	fail	yes
UWWTP 6	2	fail	pass	pass	fail	no
UWWTP 7	3NP	pass	pass	not relevant	not relevant	yes
UWWTP 8	3NP	pass	fail	not relevant	not relevant	no
UWWTP 9	3other	pass	pass			yes
UWWTP 10	3other	pass	pass	not relevant	not relevant	yes
UWWTP 11	3other	pass	fail	not relevant	not relevant	no
UWWTP 12	3other	fail	fail	pass	pass	no
UWWTP 12	3other	pass	pass	fail	fail	yes

In the summary tables the parameter ‘installation in place’ reflects the results of taking into account the treatment type only. The parameter ‘monitoring results meet requirements for discharge’ only takes into account the monitoring results.

2 Presentation of results in registers and in the Implementation Reports (summary tables)

As introduced in chapter 1 the presentation of results for each Member State differentiates between the description of the legal compliance check and the wastewater installations in place. Only agglomerations ≥ 2.000 p.e. will be presented in the summary tables, in order to have a homogenous picture for all Member States.

Summary tables for the assessment of the legal compliance as well as for the wastewater installations are elaborated for:

- Agglomerations in the entire MS
- Agglomerations discharging into Normal Area
- Agglomerations discharging into Art. 5(2,3)-Area (with differentiation into the different sensitivity criteria as several sensitive areas and their catchments are designated under criterion a and criterion b/ criterion c)
- Agglomerations discharging into Art. 5(4)-areas

2.1 Results of the compliance check

The results of the compliance check are summarized by Member State, Article, and type of receiving areas (entire country, normal areas, sensitive areas) (For the evaluation of compliance see Chapters 1.1). Table 3 gives a fictitious example of such a summary. These summaries include the following aggregates of agglomeration-level data:

actual...compliant agglomerations in number and p.e.. The % value refer to the target (= agglomerations subject to compliance with the Directive)

target...agglomerations in number and p.e., which are subject to compliance with Art. 3 and/ or Art. 4 and/ or Art. 5 of the Directive

exempted...agglomerations, which are not subject to compliance with a specific Article due to different reasons. The most common reasons are listed additionally

total...total number and p.e. of agglomerations in one MS/ one type of receiving area

Table 3. Presentation of the results of the compliance check

MS (reference date: 2007/12/31) whole territory	agglomerations		wastewater load	
	number	[%]	p. e.	[%]
Article 3	(reference: generated wastewater load)			
actual:	391	95.8	9,777,920	88.2
target:	408	100.0	11,080,420	100.0
exempted due to transition period:	0	0.0	0	0.0
MS total:	408	100.0	11,080,420	100.0

Article 4		(reference: wastewater load collected in collecting system)			
actual:	176	43.7	3,903,720	36.7	
target:	403	98.8	10,638,096	98.4	
exempted total:	5	1.2	174,190	1.6	
- due to transition period	0	0.0	0	0.0	
- due to a size of 2000p.e. - 1000 p.e. and discharge into coastal water	1	0.2	6,700	0.1	
- due to discharge into LSA	4	1.0	167,490	1.5	
MS total:	408	100.0	10,812,286	100.0	
Article 5		(reference: wastewater load collected in collecting system)			
actual:	3	30.0	91,100	20.7	
target:	10	2.5	439,220	4.1	
exempted total:	398	97.5	10,373,066	95.9	
- due to a size of ≤ 10000 p.e.	267	65.4	1,237,540	11.4	
- size > 10000 p.e., but discharge into NA	91	22.3	5,110,790	47.3	
- size > 10000 p.e. and discharge into SA/CSA, but transition period pending	32	7.8	2,977,446	27.5	
- size > 10000 p.e. and discharge into CSA designated for criterion c	3	0.7	82,100	0.8	
- size > 10000 p.e., but discharge into Art. 5(4)- area	0	0.0	0	0.0	
- size > 10000 p.e. and discharge into LSA	5	1.2	965,190	8.9	
MS total:	408	100.0	10,812,286	100.0	

2.2 Summary of the wastewater installation in place

Apart from the compliance check, information on wastewater installations in place is summarized, too. It is not unusual that agglomerations afford better wastewater treatment than required by the UWWTD. On the other hand, a treatment plant may be principally offer a given treatment level, although its current performance fails to pass the monitoring. Such circumstances are not reflected in the compliance check but are a good indicator for the treatment capacity nonetheless.

For the evaluation of wastewater installations in place see Chapters 1.2. Table 4 gives a fictitious example of such a summary. These summaries include the following aggregates of agglomeration-level data:

Installation in place.... wastewater installation reported to be in place

Monitoring results meet requirements for discharge ... respective monitoring results were reported with 'pass'

Table 4: Example of a summary table concerning wastewater installations in place

Member State (reference date: 2007/12/31) whole territory	agglomerations		wastewater load	
	number	[%]	p. e.	[%]
PT total	408		11,080,420	
collecting system in place	408	100.0	10,812,286	97.6
secondary treatment				
Installation in place	387	94.9	8,090,186	73.0
Monitoring results meet requirements for discharge	184	45.1	4,545,190	41.0
more stringent treatment				
Installation in place	82	20.1	2,998,840	27.1
Monitoring results meet requirements for discharge	53	13.0	1,876,820	16.9

3 Wastewater treatment in big cities/ big dischargers

'Big cities' is not a legal term of Directive 91/271/EEC. As big cities are an important source of pollution to the aquatic environment, the UWWTD Implementation Reports emphasize this topic.

The wastewater treatment of big cities is presented in a descriptive way, no compliance check is possible.

The list of UWWTD - big cities/ big dischargers of a Member State consist of two groups:

- single agglomerations, or clusters thereof, generating more than 150,000 p.e. of wastewater. These conurbations are identified and reported with 'Big-City' IDs and labels by the Member States. Note that single agglomerations of a 'Big City' can generate well below than 150,000 p.e. wastewater.
- single agglomerations > 150,000 p. e. without proper 'Big-City' designation

Example:

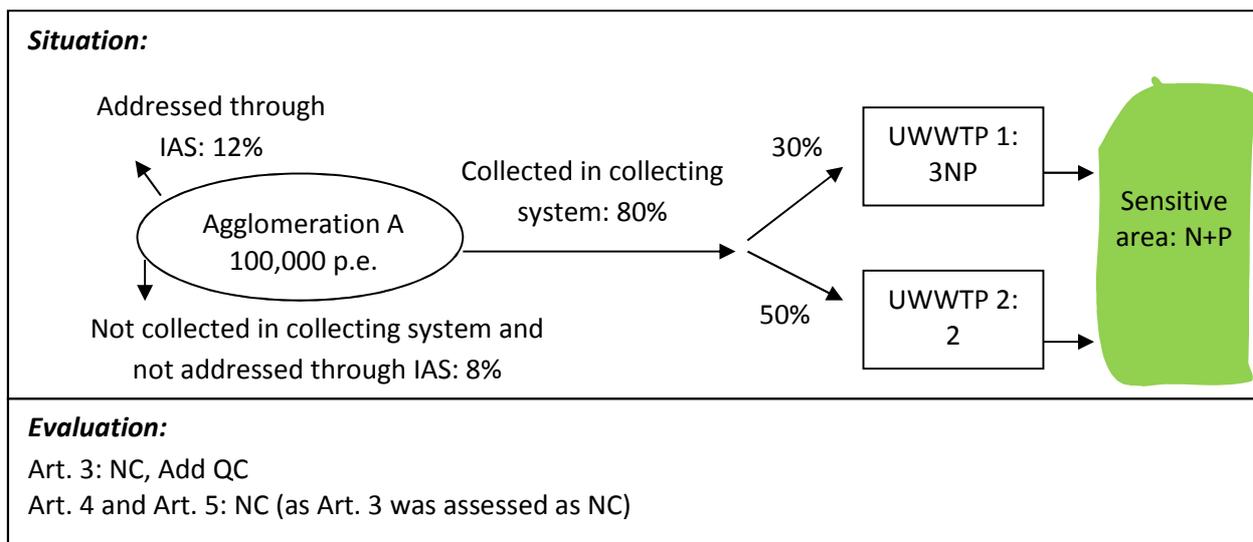
Situation:			Evaluation:	
Agglomeration ID	Generated load (p.e.)	Big city ID	Big cities/ Big discharger	Generated load (p.e.)
MS1	30.000	MSA	MSA	190.000
MS2	60.000	MSA	MS5	160000
MS3	50.000	MSB		
MS4	100.000	MSA		
MS5	160.000			

- MS1, MS2 and MS4: The generated load of these agglomerations are summed up to result in the generated load of the 'Big city/ Big discharger' MSA
- MS3: not presented in the list of UWWTD -'Big cities/ Big dischargers', as the generated load only accounts to 50,000 p.e. (although the Member State indicated that this agglomeration is part of a 'real' big city)
- MS5: the Member State did not indicate that this agglomeration is part of a 'real' big city. However, as the agglomeration has a generated load of > 150,000 p.e., it is included in the list of UWWTD-'Big cities/Big dischargers'. The ID of this 'Big city/Big discharger' is identical with the ID of the agglomeration.

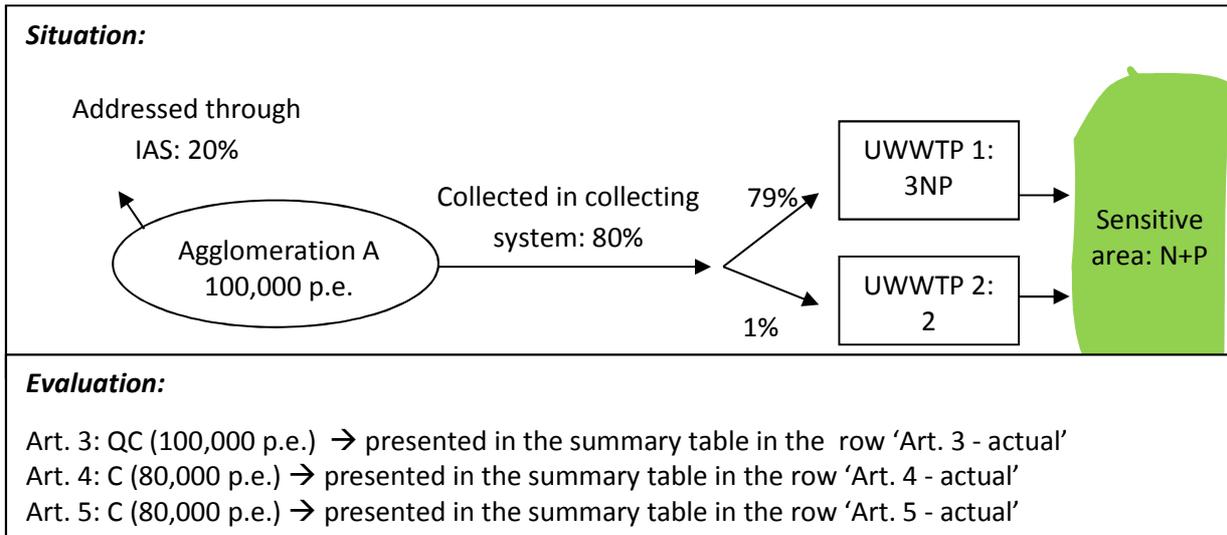
4 Examples

4.1 Examples for the assessment of legal compliance and presentation in summary graphs

Example 1:



Example 2:



4.2 Example for the assessment of wastewater installations and presentation in summary graphs

Example:

The following agglomeration A is served by five UWWTPs A TP1 – AT TP5:

Agglomeration ID	Generated load (p.e.)	% of generated load entering UWWTP	UWWTP ID	Treatment type	Monitoring results			
					BOD	COD	Ntot	Ptot
A	100.000	25.000	A TP1	2	pass	pass	pass	pass
A	100.000	30.000	A TP2	2	pass	fail	fail	pass
A	100.000	15.000	A TP3	0				
A	100.000	10.000	A TP4	3N	pass	pass	pass	pass
A	100.000	20.000	A TP5	3NP	pass	pass	fail	pass

Member State whole territory	agglomerations		wastewater load	
	number	[%]	p. e.	[%]
MS total	1		100.000	
secondary treatment				
installation in place	1	100,0	85.000	85,0
Monitoring results meet requirements for discharge	1	100,0	55.000	55,0
more stringent treatment				
installation in place	1	100,0	30.000	30,0
Monitoring results meet requirements for discharge	1	100,0	35.000	35,0

In case any wastewater of an agglomeration is collected in a collecting system or receives secondary or more stringent treatment, it increases the 'Number of agglomeration' in the corresponding row of the table. The associated wastewater volumes (part or all of the generated load) are listed in the column 'Generated load'. No differentiation of more stringent treatment into 3N, 3P, 3NP and 3other is given in the summary table