HELCOM RECOMMENDATION 28E/5

Supersedes HELCOM Recommendations 7/3, 9/2 and 16/9

Adopted 15 November 2007
having regard to Article 20, Paragraph 1 b)
of the Helsinki Convention

MUNICIPAL WASTEWATER TREATMENT

THE COMMISSION,

RECALLING Paragraph 1 of Article 6 of the Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1992 (Helsinki Convention), in which the Contracting Parties undertake to prevent and eliminate pollution of the Baltic Sea Area from land-based sources,

HAVING REGARD also to Article 3 of the Helsinki Convention, in which the Contracting Parties shall individually or jointly take all appropriate legislative, administrative or other relevant measures to prevent and abate pollution in order to promote the ecological restoration of the Baltic Sea Area,

RECALLING Article 5 of the Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1992 (Helsinki Convention), in which the Contracting Parties undertake to prevent and eliminate pollution of the marine environment of the Baltic Sea caused by harmful substances,

RECALLING FURTHER that the Ministerial Declaration 1988, of the ninth meeting of the Helsinki Commission calls for a considerable reduction of land-based pollution,

RECALLING FURTHER Recommendation 9/2 from 1988 concerning measures aimed at the reduction of discharges from urban areas by the use of effective methods in wastewater treatment requiring phosphorus reduction for plants serving more than 10 000 p.e. down to 1.5 mg P/l,

RECALLING FURTHER the outcome of the informal Ministerial Meeting 2005 and the 27th meeting of the Helsinki Commission which call for further action regarding the Baltic Sea by deciding to elaborate a Baltic Sea Action Plan (BSAP),

RECALLING FURTHER the Ministerial Meeting 2007 in which the Ministers adopted the Baltic Sea Action Plan (BSAP) which calls for urgent actions to reduce the discharges of nutrients to the Baltic Sea Area,

RECOGNISING ALSO that in an urban area the sewerage system and the sewage treatment plant must be regarded as a unit when the pollution load is dealt with. For practical reasons, however, this Recommendation covers only the treatment of the amounts of water entering the sewage treatment plant. Concerning the pollution load due to sewer overflows, this is regulated in a qualitative manner in Recommendation 7/5, e). Work is ongoing to strengthen this by stating specific values,

RECOGNISING ALSO the need for development of the present sewerage systems,

RECOGNISING the importance of municipal sewage as a source of pollution of the marine environment,

RECOGNISING ALSO that improved phosphorus removal has been found to be necessary in the Baltic Sea Area,

RECOGNISING ALSO that phosphorus from medium-sized Urban Waste Water Treatment Plants is contributing to the eutrophication of the Baltic Sea,

RECOGNISING ALSO that nitrogen removal has been found to be necessary in many parts of the Baltic Sea Area,

DESIRING to limit this pollution by effective treatment of municipal sewage,

RECOMMENDS to the Governments of the Contracting States to the Helsinki Convention that:

A. Development of sewerage systems

1. Urban (municipal) wastewater deriving from households (domestic wastewater) or industrial enterprises should be collected and treated before being discharged into waterbodies; by-passes may only be used in emergency cases;

2. The sewerage system must not become deteriorated due to the content of substances in the effluent water from industries,

3. A separated sewerage system and/or a semi-separated sewerage system should be selected for new developments;

4. Sewers should be maintained and renewed in a way that infiltration and exfiltration are minimised;

5. The net infiltration in major catchment areas should not exceed 100% of the dry weather flow as a yearly average.

B. Treatment of municipal wastewaters discharging to the catchment of the Baltic Sea area.

1. Limit values for substances harmful to the receiving waters which cannot be treated in the municipal wastewater treatment plants or which are harmful to the sewerage systems or the processes of the treatment plant should be established separately for industry and other relevant sectors discharging indirectly based on the BAT and BEP.

2. Domestic sewage or wastewater of similar type which is collected in a central sewerage system and treated in wastewater treatment plants, with a load of 300 - 2 000 person equivalents, should be treated so that the treatment results in:

- at least 80% reduction of BOD_5, or 25 mg/l
- at least 70% reduction of total phosphorus, or 2 mg/l, when discharging directly or indirectly to the marine areas
- at least 30% reduction of total nitrogen, or 35 mg/l, when discharging directly or indirectly to marine areas sensitive to nitrogen.

Alternatively, reduction requirements as set out in HELCOM RECOMMENDATION 28E/6 on on-site wastewater treatment of single family homes, small businesses and settlements up to 300 person equivalents (p.e.) must be applied.

3. Domestic sewage or wastewater of similar type which is collected in a central sewerage system and treated in wastewater treatment plants, with a load of **2,000 – 10,000 person equivalents**, should be treated so that the treatment results in:

- at least 80% reduction[*] of BOD_5[**]; or at most a concentration of BOD_5 in the effluent of the treatment plant of 15 mg/l.
- at least 80% reduction of total phosphorus; or at most a concentration of total phosphorus in the effluent of the treatment plant of 1[***] mg/l when discharging directly or indirectly to the marine areas;

[*] *In this recommendation: the relation to the load of the influent*

[**] *Calculated as annual means with nitrification inhibitor*

[***] *Target value, calculated as annual means.*

- at least 30% reduction of total nitrogen[****], when discharging directly or indirectly to marine areas sensitive to nitrogen.

4. Domestic sewage or wastewater of similar type which is collected in a central sewerage system and treated in wastewater treatment plants, with a load of **10,001 – 100,000 person equivalents**, should be treated as soon as possible so that the treatment results in:

- at least 80% reduction of BOD_5; or at most a concentration of BOD_5 in the effluent of the treatment plant of 15 mg/l.
- at least 90% reduction of total phosphorus; or at most a concentration of total phosphorus in the effluent of the treatment plant of 0.5[*****] mg/l when discharging directly or indirectly to the marine areas;
- a minimum of 70-80% reduction of total nitrogen; or at most a concentration of total nitrogen in the effluent of the treatment plant of 15 mg/l, when discharging directly or indirectly to marine areas sensitive to nitrogen.

5. Domestic sewage or wastewater of similar type which is collected in a central sewerage system and treated in wastewater treatment plants, with a load of **more than 100,000 person equivalents**, should be treated as soon as possible so that the treatment results in:

- at least 80% reduction of BOD_5; or at most a concentration of BOD_5 in the effluent of the treatment plant of 15 mg/l.
- at least 90% reduction of total phosphorus; or at most a concentration of total phosphorus in the effluent of the treatment plant of 0,5 mg/l when discharging directly or indirectly to the marine areas
- a minimum of 70-80% reduction of total nitrogen; or at most a concentration of total nitrogen in the effluent of the treatment plant of 10[******] mg/l, when discharging directly or indirectly to marine areas sensitive to nitrogen.

6. Alternatively, the requirements for individual plants set out in paragraphs 1, 2, 3, 4 and 5 need not apply where it can be shown that the minimum percentage of reduction of the overall load entering all urban wastewater treatment plants in the catchment area is at least 90% for total phosphorus when discharging directly or indirectly to the marine areas and 75% for total nitrogen for plants discharging directly or indirectly to marine areas sensitive to nitrogen.

7. The Contracting States shall ensure that urban wastewater entering collecting systems before discharge fulfil the demands stated in paragraphs 2, 3, 4 and 5 according to the following timetable, without prejudice to existing legislation applicable to Contracting States that are also EU Members

- at the latest by 31 December 2010 for discharges from agglomerations of more than 200,000 p.e.,
- at the latest by 31 December 2012 for discharges from agglomerations of more than 100,000 p.e.,

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[****] *Total nitrogen means the sum of total Kjeldahl nitrogen (organic + NH_4), nitrate (NO_3)-nitrogen and nitrite (NO_2)-nitrogen.*

[*****] *The concentration values in Recommendation are Target values, calculated as annual means.*

[******] *Calculated as annual means. However, the requirements for nitrogen may be checked using daily averages when it is proved that the same level of protection is obtained. In this case, the daily average must not exceed 20 mg/l of total nitrogen for all the samples when the temperature from the effluent in the biological reactor is higher than or equal to 12 ℃. The conditions concerning temperature could be replaced by a limitation on the time of operation to take account of regional climatic conditions.*

- at the latest by 31 December 2015 for discharges from agglomerations of between 10,000 and 100,000 p.e.,
- at the latest by 31 December 2018 for discharges from agglomerations of between 2,000 and 10,000 p.e.,
- at the latest by 31 December 2018 for discharges from agglomerations of between 300 and 2,000 p.e.,

Alternatively, for agglomerations above 10,000 p.e. the recommendation for phosphorus treatment in the wastewater would be 1.0 mg/l or 90% reduction until 2013.

The implementation of the 0.5 mg/l requirement will be decided by the Contracting States according to national programmes to HELCOM by 2010.

RECOMMENDS FURTHER that the Contracting States report to the Helsinki Commission every three years starting at the end of 2010 with data from 2009,

RECOMMENDS ALSO that the Contracting Parties re-evaluate the present Recommendation and reconsider it in 2015 taking into account new developments on national or international and EU level for Member States,

RECOMMENDS ALSO that the Contracting Parties establish a programme for the implementation of this Recommendation and that the Contracting Parties provide the Helsinki Commission with information on the programme at the latest by 31 December 2009.

REPORTING FORMAT FOR HELCOM RECOMMENDATION 28E/5 CONCERNING MUNICIPAL WASTEWATER TREATMENT			
Lead Country: Sweden			
Country:			Year:
A. Development of municipal sewerage networks			
1. What type of sewerage system is:	Combined	Semi-separated	Separated
a) in use (percentage of length for each type, or rank 1,2,3)?			
b) chosen for new developments (percentage for each type or rank)?			
2. To what extent are sewers being renovated (e.g. km/year, certain areas etc.)			
3. Is renovation of networks a matter for the central, regional or local governments?			
4 a. Have assessments been made of the net infiltration into sewerage systems in major catchment areas?	Yes	No	Unknown
4 b. If so, do the results show compliance with the recommended max 100% infiltration of baseflow rates?	Yes	No	Partly
B. Treatment of municipal wastewater treatment			
1. Are there any limit values or target values for different substances permitted into the sewerage and/or to the wastewater treatment plants? If yes, please submit them (or in case of earlier Submission, give reference to the earlier document)			
2. Number of persons (million inhabitants) and percentage of population connected to municipal wastewater treatment			
3. For the different size classes give the number of plants and the number of persons served:			

	101 – 2,000 p.e.	2001 – 10,000 p.e.	10,001 – 100,000 p.e.	> 100,000 p.e.
a) at the coast of the Baltic Sea				
b) within the catchment area of the Baltic Sea				
c) located in nitrogen-sensitive areas				
d) located in nitrogen-sensitive areas and in compliance with nitrogen removal requirements				
e) in compliance with phosphorus removal requirements				
f) in compliance with BOD removal requirements				

4. Different treatment methods, per cent of population served:		
	Total discharges to the Baltic catchment area	Direct discharges to the Baltic Sea
a) no treatment		
b) mechanical		
c) biological		
d) chemical		
e) biological-chemical		
f) other methods		
5. Wastewater flow, million m^3/a		
6. Discharge to water of substances in **treated**		
a) $BOD_{5\ ATU}$		
b) phosphorus		
c) nitrogen		
7. Reduction, in per cent		
a) $BOD_{5\ ATU}$		
b) phosphorus		
c) nitrogen		
8. Discharge of wastewater of **untreated** wastewater (overflows and bypasses)		
a) volume, million m^3/a		
b) $BOD_{5\ ATU}$, t/a		
b) phosphorus, t/a		
c) nitrogen, t/a		
9. Describe how areas sensitive or non-sensitive to nitrogen have been assessed; methods or reference to publication.		
10. Describe how the Recommendation concerning municipal wastewater treatment has been implemented; new legislation, amendment to existing legislation or other means.		
11. Please submit a map of designated areas sensitive to nitrogen		