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*Position Paper*

**Importance of relating measures against eutrophication  
in the Urban Waste Water Treatment Directive  
to the principles of the Water Framework Directive**

**Introduction**

The members of EUREAU collectively provide vital water and wastewater services to 400 million European citizens. We are committed to sustainability in all aspects of our business operations, particularly in the provision of water supply and sewerage services.

The waste water sector has already made a significant contribution to enhancing the sustainability of European water resources, and we recognise that we have a major part to play in meeting requirements of the Urban Waste Water Treatment Directive (91/271/EEC), and one of the most important roles in helping to reach the requirements of the Water Framework Directive (2000/60/EC) and a future Sludge Directive.

Considerable efforts have been made so far work towards meeting the requirements of the Urban Waste Water Treatment Directive (UWWTD). The efforts have led to substantial improvements of the quality of many rivers, lakes and coastal waters in the Member States. However, as shown in the European Commission report 2004 (0248), on the Implementation of the UWWTD, as at 1998 there is still more work to be carried out before all the requirements are met.

**Urban Waste Water Treatment Directive and its General  
Relationship to Water Framework Directive**

EUREAU clearly understands that there is a need for a minimum level of waste water treatment at a European level, as defined in the UWWTD for waters not designated as sensitive waters. The designation of sensitive areas enables even more stringent treatment requirements to be set for areas where it was necessary for protecting, among others, waters intended for human consumption and water environment against eutrophication (Annex II A of Directive 91/271).

At the time for adoption of the policy framework of the UWWTD, the holistic view of the water environment was not fully developed and consequently, the UWWTD focused on setting treatment requirements for each individual discharge of an urban wastewater treatment plant (UWWTP). However, since the adoption of the treatment plant oriented UWWTD in 1991, more holistic views of managing water sustainability have been developed within both the Members States and the European Union. One of the most important tools, is the development and adoption of the water quality oriented Water Framework Directive (WFD).

The WFD will integrate two important approaches within the processes of the Integrated River Basin Management Plans:

1. Emission limit value (ELV) approach, the focus on the UWWTD
2. Quality objective legislation (EQS) which is the focus of the river basin quality in the Water Framework Directive

So, there is a strong relationship between the UWWTD and the WFD which is particularly recognised in respect of eutrophication, as the work under the Common Implementation Strategy shows (ECOSTAT WG 2.A: “Conceptual Framework for eutrophication assessment in the context of European water policies”).

## **Sustainable Measures in Limiting Eutrophication**

In the report COM (2004) 248 (page 17), on the Implementation of the Directive 91/271/EEC, different strategies to combat eutrophication in freshwaters, marine waters and estuaries are presented. This indicates that in the future, local and regional conditions will be more important than having the same standards for all the sensitive waters all over Europe in establishing the treatment requirements and effluent limit values. Unfortunately, in the following chapters where the Member States (MS) situation is reviewed, the same openness for local and regional conditions can not be seen. Looking into the review of the MS in the report COM (2004), the Commission has often done the following interpretations of the UWWTD:

1. In a sensitive area both P and N has to removed
2. Nutrients removal has to be applied to the whole catchment area upstream of a sensitive area.

In respect of point 1, it is to be noted that Table 2 in UWWTD Annex I, gives the effluent limit values for total phosphorus and total nitrogen. It says that “one or both parameters may be applied depending on the local situation”. The criteria, which elements might be taken into account when considering which nutrient should be reduced by further treatment, is shown in UWWTD Annex II. The expressions in UWWTD leave the decision to the MS.

Concerning point 2, the magnitude of the natural removal is a function mainly of the hydraulic retention time in the river basin as well as existing biota. In many cases far upstream a river basin, as much as 60-80% of the nitrogen discharged by an UWWTP may be removed naturally (annex 1). As a consequence, an investment in nitrogen removal in such an upstream UWWTP, will not have much environmental effect long downstream or at the coast.

This is the case where the river basin itself is **not** designated as sensitive to nitrogen, but where only the downstream area or coast is designated as a sensitive area to both nitrogen and phosphorous. In these areas where the river basin is not sensitive to nitrogen, the nitrogen discharged upstream the river basin will, in many cases, be naturally removed on its journey downstream. Although this fact is well known, it has not been taken into consideration by the European Commission when establishing the abovementioned interpretations; this lack of consideration of the natural removal of nitrogen is today causing difficulties to explain the overall benefits of the UWWTD for the public in inland areas and their local politicians in some Member States, e.g. Spain, Finland and Sweden. In these areas, due to the small environmental effect of new investments in nitrogen removal, it is very difficult to motivate at the local level and it would also be hard to get such an investment socially acceptable.

The situation of having rather large upstream areas with a potential of high magnitude of natural removal of nitrogen is estimated to be:

- in Finland: 90 % of the urban population = 5,9 million p e
- in Spain: a 50 % of the urban population in present normal areas = 26,9 million p e
- in Sweden: 10 % of the urban population = 0,7 million p e

For Eureau, it is very much important to maintain a high consumer confidence to wastewater services; for this reason, it is essential that all the wastewater operator's efforts in improving the effluent quality have a positive impact on the environment. We must keep in mind that the water customers are those who pay the bill. So, it is important that measures against eutrophication adopted under the UWWTD and the WFD are cost-effective and sustainable, as art. 11.3c and Annex III b) of the WFD stress.

## **The EUREAU position**

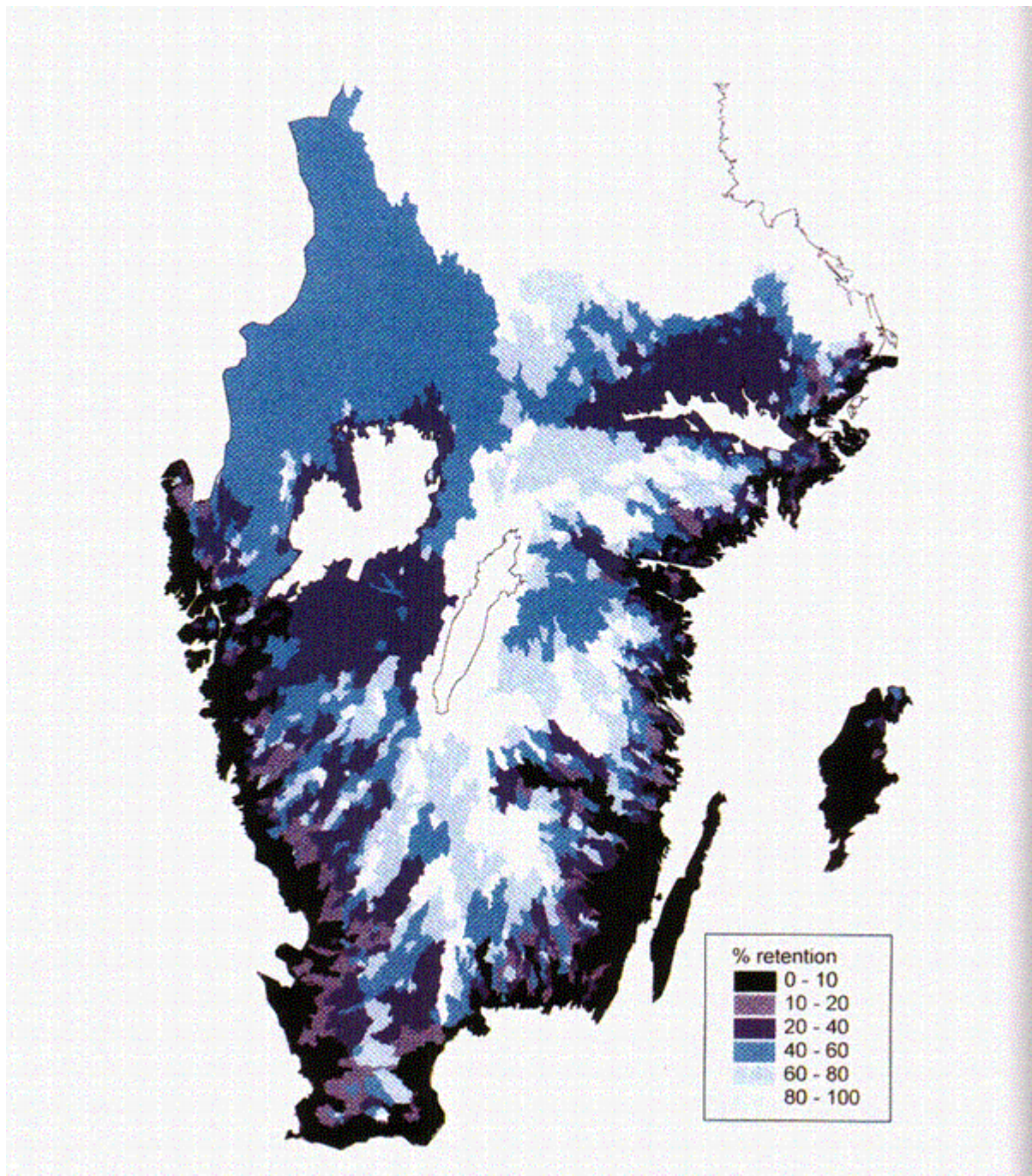
- EUREAU calls for an approach in the interpretation of the UWWTD requirements, which is as environmentally sound, cost-efficient and socially acceptable as the WFD requires too. EUREAU therefore supports, the EC efforts through the Common Implementation Strategy (CIS) to investigate how the UWWTD approach to sensitive waters and measures can be effectively integrated with the principles of the WFD.
- From the view of environmentally sound, cost-efficient and social accepted measures at UWWTP, a key is the interpretation in the Art 5.5 of UWWTD of the wording "*contribute to the pollution*". Guidance is required for interpreting the extent of contribution needed to trigger nitrogen removal at upstream UWWTP.
- The decision whether the phosphorous or the nitrogen, or both, have to be removed from urban waste water in sensitive areas should be decided at the Member State level, according to the provision of subsidiarity made in the UWWTD (Annex II, A,a,ii)
- In receiving waters which are not designated as sensitive to nitrogen, the natural removal of nitrogen should be taken into account. In these areas not all the nitrogen discharged upstream will ever reach the designated sensitive areas in the downstream continental or coastal waters. Depending of the hydraulic retention time and biota in systems of lakes and rivers, the natural removal of nitrogen often varies between 30-80% (see annex 2: bibliographic references) Therefore, it is not always necessary to remove nitrogen in an UWWTP situated upstream of a system of lakes, rivers or coastal waters since the nitrogen will be naturally removed on its way from the UWWTP to the downstream areas or coast (see note 1a).

It is to be underlined that, when preparing the investment plans to fulfil the requirements of the UWWTD, in the early 90's, the waste water operators could not foresee the impact of new interpretations of the UWWTD. Should the new interpretation require the designation of new sensitive areas, then the waste water operators should be allowed a long period of time to face these new interpretations of the requirements in accordance with the timescale of the WFD and the programmes of measures within the river basin management plans to abate eutrophication.

Eureau is of the opinion that these issues are of utmost importance in the interpretation of the UWWTD to enable environmentally sound, cost-efficient and socially acceptable decisions to be made in the Member States.

## Annex 1 - Natural Nitrogen Removal (%) in Southern Sweden

The TRK model: <http://euroharp.org/pd/pd/models/TRK-short.htm>



Note : Nine different modelling tools for quantifying nutrient losses are currently evaluated in the EC sponsored EUROHARP-project ([www.euroharp.org](http://www.euroharp.org)). The model used for calculating natural nitrogen removal in e.g. Sweden, the TRK-model, is one of the models evaluated in the EUROHARP-project. (see **Schoumans, O.F. & Silgram, M. (eds.), 2003.** "Review and literature evaluation of quantification tools for the assessment of nutrient losses at catchment scale. EUROHARP Report 1- december 2003)

## ANNEX 2 - Bibliographic references

- The TRK model: <http://euroharp.org/pd/pd/models/TRK-short.htm>
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