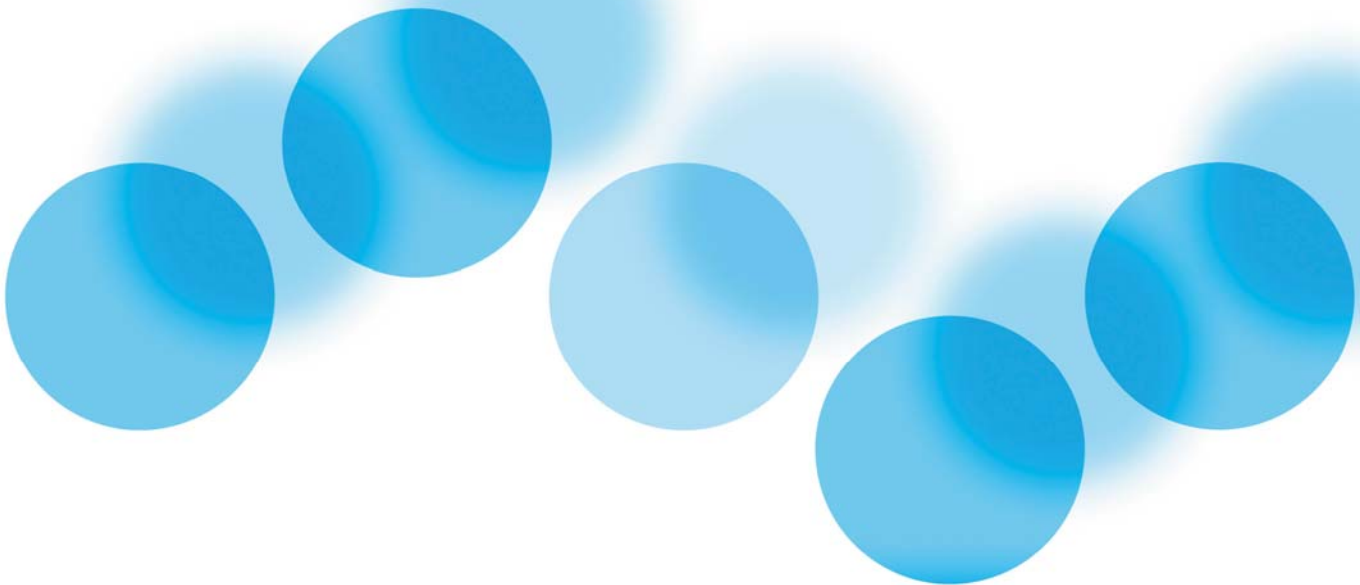




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# HARMONISATION AND STREAMLINING THE ICPDR REPORTING AND INFORMATION COLLECTION NEEDS IN LINE WITH EU DIRECTIVES AND NATIONAL OBLIGATIONS



WORKING FOR THE DANUBE AND ITS PEOPLE

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## PREFACE

The work described in this report is aimed at providing a critical review of the ICPDR's future reporting and information requirements leading to the preparation of an agreed paper for discussion at a meeting with Danube Country representatives. This review reflects the reporting and information systems available within the ICPDR and its Expert Groups and the current and forthcoming requirements of the European Commission's and the European Environment Agency's reporting needs and the movement towards a shared water information system for Europe (WISE). Recommendations are made and the benefits of these are explained.

This restructuring of how data flows are organised at a European level presents an opportunity for the ICPDR to assess its current and future data, information and reporting needs. This review of the ICPDR's reporting requirements is aimed at satisfying a number of objectives, including:

- > Ensuring that the ICPDR states are also not over burdened by reporting, and that all information provided by the Danube countries are utilised;
- > To identify means to present the state of and pressures on the Danube River in a clear and effective method. (Currently, despite significant financial investment in pollution reduction within the DRB, any improvements to the environment are hard to show in a simple format).
- > Developing of suitable indicators (ideally consistent with indicators developed elsewhere – e.g. EEA) to show the performance of the ICPDR and the improvements of the environmental quality of the DRB. Agreement of these high level indicators will enable the data to be collected by the Danube countries to be specified and agreed.

This paper is aimed at assisting discussions at the Heads of Delegation meeting (April 2005) on the future role of the ICPDR and its Expert Groups



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## ABBREVIATIONS

DRB	Danube River Basin
DRP	Danube Regional Project
EC	European Commission
EEA	Expert Group
Eionet	European Environmental Information and Observation Network (of the EEA)
EPER	European Polluting Emissions Register (of the IPPC Directive)
EU	European Union
Eurostat	Statistical Office of the European Communities
GEF	Global Environment Facility
ICPDR	International Commission for the Protection of the Danube River
IPPC	EU Directive on Integrated Pollution Prevention and Control
JRC	Joint Research Centre (for the European Union, based at ISPRA IT)
SOE	State of the Environment (Reporting system or data flows)
TNMN	Trans National Monitoring Network (of the ICPDR and Signatory Countries)
UNDP	United Nations Development Programme
UWWTD	EU Directive on Urban Waste Water Treatment
WFD	EU Water Framework Directive
WISE	Water Information System for Europe (being developed by EC, EEA JRC and Eurostat)

## EXECUTIVE SUMMARY

It is now recognised by Member States, the European Commission, the EEA and other bodies with a stake in reporting procedures that there is a need for “streamlining” the reporting process and making the exchange process as efficient as possible using modern technology. This has resulted in a common approach towards a shared pool of common and timely data and information on the state of, and pressures on, Europe’s water (WISE = Water Information System for Europe) that meets the needs of all those organisations required to report and make assessments at a European level.

The ICPDR has, for the basis of its assessments and reports, data that comes from the Trans National Monitoring Network (TNMN). This was established to support a reliable and consistent trend analysis for concentrations and loads for priority pollutants, support the assessment of water quality, and assist in identification of major pollution sources on the main channel of the Danube and some of its larger tributaries.

The EEA has designed and developed a process of priority data flows (Eionet-Water, formerly known as Eurowaternet) by which it obtains information on the state of, and trends in, Europe’s water resources. Eionet-Water gives a representative assessment of water types and variations in anthropogenic pressures across the EEA area. There is a wider geographic spread of Eionet-Water stations compared to the TNMN because many of the tributary rivers are included. There is also a greater spread of river sizes (*sensu* Water Framework Directive) with the inclusion of many small, medium and large rivers. This provides a sound basis for more representative reporting of the Danube river basin than the TNMN alone.

The EEA has, for its major reports and assessments, developed a multi-thematic core set of indicators including those for water, most of which are based on data arising from Eionet-water. These are updated annually and form a stable basis for reporting which could be adapted for ICPDR purposes.

The following recommendations are made:

- > ICPDR undertakes a review of and clearly states: what data it needs; how it will be collected and used in terms of reporting to the contracting parties and the public.
- > ICPDR engages with the EC, EEA and JRC in identifying and specifying its data and information needs within the development of WISE.
- > The guiding principle is that ICPDR will seek to obtain all its data needs from WISE.
- > As the starting point, Danube countries should include the data required/requested by the ICPDR into the existing annual Eionet-Water data flows, at the latest, in the EEA’s annual update due in autumn 2006.
- > ICPDR and the Danube countries take part in the development of reporting of biological and hydromorphological quality.
- > ICPDR should work together with EC and EEA to support the activities of Moldova and Ukraine in providing data for Eionet-Water.
- > ICPDR and EEA should consider a joint project to investigate the value and limitations of the Danube emissions database for realising pressure indicators as an example of good practice for other international river basins.
- > ICPDR should consider the use of EEA-developed indicators for its own reports and assessments and supplementing them with indicators on pressures (derived from the emissions data base) and biological status (derived from the Danube surveys).

The benefits of these recommendations are:

- > Danube basin countries streamline their activities by reporting only once for multiple purposes and users. This frees up resources to further enhance the quality of the ICPDR data.
- > ICPDR becomes more actively involved with other actors in the development of the WISE.
- > With access to Eionet-Water (WISE) the information base for Danube-wide assessments is significantly enhanced in terms of geographic representativeness.
- > The capacity for producing simple, easier to understand, timely, policy or issue-relevant assessment reports is enhanced by the use of indicators.
- > The potential for the involvement of the public and NGOs is therefore enhanced by access to understandable information.



## 1. INTRODUCTION

Significant changes to the reporting of environmental data are being considered at the European level. These discussions have been stimulated by the activities of the European Environment Agency and the needs of the Water Framework Directive but they also reflect the desire to streamline reporting obligations for other directives and to meet the needs of many international organisations. It is now recognised that it would be more efficient to enable trend and state of the environment to be investigated from a common, shared database. This presents an opportunity for the ICPDR amongst others to assess its current and future data, information and reporting needs.

## 2. REPORTING AT A EUROPEAN LEVEL

There are a number of obligations on countries to report to European Institutions and organisations such as the European Commission, European Environment Agency (EEA) and International River and Regional Sea Commissions. Some reporting obligations are mandatory (e.g. to the European Commission) others are moral or voluntary (e.g. the EEA).

It is now recognised by Member States, the European Commission, the EEA and other bodies with a stake in reporting procedures that there is a need for "streamlining" the reporting process; gathering more useful and policy relevant information and making the exchange process as efficient as possible using modern technology.

A new concept on reporting for water was adopted by the Water Directors' meeting in Rome on 24/25 November 2003. It recognised three distinct, but overlapping, requirements for information to be gathered from Member States to EU and International Organisations. These are:

- > Checking compliance and implementation of EU legislation at a national level.
- > Assessing and comparing state and trends for the environment and the associated pressures, impacts and socio-economic driving forces.
- > Use information on implementation and trends to assess the effects and effectiveness (including cost-efficiency) of policy, before and after measures have been introduced.

The Commission and Member States are developing guidance for reporting under the Water Framework Directive (WFD). This is seen as one of the first operational steps in implementing the new concept on reporting for water. The Commission requires information to be reported by Members States to check compliance with the requirements of specific articles of the Directive.

The EEA, with its network of 31 member and participating member countries (known as the Eionet) has designed and developed a process of priority data flows (e.g. Eionet-Water, formerly known as Eurowaternet) by which it obtains information on the state of, and trends in, Europe's

water resources. Eionet-Water was designed to give a representative assessment of water types (e.g. all water body sizes) and variations in anthropogenic pressures within a country and also across the EEA area.

Eionet-Water is based on national monitoring networks. As these change (for example to meet the requirements of the WFD) then it is likely that Eionet-Water station selection might also have to change.

The data arising from Eionet-Water is stored in Waterbase and is disseminated on line via the EEA's web page:

<http://dataservice.eea.eu.int/dataservice/available2.asp?type=findkeyword&theme=waterbase>

The second operational step in implementing the new concept for water reporting is led by the EEA which is developing State of the Environment (SOE) data flows at a European level that meets the needs of all users.

*The concept is for a shared pool of common and timely data and information on the state of, and pressures on, Europe's water (WISE = Water Information System for Europe) that meets the needs of all those organisations required to report and make assessments at a European level. Agreement between countries will have to be reached on many aspects such as the determinands (e.g. physico-chemical (nitrate, phosphate, etc.), biological (benthic invertebrates, fish etc.) and hydromorphological (habitat features, river flow etc.) quality elements), level of data aggregation, spatial and temporal resolution, and on the meta data held within WISE. Appropriate tools are available (e.g. Reportnet) to facilitate the process of populating and developing WISE.*

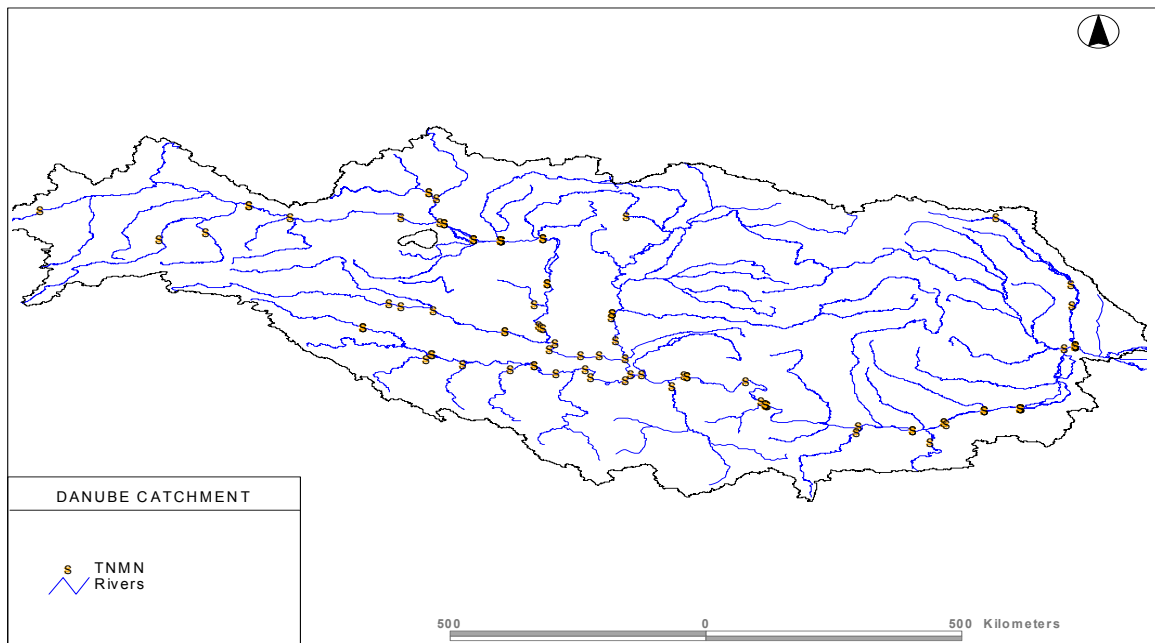
### 3. REPORTING TO AND BY THE ICPDR

The Statute of the ICPDR states in Article 9 that: "The International Commission submits to the Contracting Parties an annual report on its activities as well as further reports as required, which in particular also include the results of monitoring and assessment".

Article 12 (Exchange of Information) of the Convention on Cooperation for the Protection and Sustainable Use of the Danube River (Danube River Protection Convention) states that "As determined by the International Commission the Contracting Parties shall exchange reasonably available data on: c) emission and monitoring data". Such reported data are used to formulate the TNMN-Yearbooks (most recent based on 2001 data) on the water quality in the Danube River Basin. The reported data are derived from the Trans National Monitoring Network (TNMN).

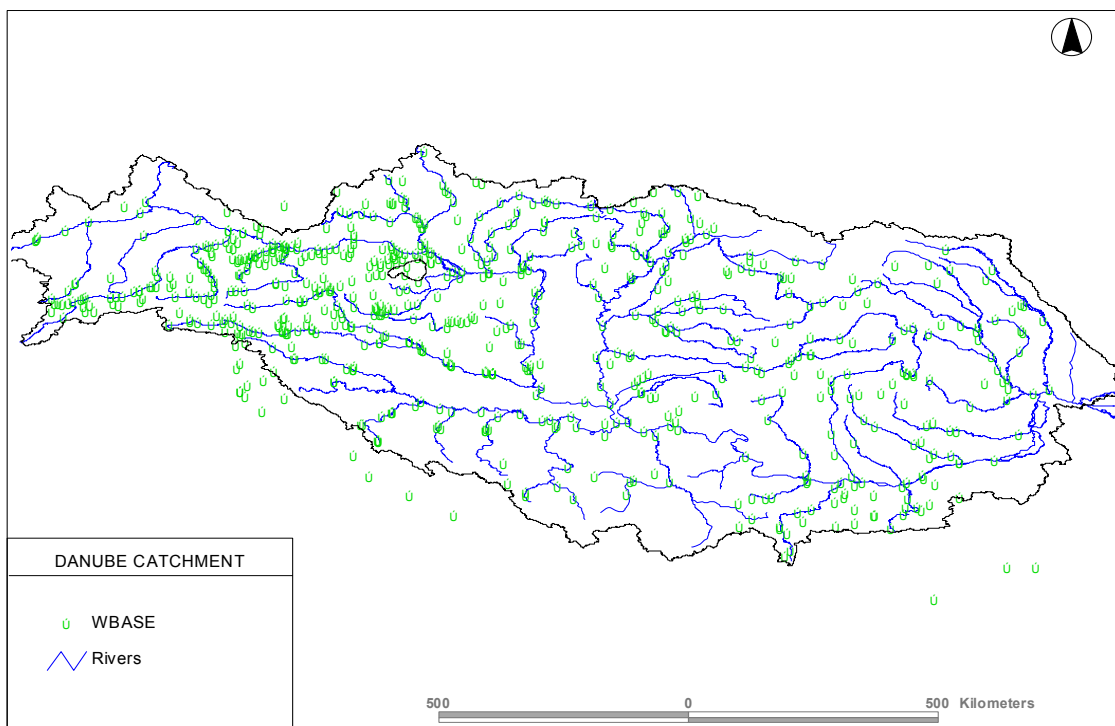
The TNMN was established to support a reliable and consistent trend analysis for concentrations and loads for priority pollutants, support the assessment of water quality for water use, and assist in identification of major pollution sources. It should also provide a well-balanced overall view of the situation and long-term development of quality and loads in terms of relevant constituents for the major rivers in the Danube river basin. The locations of the monitoring stations in the TNMN are shown in Figure 1. As would be expected from the purposes of the TNMN, the stations are located mainly on the main channel of the Danube and some of its larger tributaries.

**Figure 1** Location of TNMN stations



Waterbase (Eionet-Water) was searched for the presence of monitoring stations in the Danube River Basin. These are plotted in Figure 2.

**Figure 2 River monitoring stations in the Danube river basins that are part of Eionet-Water**



It is apparent that there is a wider geographic spread of Eionet-Water stations compared to the TNMN because many of the tributary rivers are included. There is also a greater spread of river sizes (sensu Water Framework Directive) with the inclusion of many small, medium and large rivers (see below). This provides a sound basis for more representative reporting of the Danube river basin than the TNMN alone. Further comparison of river stations included in TNMN and Waterbase is provided in Annex 1.

**Table 1 Comparison between sizes of TNMN and Eionet-Water stations**

River size <sup>1</sup>	Small	Medium	Large	Very large	Total
Waterbase	33	247	256	94	630 <sup>(2)</sup>
TNMN	0	0	11	69	80

1 Size criteria according to WFD, Annex II, typology system A

2 Stations with catchment area information

## **4. IMPLEMENTATION OF THE WATER FRAMEWORK DIRECTIVE IN THE DANUBE RIVER BASIN**

All Danube countries cooperating under the Danube River Protection Convention have given their firm political commitment to support the implementation of the WFD in their countries, and to cooperate in the framework of the ICPDR to achieve single, basin-wide coordinated Danube River Basin Management Plan.

To that end the ICPDR has produced an Article 5 report on the characterisation of the river basin district, the "Danube Basin Analysis (WFD Roof Report 2004)". One of the next tasks to be undertaken by the Danube countries in terms of implementing the WFD will be the design and implementation of appropriate monitoring networks by 22 December 2006. The monitoring networks should be able to provide a coherent and comprehensive overview of ecological and chemical status within the Danube river basin and permit classification of water bodies into five classes consistent with the normative definitions given in the Directive

Countries will have to assess and re-design their monitoring networks to meet the requirement of the WFD. Both the TNMN and Eionet-water are based on national monitoring networks, and changes in these might be required to reflect changes in national networks. The objectives of the TNMN appear to meet some of the requirements of the WFD, particularly in terms of transboundary monitoring and monitoring of the larger water bodies. However, more stations/water bodies would be required if the ICPDR wished to obtain a comprehensive overview of the status of water bodies in the Danube catchment<sup>1</sup>. Eionet-water has a much more geographically distributed network in terms of size of water body and may well give a better overview of status than the TNMN stations alone. In terms of what determinands are to be monitored, this is specified for Eionet-Water, which takes account of those required by the WFD including the priority list of hazardous substances, although these may differ in different river basins depending on the risk assessment carried out by each country for the WFD.

Under the WFD, Member States are required to collect and maintain information on the type and magnitude of the significant anthropogenic pressures to which the surface water bodies in each river basin district are liable to be subject. This includes pressures/emissions arising from point and diffuse sources. However, the Directive only requires countries to report on the risk of failing to meet the water quality objectives, and not on the related level of each individual pressure. Emissions data are thus not planned to be reported at the EU level at this stage though they may be in the future as the WISE process develops. Once the WFD is in place, the aggregated results of the pressures assessment will be provided to the Commission, with the supporting datasets as defined in the reporting sheets available at the district and national level, but no transmission of the data to the European level is foreseen. Exceptions will be emissions from large installations to the EPER database (IPPC Directive) and discharges from municipal waste water treatment plants (UWWT Directive). The emissions database managed and maintained by ICPDR is recognised as a potentially valuable asset that, for the purposes of reporting could be used to develop pressure indicators in a way that is not yet possible at the

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<sup>1</sup> It is not known whether or not this will be an objective of the ICPDR though such an overview would be required in an integrated Danube River Basin Management Plan

European level. Initial discussions between ICPDR and EEA have indicated that the potential of the Danube emissions database could be explored through a joint project that would investigate the value and limitations of the database – (e.g are there overlaps with EPER and UWWTD databases) and its use as an example of good practice for other international river basins.

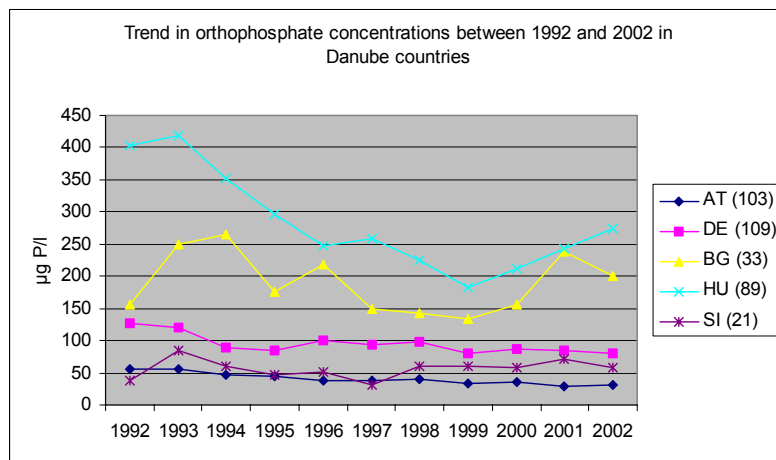
## 5. USE OF INDICATORS

In order to simplify the enormous complexity of the natural environment, the EEA has, for its major reports and assessments, developed a multi-thematic core set of indicators which includes indicators on water most of which are based on data arising from Eionet-water. These are updated annually and are published on the EEA's web-page. (See also Annex 2)

([http://themes.eea.eu.int/indicators/all\\_indicators\\_box?sort\\_by=theme](http://themes.eea.eu.int/indicators/all_indicators_box?sort_by=theme)). There is also a more comprehensive set of water indicators that are used in broader assessment reports such as the Water Indicator Report published in 2003 ([http://reports.eea.eu.int/topic\\_report\\_2003\\_1/en](http://reports.eea.eu.int/topic_report_2003_1/en)).

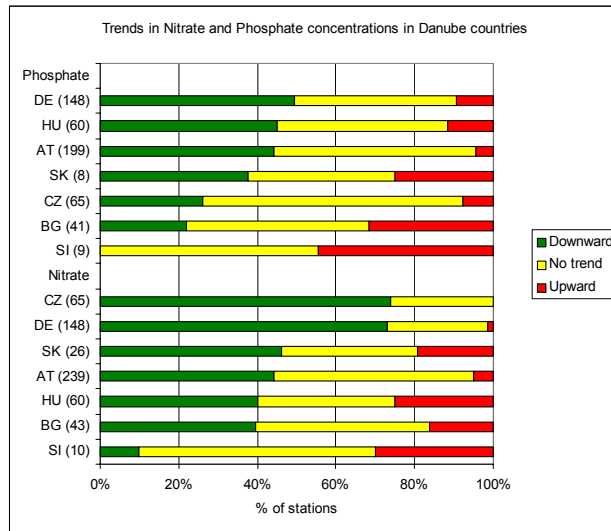
Examples of the river aspects of the "Nutrients in freshwater" core set indicator are given in Figures 4 and 5 to demonstrate how the ICPDR might wish to present its information. The examples have been based on the data obtained through Eionet-Water for Danube basin countries. However, it should be noted that all stations from a country have been used not just those stations located in the Danube basin.

**Figure 3** Trend in orthophosphate concentrations between 1992 and 2002 in Danube countries – country level



Note: Number of stations in brackets after country name abbreviation

**Figure 4 Trends in nitrate and phosphate concentrations at river monitoring stations between 1992 and 2002 – station level**



Note: Number of stations in brackets after country name abbreviation



## 6. RECOMMENDATIONS FOR HARMONISING AND STREAMLINING THE ICPDR REPORTING AND INFORMATION NEEDS

- > It is recommended that the ICPDR undertakes a review of and clearly states:
  - what data it needs on the trends, status of and pressures on water bodies in the Danube basin;
  - how the data will be collected and how the quality of the data will be assured,
  - how this data will be used in terms of reporting to the contracting parties and the public.
- > It is recommended the ICPDR engages with the EC, EEA and JRC in identifying and specifying its data and information needs within the development of WISE.
- > The guiding principle is that ICPDR will seek to obtain all its data needs from WISE.
- > As the starting point for this process, Danube countries should include the data required/requested by the ICPDR into the existing annual Eionet-Water data flows. The TNMN stations not currently included in Eionet-Water could be included, at the latest, in the EEA's annual update due in autumn 2006 (subject to confirmation by Heads of Delegation and EEA). There are also additional determinands required for the TNMN network and these should be included in this harmonised data flow. However, there is an issue that in some countries, TNMN stations that are also Eionet-Water stations may be monitored and reported by two separate organisations, giving rise to two data sets. This duplication needs to be resolved at national level by achieving a single data set serving both purposes.
- > In Eionet-Water, all data must be nationally validated and transmitted through the National Focal Points. It is recommended that the same procedure is applied to the ICPDR data flows.
- > There will also be a need for the reporting of the biological and hydromorphological quality elements to be monitored under the Water Framework Directive. These data flows will be developed through the WISE-SOER process and it is recommended that the ICPDR and the Danube countries take part in this.
- > It is recommended that the ICPDR should work together with EC and EEA to support the activities of non-EU and non-EEA member states (Moldova and Ukraine) in providing data for Eionet-Water. Should this not prove possible, the ICPDR will need to continue present arrangements to collect data directly from Moldova and Ukraine.
- > The ICPDR currently has a database on emissions to water in the Danube river basin. This is potentially a valuable asset for the development of pressure indicators to be used in the reporting process. It is recommended that ICPDR and EEA consider a joint project to investigate the value and limitations of the data base – (e.g. are there overlaps with EPER and UWWTD databases?) and its use as an example of good practice for other international river basins.
- > The EEA has established a Core Set of Indicators that includes indicators on water (rivers), and also a more comprehensive set of indicators for detailed analysis. It is recommended that the ICPDR considers the use of these for its own reports and assessments and
- > supplementing them with indicators on pressures (derived from the emissions data base) and biological status (derived from the Danube surveys).

- > The benefits of these recommendations are:
  - Danube basin countries streamline their activities by reporting only once for multiple purposes and users and the concept of “what is needed is reported and what is reported is used” is followed. This frees up resources to further enhance the quality of the ICPDR data.
  - ICPDR becomes more actively involved with other actors in the development of the WISE.
  - With access to EIONET-Water (WISE) the information base for Danube-wide assessments is significantly enhanced in terms of geographic representativeness.
  - The capacity for producing simple, easier to understand, timely, policy or issue-relevant assessment reports is enhanced by the use of indicators.
- > The potential for the involvement of the public and NGOs is therefore enhanced by access to understandable information

## **ANNEXES**

- |         |   |
|---------|---|
| ANNEX 1 | Comparison of river stations included in TNMN and Waterbase                                     |
| ANNEX 2 | Water (rivers) Indicators developed by ETC Water and used by the EEA for its assessment reports |



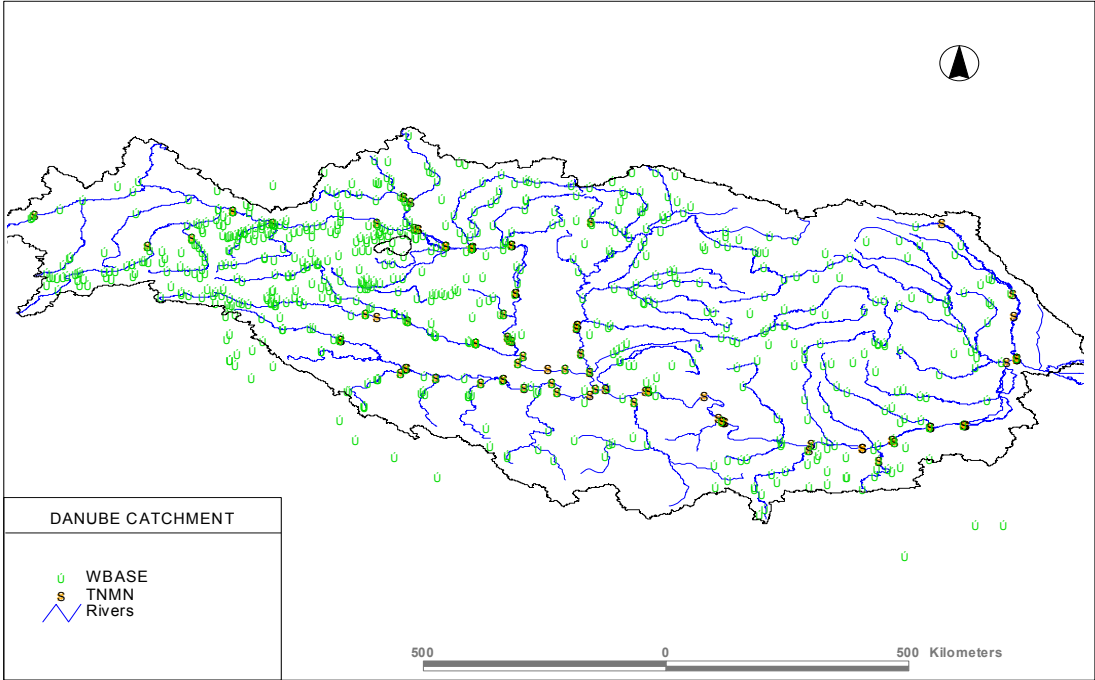
## ANNEX 1: COMPARISON OF RIVER STATIONS INCLUDED IN TNMN AND WATERBASE

Table 2 compares the TNMN stations with those stations included in the EEA's Eionet-Water system. Of the 124 TNMN stations, 62 are also included in Eionet-Water, 31 are not, and there are 31 stations where the location is included in Eionet-Water but not all the stations at that location (e.g. where there are three stations across the river at a location, Eionet-Water may only have one of the three). There are also 669 stations in the Danube catchment included in Eionet-Water and potentially another 37 stations, which would need their exact location checked against the geographic limits of the Danube catchment. Figure 5 shows a map with both the TNMN and Eionet-Water stations located.

**Table 2 Comparison of TNMN monitoring stations with those collected by Eionet – Water**

	TNMN stations	TNMN only	In Waterbase and TNMN	Location in Waterbase but not all station positions	Waterbase stations in Danube catchment	Waterbase stations potentially in Danube catchment
Austria	4		4		230	0
Bosnia and Herzegovina	4	1	3		28	1
Bulgaria	15	12	3		38	5
Croatia	10	1	7	2	10	15
Czech Republic	3		2	1	23	0
Germany	4		4		18	0
Hungary	17		9	8	96	0
Romania	27	4	9	14	126	1
Serbia and Montenegro	18	2	16		38	0
Slovak Republic	12	3	3	6	53	0
Slovenia	2		2		9	15
Moldova	6	6			0	0
Ukraine	2	2			0	0
Totals	124	31	62	31	669	37

**Figure 5 Map of TNMN and Eionet-Water (Waterbase) river monitoring stations**



## ANNEX 2: WATER (RIVERS) INDICATORS DEVELOPED BY ETC WATER AND USED BY THE EEA FOR ITS ASSESSMENT REPORTS

**Nutrients in rivers.** Annually aggregated data over as long a time period as possible – Eionet-Water – concentrations of total oxidised nitrogen, nitrate nitrogen, nitrite nitrogen, total phosphorus, ortho-phosphate phosphorus. For the complete list of determinands please see the Data Dictionary: [http://dd.eionet.eu.int/data\\_element.jsp?mode=view&delem\\_id=14503](http://dd.eionet.eu.int/data_element.jsp?mode=view&delem_id=14503)

**Oxygen consuming substances in rivers.** Annually aggregated data over as long a time period as possible – Eionet-Water – concentrations of dissolved oxygen, ammonium nitrogen, nitrite nitrogen, kjeldahl nitrogen, biological oxygen demand, chemical oxygen demand.

**Hazardous substances (metals) in rivers.** Disaggregated data over as long a time period as possible – Eionet-Water – concentrations of mercury, cadmium, copper, lead, nickel and zinc.

**Hazardous substances (organics) in rivers.** Disaggregated data over as long a time period as possible – Eionet-Water – concentrations of anthracene, benzene, benzo-a-pyrene, benzo-b,k,-fluoranthene, benzo-g,h,i,-perylene, naphthalene etc. For the complete list of substances reported please see the Data Dictionary:

[http://dd.eionet.eu.int/data\\_element.jsp?mode=view&delem\\_id=14512](http://dd.eionet.eu.int/data_element.jsp?mode=view&delem_id=14512)

**Hazardous substances (pesticides) in rivers.** Disaggregated data over as long a time period as possible – Eionet-Water – concentrations of lindane, simazine, alachlor, aldrin, alpha-endosulfan, dieldrin, endrin.

Additional indicators (pressures/emissions)

Emissions of N and P from UWWT plants (sources Eurostat and EPER).

Emissions of organic matter from UWWT plants (sources Eurostat and EPER).

Emissions to water of hazardous substances from industries (sources Eurostat and EPER).

Emissions to water of hazardous substances from UWWT plants (sources Eurostat, EPER and EU).





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