Good data lead to improving water condition

(abstract)

The Danube River has always been one of the Europe's most important waterways, providing basic necessities for everyday life such as food, water and energy as well as transport and communication.

The water of the Danube River and its tributaries comprise an aquatic ecosystem of high economic, social and environmental value. They support drinking water supplies, agriculture, industry, fishing, tourism and recreation, power generation and navigation for a densely populated region of the Europe. The region contains many important natural areas, including wetlands and flood plain forests.

As well as water resources, the Danube River Basin is an area of high ecological richness – biodiversity – within Europe. The Danube provides habitat for around a hundred species of fish from a total of 227 found in Europe. In the Danube Delta alone, three hundred species of birds are found.

Urban settlements are generating pollution from a large number of activities, industrial waste emission, intensification of agricultural practices and irrigation without proper control.

There was an overhelming need for a basin-wide approach to environmental management. The critical interdependence of upstream and downstream neighbours for managing environmental quality can be at local, regional and national level in the basin.

In the 1985 the Danube riparian countries adopted the Bucharest Declaration, which aimed to control and diminish water pollution control and to establish a monitoring programme of the Danube River (the main course).

The Environmental Programme for the Danube River basin (the hole basin) was jointly established by the riparian states to assist in the implementation of the Strategic Action Programmes, a number of Sub-Group's and Working Groups were set up to address the development of an international water quality monitoring network, to introduce harmonised sampling procedures, to enhance laboratory analysis capabilities, and to form the core of an international information management system.

The broad objective of the MLIM EG was to improve data and information for environmental management in the twelve countries of the Danube River catchement area.

Working within the framework of the internationally funded Environmental Programme for the Danube River Basin, at the beginning and according to the provisions of the Danube River Protection Convention, the Monitoring, Laboratory and Information Management Subgroup will:

- Establish a TransNational Monitoring Network (TNMN) of representative site for the chemical and biological quality assessment of the Danube River and its major tributaries
- Establish reference laboratories in each Danube riparian country that will analyse all TNMN sample and that could act as national laboratory and accreditation centres in each country
- Provide an information management system for the TNMN that will also interface with national information systems in each Danube riparian country.

Based on the results obtained within the framework of the Bucharest Declaration concerning the priorities for the Danube River, the need of extension of the monitoring works was recognized.

Once the scope of the work was established the information needs were defined and based on this, the following main objectives of the monitoring within the whole catchment area were defined:

- Strengthen the existing network set up for Bucharest Declaration

- Enlarging the TNMN to include the major tributaries from the whole catchment area
- Supporting reliable and consistent trend analysis of concentration and loads of priority pollutants looking to evaluate the transboundary load transport and mass-balance
- Support the assessment of water quality for waters uses primarily for drinking supply
- Identification of major sources of pollution for minimising and effective management
- Enlarge and harmonise the monitoring fields to the sediments and bio-indicators in the whole basin
- Create a National Reference Laboratories Network with the competitive technical capabilities and the work within them based on harmonised methodologies for to obtain more comparable data
- Create a National Information Centres Network within which the data circulate between the countries and to an International Basin Secretariat
- Develop a quality control system at all levels for improving the quality of the data and information

The analytical and flow data from each country has to be transformed into information that can be used to satisfy all legal international agreements, such as the Bucharest Declaration and the new Danube River Protection Convention (DRPC), to demonstrate compliance with EC Directives and local discharge permits, and to provide management information to prioritise massive expenditure on environmental improvements from scarce financial resources. The MLIM SG has set-up a data exchange file facility that links, in a cost effective manner, national databases in all Danube countries to a common file for the TNMN that can be accessed by all countries for all these purposes. In the same time an appropriate and harmonised NATIONAL INFORMATION CENTRES Network was designed and developed in all riparian countries.

For the Danube wide surface water quality monitoring (TNMN) all the samples are taken at prescribed frequencies and handled with Standard Procedures. The data obtained are well defined and the quality of those will be high. There are many possible ways to store this high quality data and each country already has systems for this purpose. Therefore to allow the exchange of data between the different countries and to facilitate the development of standard function, a common Data Exchange File Format (DEFF) has been agreed.

The data model consist of seven tables including: the determinants file, analytical method file, analysis data file, remarks referring to the analytical methods file, sample file, sample method file, monitoring points file and country file.

All data from the whole catchment area, stored in one year, will be processed and reported as a YEAR BOOK firstly and then for other purposes, different projects can be designed and started in respect with the data usage for different kind of users including the public and/ or NGOs as public representatives. Also the decision- making process for an improved water management will be based on the respective high quality and comparable data obtained.

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