The Republic of Moldova and Eurowaternet: Actual state and future implementation

Vera Munteanu

Abstract

Water quality monitoring is a crucial part of environmental management. Though monitoring is expensive, it is accepted now that a regional approach is the most suitable solution in dealing with the multifactor and interrelated ecological and economic management of the environment.

The management of water resources requires that information on water quality and quantity is collected, analysed and evaluated in a timely and efficient manner. Good water management requires operational information. Information is needed to formulate and evaluate policy for water management.

The existence of many data sets, which are not directly compatible, hinders the use of monitoring data by decision-makers. The benefit from the implementation of standardised data is the ability of environmental managers to improve data and information sharing among different public bodies involved in complementary administrative and technical procedures.

Monitoring and information-collecting activities are continuously being developed in order to respond to increasing demands for objective, reliable and comparable data on the conditions of waters that could serve as a basis for decision-making and management.

The present structure of surface water monitoring in the Republic of Moldova is described.

This paper focuses on how to build up the national monitoring networks using the EUROWATERNET techniques and guidelines, in order to fulfill the information needs (quality of surface water, ecological quality, reduction and control of pollutant discharges, eutrophication and acidification) and to provide up-to-date and comparable information.

1. Goal and Scope

Many Global Institutions and National Governments have declared water as a top priority with regard to the natural resources of the future. In many parts of the world
the water scarcity threatens national and international security, as well as economic, environmental and social stability. One other important point of reference is the fact that investment in providing clean water have very high economic, social and environmental returns.

Environmental pollution, taking into account its social-economic consequences and the wide spreading sphere, is a problem with both national and international implications, especially when the pollution sources are close to international boundaries, bringing about undesired effects in the neighbouring country.

Performance in areas such as water pollution and soil degradation is difficult to appraise since there are no quantitative targets, nor the necessary data. The progress toward targets is slow because problems are dealt with separately and the interrelation between environmental problems and their causes are not addressed to full extent.

More comprehensive or integrated approaches are therefore required for the management and assessment of these problems.

Monitoring progress of the integration of such systems into the management of environmental problems is difficult. However, some indicators of progress already exist. The main barriers to further progress with systems integration are the lack of scientific knowledge and information about the interrelation of environmental problems, the lack of targets to measure policy performance, as well as the gap between the scientific disciplines and the political institutions that deal with different environmental impacts.

At present, some of the systems used to monitor and collect information about the environment are inefficient and wasteful. They generate excessive amounts of data and information related to other subjects. So, there is an urgent need for policies to ensure better focused information, consistent environmental assessment and reporting. It is also worth to mention the need for concerted efforts in order to streamline environmental monitoring and practices; to develop indicators, which should be widely agreed and recognized; to underline the significance of environmental change and the progress of sustainability.

2. Methods

2.1 Current practices

In the Republic of Moldova, water resources monitoring is made in the framework of the National System for Water Quality Monitoring. This system comprises about 40 primary stations. By this term we mean an important control section located usually downstream of large pollutant sources. There are also a large number of secondary control stations.
At present in our country monitoring activities cover only a relatively modest part of the total hydrographical network. The network also covers several lakes (reservoirs).

The existing water quality monitoring network consists of 4 monitoring subsystems. The quality indicators to be analysed are established depending on the specific activities in the respective zone. The water quality measurements include about 30 hydrochemical and 5 biological (macroinvertebrates, phytoplankton, zooplankton, bacterioplankton, fish) determinands.

3. Results and Conclusions

The national river monitoring programmes include stations on the major rivers, while the number of stations on small rivers and reference sites is rather low. Many of the small rivers can not be monitored. Small rivers are, however, ecologically important. Their relative size might be more at risk from human activities than reaches of larger rivers. Therefore, it is necessary to establish stations covering small river catchments and reference areas.

Great efforts are also being made to upgrade the monitoring system. But we still need to optimise the monitoring network in terms of gauging sites and programmes. At the present moment several projects are under way. They aim at re-evaluating the existing system of surface water monitoring and building capacity for the monitoring of sediment quality. Action-oriented monitoring is also envisaged in order to obtain more information about causes and effects in water bodies affected by eutrophication, acidification and micro-pollutants.

Prior to 1999 there was no systematic information exchange between Ministries and data information network. At present all data from monitoring programmes is included into a common database managed by Centre of Ecological Monitoring.

Creation of the National Environmental Information System (NEIS) in our country is conceived as a three phases process of substitution of existing mode of collecting, analyzing, keeping and transmission of information with electronic information management. NEIS is planned to be a virtual network of interconnected computers distributed territorially among environmental organizations in order to implement modern technology of information management, provide public access to environmental data and facilitate decision making process.

Various efforts in research and development have been undertaken to achieve comparability of data, and to provide a comprehensive picture of the complex interactions and interlinkages within and between environmental media within catchment areas or parts thereof.

There is growing evidence that the availability of water-quality and water-quantity data in Europe is improving, and progress is being made in the introduction and use of harmonised data collection, reporting and assessment procedures.
The extent of the economic and environmental relevance of transboundary watercourses and international lakes is clearly demonstrated by ongoing activities. For example, EUROWATERNET is a network, which will provide information on water quantity as well as water quality issues. The network is designed to give a representative assessment of water types and variations in human, industrial and agricultural pressures across the European Environment Agency area and to provide up-to-date and comparable information. It will ensure that similar types of water body are compared. The need to compare like-with-like is achieved with a stratified design with the identified and defined strata containing similar water bodies. The use of the same criteria for selecting strata and water types will help to ensure that valid status comparisons will be obtained.

One of the key concepts of EUROWATERNET is to use the existing national monitoring and information databases. Countries should not develop two incompatible monitoring and assessment systems. On the contrary, they should be enabled to have a common source of information for different needs.

The Moldavian monitoring system could serve as a part of EUROWATERNET which will incorporate information fully compatible with the reporting needs of national programs. The key questions to be answered by EUROWATERNET, such as: quality of surface water, ecological quality, reduction and control of pollutant discharges, eutrophication and acidification, are mentioned as high priority in the national programmes as well.

However, it is likely that a flexible approach will also be required for the selection of different types of monitoring stations (reference, representative and impact) included in national networks, especially for the lakes monitoring network, in order to be able to answer some specific questions. It will, therefore, be expected that some stations will fulfil more than one task. River stations and lakes should be selected from the total station population using the stratification criteria in accordance with EUROWATERNET design guidelines.

In order to make the information fully statistically representative, as part of the development of EUROWATERNET, the precision and confidence obtained from different numbers of stations are being assessed. An optimal number of stations could be established to characterise the river catchment (1 station per 1000km²).

Additional lake monitoring sites are required. In addition to 6 representatives sites, 17 representatives and 2 references sites are proposed.

Some useful stages in creating a platform for development and implementation of EUROWATERNET have been completed. We can mention here the efforts of our country to establish a statutory and regulatory framework and the creation of procedures for preventing, reducing and managing accidental pollution of transboundary waters, the bilateral and multilateral agreements etc.

The environmental policy of the Republic of Moldova aims at more close relationship with relevant international activities by improving international co-operation
on environmental protection at the regional and European levels; implementing bilateral agreements and participating in regional programmes. Moldova participates in several international agreements in relation with water management and management of transboundary watercourses such as the Convention on Sustainable Use and Protection of the Danube River Basin. Since 1993 Moldova is a Party to the ECE Convention on Environmental Impact.

The pollution of transboundary watercourses and international lakes has become widespread in some European countries. For decades, these waters have played an important economic role without particular thought being given to the notion of preventing, controlling and reducing transboundary impacts.

Especially for the downstream countries, it is very important to receive information about all kind of transboundary pollution having an effect on the water quality. Due to the fact that Moldova is a downstream country, it was important for us to establish bilateral agreements with the upstream countries to effectively cope with transboundary pollution. These bilateral agreements contain, in particular, provisions on appropriate mutual exchange of all pertinent information, and joint contingency plans. Moldova has ratified the Convention on the Protection and Use of Transboundary Watercourses and International Lakes.

Our country is located in the drainage basin of the Black Sea. Moldova is thus interested and involved in the Black Sea protection initiatives. This will enable us to prepare relevant intergovernmental investment programmes.

To enhance the protection of waters and reduce transboundary impact requires reliable data.

EUROWATERNET will contribute to enhance effectiveness of joint measures to protect and manage transboundary waters. This will be in line with the objectives of the Convention on the Protection and Use of Transboundary Waters and International Lakes and others international agreements.

Moldova is in the course of drawing up new strategies and performing a continuous activity for harmonisation and approximation of its legislation to the European Union standards, as well as to the provisions of international law on water and environment protection.

4. **Recommendation**

- maintaining and updating of environmental database (REGIS-Moldova), expanding with more data sets;
- integration into Danube AEWS;
- to implement the proposed (EUROWATERNET) monitoring network in a step-by-step process, further develop and test in Moldova as a volunteer country;
- to organize training courses under the aegis of EUROWATERNET.
Bibliography


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