

International Network of Basin Organizations

THE ESTABLISHMENT AND DEVELOPMENT OF WATER INFORMATION SYSTEMS:

“You can only manage what you can measure”

*Improving knowledge of water resources,
environments, of their uses and risks
is essential for sustainable management
and adaptation to climate change.*

INTERNATIONAL NETWORK OF BASIN ORGANIZATIONS
C/O INTERNATIONAL OFFICE FOR WATER
21, rue de Madrid - 75008 PARIS (FRANCE)
Téel. (33) 1.44.90.88.60 - Fax (33) 1.40.08.01.45 - E.mail : riob@riob.org

Any information on the website: www.inbo-news.org

Information is needed for decision making in the water sector.

In order to achieve comprehensive water resources management, including in the river basins, it is of paramount importance for decision makers (Directors of Basin Organizations and Administrations, Members of Basin Committees, representatives of local Authorities, users and associations) to have access to all relevant, reliable, complete and representative data on:

- the status of surface and ground water resources, both in quantity and quality, and on seasonal and inter-annual changes,
- the situation of biotopes and aquatic environments and on their degrees of sensitivity,
- water uses (withdrawals), and especially on irrigation and drinking water supply to the inhabitants, and on pollution (discharges) whether from point or non-point sources,
- the risks of occurrence of extreme events such as floods or droughts and accidental pollution,
- economic indicators, costs, price, charges, etc.

The available information is too often limited to hydro-meteorological data, which give information on rainfall and flow rates, thus of a quantitative nature only, and yet, in many countries or basins, these data are incomplete and of poor quality, when the measurement network, especially hydrological, has not been degraded in past decades!

Data on water quality and environments are at best one-time or non-existent data and the samplings are unknown ... and then what to say about pollutant discharges or aquatic environments!

We shall note that this information is often dispersed, heterogeneous and incomplete ... and that it is neither always comparable, nor adapted to the requirements needed to make objective decisions and that, most often, several public, para-public or even private organizations can have these data, without sufficient means of exchange, sharing, harmonization and synthesis and capitalization of this information among them.

It is therefore essential and urgent that, in every kind of situation and taking into account all national and local particularities, special attention should be paid to thinking about the organization of project management for measurement networks and data bases, about their funding and the advisable role of specific basin institutions as compared to any other people involved.

Today, it is always necessary to raise questions on:

- ❖ the nature (parameters, integrator indexes, frequency, representativeness, normalization) of the useful information,

- ❖ the means to collect, measure, analyze, and control the quality of the data produced, to transmit these (possibly in real time if there is a need to prevent major risks) and to record them,
- ❖ the forms in which the information should be made available to decision-makers (data bases, reports, maps, diagrams,...) or to technicians and scientists,
- ❖ the means for distribution and dissemination (Web, social networks, publications, popularization, etc.),
- ❖ the possibilities for data exchange between producers and on the interoperability of their arrangements at all levels, even more for the transboundary rivers, lakes or aquifers.

This means designing, establishing, developing and operating real and complete **“Water Information Systems (WIS)”**, to enable making an assessment of the resources, environments and uses, especially of their quality, organized to create genuine global observation systems.

The precise definition of the role of each participant, of the funding issue and of its sustainability is paramount

Mobilizing this information indeed requires a consistent organization of measurement networks, analytical laboratories, data transmission, checking and control; of databases management, their access mode and their "products", which implies permanent means that should be optimized to have the necessary information, at minimum public cost and by limiting it to the really useful.

It should be reminded, especially if the investment costs are high to have suitable information (stations, laboratories, teletransmission, IT, etc.), that the qualification of intervening experts (training) and the operating and exploitation costs are by far, in the medium and long term, the major and recurring expenditure items, and that it is unreasonable to invest without being sure to have the means for operating optimal and long-lasting systems. This implies appropriate and, above all, sustainable financial resources.

Information systems are also only functioning when the men in charge of their operation are skilled. Indeed satellite links, models, automatic analyzers, etc ... are only there for facilitating services, not to replace them. The solution is never the use of technological gadgets alone.

In addition, to be useful, the information must not remain in the form of raw data, but must be provided in a form that is understandable and usable by different categories of users.

It must be organized according to the needs, either for the study of "white papers", for master plans for water development and management, action plans, budget simulations or tax bases, or for issuing administrative authorizations or project studies, for the regulation of facilities, for warnings or even for evaluating the results of applied policies and the monitoring of the evolution of the status of the environments, or finally for informing the public or for popularization;

In addition, it should be made available in the most suitable forms to be usable.

Standards, benchmarks and common tools should be defined for gathering the comparable data produced by the various stakeholders, in order to organize real observation systems in national or transboundary basins and also enable to centralize the summarized information needed for defining government policies.

Information systems for shared rivers and aquifers should be designed in a consistent and comprehensive manner at the level of the entire transboundary basin as part of agreements between the countries.

*

In conclusion, it is recommended to the Public Authorities concerned and to bi- and multilateral cooperation organizations supporting projects related to the management and use of water resources:

- to consider the establishment of Water Information Systems that correspond to the above specifications, as a prior obligation to all major new projects, or even to make it a component or obligation,
- to clearly specify which are the institutions responsible for the organization and permanent operation of such systems,
- to make sure that there are not only sufficient financial resources for the corresponding investments, but also that there are imperatively financial mechanisms to ensure their continued operation in the long term,
- to foster the emergence of means and specific engineering skills in this field,
- to support work on the definition of standards, benchmarks, bills of materials and common tools for data administration to enable their interoperability, exchanges, comparisons and information syntheses between partners at all relevant levels of observation.
- to promote the creation of such observatories of water resources and their uses in each basin, either national or transboundary, and the organization of National Water Information Systems, consistent with these basin observatories.
