

# 4<sup>th</sup> WORLD WATER FORUM

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**MEXICO –BANAMEX CENTER  
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**« Creation and Development of  
shared Water Information Systems »**

## RECOMMENDATIONS:

**« IMPROVING KNOWLEDGE  
OF WATER RESOURCES, ENVIRONMENTS AND  
THEIR USES IS NECESSARY  
FOR DECISION-MAKING AND  
FOR SUSTAINABLE MANAGEMENT. »**



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**« IMPROVING KNOWLEDGE OF WATER RESOURCES,  
ENVIRONMENTS AND THEIR USES IS NECESSARY FOR  
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In order to achieve overall management of water resources, at river basin level in particular, it is of prime importance for decision-makers (Directors of River Basin Organizations and Administrations, Basin Committee members, representatives of Local Authorities and associations of users) to have easy access to comprehensive, representative and reliable information, at all relevant levels, on:

- The status of surface and ground water resources, from both a quantitative and a qualitative viewpoint, and also the seasonal and yearly fluctuations,
- The situation concerning biotopes and the aquatic environments and their degrees of sensitivity,
- Water uses (withdrawals) and particularly, irrigation and drinking water supply for populations and pollution sources (discharges) whether point or non-point,
- The risks of recurring extreme phenomena such as floods or droughts and accidental pollution,
- Economic indicators, costs, price, taxes, etc.

It was established that this information is often **dispersed, heterogeneous and incomplete** ... and that it is rarely comparable and adapted to the prerequisites for objective decision-making. Moreover, it is a fact that public, para-public and even private organizations can have access to this information but lack sufficient means for exchanging, gathering, standardizing, summarizing and for capitalizing it among them.

Whereas public action concerns, in the highest degree, the national territory, and sometimes that of local authorities, **water issues are global and concern, in most cases, a simultaneous combination of various levels of action:** local, basin, regional, national, international, etc.

The organization of **shared water Information Systems (IS)** allows the enhancing of existing data and information at the various levels of action with an overall approach which benefits to all the stakeholders. These information systems thus often constitute **one of the priority tools to be implemented in order to support an efficient policy for water resources management and risk prevention.**

The FT5-13 session of the 4<sup>th</sup> World Water Forum allowed to underline **the advantages of shared water information systems for risk and sustainable resources management.**

After the presentation of several case studies, among which:

1. « Implementation of the national system and regional water information systems in Mexico (SINA/SIRAs) » - Presented by Mr. Juan Carlos Valencia, Director-General of Planning, National Water Commission (CONAGUA) – Mexico;
2. « The French Water Information System (WIS) » - Presented by Mr. Pascal Berteaud - Water Director at the Ministry of Ecology and Sustainable Development – France;
3. « The Euro-Mediterranean Information System on Know-how in the Water Sector (SEMIDE/EMWIS) » - Presented by Mr. Mazzitti - Secretary-General to EMWIS;
4. WISE “Water Information System for Europe” - Presented by Mr. Antonino Crea – Head of Sector – Infrastructure Unity – European Commission;
5. « Information System for water management in the Hungarian/Rumanian Körös/Crisuri transboundary basin (KOCRIS) » - Presented by Mrs. Gabriella Jelinek – Ministry of Water and the Environment of Hungary, and by Mrs. Daniela Radulescu - National Water Authority « Apele Romane » of Romania;
6. « Information System for water management of the Irtysh basin, transboundary between Russia and Kazakhstan (IRBIS) » - Presented by Mr. Sergey Kostarev – Permanent Secretary of the Irtysh Basin Committee – Russia;
7. “Sectorial Information system on water in Latin America – Presented by Mr. François Brikké – Regional Team Leader – WSP – World Bank
8. «The Senegal River Basin observatory f» – Presented par Mr. Tsamir Ndiaye – Organization for the Development of the Senegal River (OMVS);
9. “Information on water and information system in the states of Balkan” – presented by Mr. Jean-Pierre Briquet – Research and development Institute – France
10. “The national information system on water resources” – presented by Mr. Oscar Cordeiro Netto – Director of National Agency for Water (ANA) Brazil.
11. “central Asia regional water Information base” – presented by Prof. Dukhovny and Dr. Umarov – Sic Icwic – Uzbekistan.
12. « Vulnerability index » - Presented by Mr. Richard Connor of the « Co-operative Program on Water and Climate » and Mrs. Maria Catalina E. Cabral of the Department of Public Works of the Philippines;

a set of recommendations, which aim at facilitating the implementation of these systems, came out of the discussions.

In a logic of « **enhancement of local actions with an overall approach** », it especially was deemed necessary to.

- ❖ **Raise the awareness of the political and technical people in charge** at all levels for a consistent and comprehensive integrated management of the data and information needed for IWRM and risk management;

This awareness should especially lead to the formalization of the role of Water Information Systems as priority tools necessary for good governance of water resources, as well as for resource management and risk prevention.

- ❖ **Define an overall strategy for the organization and implementation** of the information system, based on a consistent assessment of the needs and of what already exists and on the recognition of the central role of data and information producers and managers existing at the various levels.

It is recommended that, in each situation and considering all the national and local characteristics, special attention should be paid to the organization of the prime contracting of monitoring networks and data bases, to the financing, as well as to a suitable role for specific basin organizations with regard to other possible participants.

Real and complete «systems» should be designed and used to assess the resource and uses, especially regarding quality, and organized to constitute comprehensive information systems.

It is absolutely necessary to systematically examine the:

- Nature (parameters, indexes, integrators, frequency, representativeness, standards) of the useful information,
- Means used for collecting, monitoring and analyzing, as well as for controlling the quality of produced data, of their transmission (in real-time, when necessary, for warning of major risks) and for their storage,
- Forms in which information should be made available to decision-makers (data bases, reports, maps, diagrams, etc.) or to technicians and scientists,
- Broadcasting and dissemination means (remote-processing, publications, dissemination to the general public, etc.).

The exact definition of each participant's responsibilities as well as the question of financing and its continuity is of prime importance.

Gathering this information, requires a complex and consistent organization of monitoring networks, analyses laboratories, data transmission and their checking and control, management of databases, their accessibility and their «products». For this, permanent means must be made available and their optimizing ensured, in order to obtain, at minimum public cost, all the relevant information, limiting this however, to the strictly useful.

It should be reminded that if investment costs for obtaining appropriate information (stations, laboratories, teletransmission, automatization, etc.) are high, the qualification of intervening experts (training) and the functioning and operating costs are, by far, on the medium and long-term, the most significant and recurring items of expenditure. Thus, it appears unreasonable to invest without ensuring positive means for optimum and continuous functioning of the systems over a long period of time which, of course, requires substantial, appropriate and unceasing financial resources.

It is important to avoid using highly sophisticated tools that favor the use of advanced technologies to the detriment of a real thinking about a suitable organization and of using

simple solutions that are most often very efficient. Information systems only operate when able men are responsible; satellite links, models, automatic analyzers, etc... are only there to facilitate the task of the services and not to be used instead. The solution is never to use technological gadgets.

Moreover, if the information is to be useful, it must not remain in the form of raw data, but be retrieved in the form of easy-to-understand data which can be handled by all the different categories of users.

It should be organized according to requirements, whether it be for the study of "white books", master plans for water management and development, for action programs, budgetary simulations or the basis for water taxes, for issuing administrative authorizations or studying projects, for regulation of public works, warning systems or even for evaluating the results of the implemented policies or, finally, for informing the general public, etc.

In addition, if the information is to be used, it must be made available in the most appropriate forms.

If it is generally considered that Public Authorities must be the contracting authorities for monitoring networks and associated information systems and that from then on, access to them must be open and free for the various users. However, due to additional costs for processing and disseminating the information, it would appear quite normal that the processed information be paid for.

It is also necessary to define common standards for globally gathering comparable information produced by the various stakeholders, in order to organize real information systems at the level of national or transboundary basins and to centralize the synthetic information needed for the definition of governmental policies.

Information systems on shared rivers and aquifers would gain by being designed in a consistent and global manner on the scale of the whole basin, within the framework of agreements between riparian countries.

In addition, when effectively **building shared information systems**, it is especially recommended **to establish processes which aim at:**

- **Organizing and facilitating the partner network** of producers and users of data and information from the information system, on base of the legal background;
- **Inventorying the existing data and information sources** and analyzing the conditions for their production and availability (metadata, etc.);
- **Defining and adopting a common semantic language** for allowing the exchange of comparable data;
- **Defining an overall technical architecture** for the information system in order to optimize exchange capacities according to the existing ones and to expectations, and **technical specifications** allowing technical compatibility of exchanged data;
- Defining, on a case by case basis, **procedures for the exchange and enhancement** of the data made available by the various producers, while complying with the rights of access to the information which will have been defined;

- Developing, according to the users' priorities and available means, **the tools for and products of data enhancement** such as, for example, synthetic indicators of the FVI type to improve the information useful for risk prevention and the orientation of management policies;
- **Organizing the production and dissemination of knowledge** necessary for decision-making and **good public information and participation**.

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**To conclude**, it is recommended that concerned Public Authorities and bi- and multi-lateral cooperation agencies supporting projects related to water resources management and use:

- Consider that setting up comprehensive information systems, corresponding to the above-mentioned specifications, is a prerequisite,
- Clearly specify which institutional bodies are responsible for the permanent organization and operation of such systems,
- Guarantee not only sufficient resources for corresponding investments, but also the compulsory financial mechanisms which will secure their long-term continuity,
- Promote the development of means and specific engineering proficiency in this field,
- Support the works that aim at defining common standards and nomenclatures for data administration in order to exchange, compare and summarize the information between partners at all relevant observation levels,
- Promote the setting-up of information systems for water resources and their use at river basin level, whether these basins are national or transboundary, and the organization of national information systems consistent with these basin information systems.

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