

THE HANDBOOK ON WATER INFORMATION SYSTEMS

ADMINISTRATION, PROCESSING AND EXPLOITATION
OF WATER-RELATED DATA

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been developed by irrigation operators, including the well-known "dynamic regulation".

On site, irrigation management software monitors as closely as possible the water needs of plants considering weather conditions.

The main difficulty of WIS in agriculture is the interoperability of the tools put in place at different levels (GIS, DB, reporting systems, etc.), the continuity of the transmission circuits, and the quality control of the transmitted data. Basic data, particularly on irrigated areas, are often outdated and the exchange of information is mainly manual, giving the systems a high degree of inertia and relative reliability.

Strengthening the management of data and information on agricultural water is essential to improve the planning, distribution and rational use of all water resources, in terms of irrigated perimeters but also by the allocation rules they induce at sub-basin level

About the WIS used in the drinking water sector

WIS are increasingly important in the management of water and sanitation services. They are found in many service activities, the main ones being:

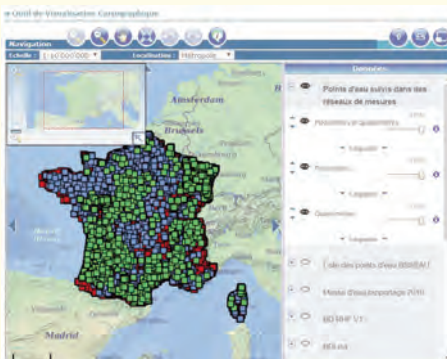
- Patrimonial management, for which a GIS system is generally in place. It can produce a mapping of the networks, which can then be associated with data, such as the nature of the materials and the age and diameter of the pipes. The GIS also features all of the works and equipment that make up the drinking water system or sanitation system;
- Commercial management that uses dedicated CRM-type software. This is used to manage the customer database as well as all commercial activities: billing, complaints management, communication with subscribers, monitoring the meter park, meter reading, etc.
- Financial management that also uses dedicated software;
- Maintenance management using CMMS (computerized maintenance management systems) type software;
- The operation of works that generally use a remote monitoring system to ensure their proper functioning. The information collected automatically on each site is transmitted to a centralized station that allows live visualization of the operating status of facilities and can potentially manage actions remotely.

The development of WIS plays a central role in improving the performance of water and sanitation services (cf. case study on SISPEA). The management of all data generated by surveillance equipment is a crucial issue and a subject on which progress is expected in the coming years.

4.5.2 Case studies

Case study 38: ADES - French National Data Base on Groundwater [70]

The ADES website (<http://www.ades.eaufrance.fr>), managed by the BRGM with the financial support of AFB, provides public access to



data on groundwater chemical quality and groundwater levels, the mapped results, metadata, and a series of information updates. As a one-stop point of access to relevant information, it constitutes an essential tool for optimal management of water resources, enhances understanding of groundwater changes, and contributes solutions for local, national, societal and European issues.

Figure 50: Example of ADES web pages

*(Cont'd)***Discovering groundwater monitoring networks**

Data come from more than 70,000 representative monitoring stations scattered all over the country. These stations measure key components of groundwater quality (qualitometers), and groundwater levels (piezometers). Some stations can insure both measurements. The ADES data bank gives access to descriptive data sheets for all of the monitoring stations: geographical coordinates, location on a map, station operators (water agencies, local and regional authorities, decentralized state administrative authorities, the French geological survey –BRGM, etc.), measurement frequencies, aquifers monitored, etc.

#Carrying out an effective search

The ADES data bank proposes several ways to access observation stations, technical data sheets, and data on quality (chemical analyses results) and/or groundwater levels (piezometric head). It features numbered buttons for quick access.

- Quick access, by entering free expression in empty boxes with localization, type of data you are looking for (monitoring station, parameter, water level);
- Advanced search page: you can select by location on a map, or by specific network, company, aquifer, groundwater body or national code (BSS1).

Whatever the access route, the results can be stored for later use.

Access, view, data export

The ADES website provides access to export sets of data and offers users various features such as:

- Maps and photos;
- Graphs: plot two chemical parameters for the same qualitometer on the same chart, and up to five for a piezometric station.
- Reliable indicators that are up-to-date, comparable and meet the needs of end-users.

The website also offers an indicator on the hydrogeological situation of a piezometer for a long period (minimum 10 years), with tables, graphs and maps.

Case study 39: SDC project/ Water Accountability in Transboundary Chu-Talas River Basins [17]

The project “Water Accountability in Transboundary Chu-Talas River Basins” financed by SDC, aims to promote modern, sustainable and transparent water resources management in the Chu-Talas River Basins that can serve as a blueprint for effective transboundary resources management at national and regional level.

This project focuses on the complete modernization of bottom-up demand scheduling and a top-down supply-driven water distribution system in the Chu-Talas River Basins. It includes:

- Full digitization and automation of the accounting procedures in place with state-of-the-art information technology;
- Development of new capabilities for planning, effective operational analysis, as well as reporting and data/knowledge exchange.

Whereas in the existing system, data requests had in many cases to be laboriously communicated via fax and/or telephone, thanks to a modern digital WIS-type system, stakeholders will be able to immediately query selected data on their computer terminals and/or tablets safely and securely.

The data will be available for operational use and / or for reporting etc. and prepared in a way that it is easily accessible and understandable for all stakeholders, from the WUA level up to the national and transboundary scales.

The activities led by IOWater in collaboration with hydrosolutions Ltd. and local expert consultants, mainly aim to increase water delivery effectiveness through better on-time data management, processing, and information production and dissemination. Among the main results it is particularly expected that thanks to the improvement of the water data management procedures:

- At local level, the authority in charge of water allocation for irrigation will have the capacity to follow online (on a tablet) the status of water allocation on a daily basis;