

C8.1 Information management systems

Characteristics

Information management systems (IMS) is the term for a range of electronic systems that arrange, store and exchange data and information. These electronic systems replace more traditional printed catalogues. Two types of IMS of particular importance to IWRM are bibliographic information (and knowledge) systems and geographic information systems.

Bibliographic information systems are often located within government agencies and commercial companies, and typically include:

- Monitoring and evaluation tools
- Tools to ensure that correct signals are delivered and received in information exchange
- Tools to establish best management practices by benchmarking.

A *Geographical Information System (GIS)* is an inventory of natural resources (soil, landform, water and vegetation) of an area of the earth's surface. It brings together data and information for decision makers for water planning and management judgements. A GIS allows a user to see and locate patterns of settlement, land use and natural resources in a water catchment, and identify relationships between the data. It can also show land systems, settlement features, best management options, land ownership and planning zones, demographic information and other socio-economic data. With visualisation technology, GIS can allow the user to create 3-D images of a water catchment, 'fly over' these images and view the landscape from different angles, to view changes in land use or environmental conditions over time. Another use of GIS is to geo-reference research and government reports. Yet another use is to track progress in the implementation of an IWRM Strategy.

The effectiveness of a water IMS can be measured by:

- The number and variety of actions (e.g. farming practices, improved water management plans) which follow receipt of information.
- The degree to which the agency, farming community, or other groups form a discrete entity for dialogue and information exchange.
- A range of organisational performance indicators (e.g. customer-client dialogue, reporting mechanisms and financial stability).

Lessons learned

Knowledge of the social system of a particular setting is vital before designing an IMS. Information is needed on the social structures, gender issues, stage of economic development, human and technological resources and managerial capacities of water resources managers.

- The use of an IMS can lead to better and more consistent decisions.
- The ideal GIS for water managers are an Internet based user-friendly system which allows ease of access for a specified and agreed number of purposes. A flexible design will allow users to adapt to new information needs over time.
- GIS works best when the questions like the following are settled in advance.
 - Who will own and who will manage the GIS?
 - Has the scale of application been determined and agreed on to suit all users?
 - Have financial resources been targeted to fund a corporately owned GIS?
 - Have the data layers been specified? What extra data sets are needed?
- User perceptions are not easy to store in an information management system.