

# C1.1 Water resources knowledge base

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## Characteristics

This tool covers the collection and storage of data on the hydrological cycle (quantity and quality) and access to physical, socio-economic, demographic and water use data in a cross-sectoral perspective. The need to share knowledge is growing rapidly in a world where the Internet and email allow for ease of interaction as never before. The holistic nature of IWRM requires constant knowledge exchange by water stakeholders, and especially professional water practitioners.

Hydrological and meteorological offices routinely collect data on elements of the hydrological cycle, and data links can be established to ministries or other institutions with other data collection responsibilities (e.g. Agriculture, Planning, Statistics, Lands, Local Government, and Environment). Given agreed formats, direct downloads for use in service programs and GIS can be made using contemporary data technologies and the Internet.

Water resource knowledge bases and links need to be built up considering the associated priority issues that have to be dealt with, such as human health, ecosystems health, land use impacts and forest cover, sectoral competition for water, vulnerability to floods and droughts, demand and willingness to pay. An assessment of the risks and damages involved when decisions are made based on inadequate information can help to determine priorities in developing the knowledge base. It should be noted that water quality is often very poorly monitored and weakly presented in knowledge bases, putting such sectors as environment and health at a disadvantage in situations where basic knowledge is required.

Building a knowledge base into an effective tool requires consistent, routine work over large areas and many years. It also requires the development of working relations and data exchange between sector institutions representing either impacts on water resources or use of water resources. Thus it is important that data collection staff work in a co-ordinated fashion with those working on water resource assessment, so that data continues to be relevant to current problems, adequate for the assessments and so that data users can rely on the quality of the data.

Data need to be converted into information and knowledge which in turn feeds into decision support systems, assisting management in addressing priority.

## Lessons learned

- A knowledge base is fundamental to water resources assessment and subsequent decisions.
- It is essential that policy makers appreciate the importance of reliable and representative data, create the necessary institutional responsibilities and make appropriate allocations of financial and human resources reflecting local needs.
- Prioritisation of data needs based on key water issues and assessment of risks and damages can help to develop political support and resources.
- When data needed for water resources assessment are collected by a number of different organisations, their systems need to be compatible in terms of standards, quality assurance, electronic access and transfer.
- Cross-sectoral collaboration is essential to obtain the broad knowledge base needed for IWRM approaches.
- Quality assurance is basic to the usefulness of the knowledge base and in particular in transboundary situations where mutual confidence building and credibility is essential.