

Session 6.4.2 Data Integration and dissemination

Background

The challenges are that:

- Data on almost every subject related to water is usually lacking, unreliable, incomplete or inconsistent.
- Collecting data is not enough. Data must be compiled, analysed and converted into information and knowledge
- Data and information needs to be shared widely within and between countries and stakeholders to focus attention on water problems at all scales.
- It is only when the data has been collected and analysed that we can properly understand the many systems that affect water (hydrological, socio-economic, financial, institutional and political alike), which have to be factored into water governance.

Data is needed on the environmental, economic and social aspects of water:

Environmental

- Volume of water available. E.g. as rain, surface water flows or stored in reservoirs, (renewable) groundwater, wetlands
- Water quality and water pollution (surface water and groundwater)

Economic

- Price and value of water
- Water supply and sewerage treatment industries
- Use in agriculture
- Use by other production processes (e.g. manufacturing, hydro-power, cooling)

Social

- MDGs, etc

Data from social, economic and environmental (hydrological) areas needs to be collected and integrated in order to provide comprehensive information to address important issues, such as:

- Integrated Water Resource Management

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- Global changes
 - Population growth and migration,
 - Economic growth, clearing of forests
- Climate change
 - Adaptation to changes in availability of water resources
 - Impact on agriculture and other activities reliant on water
- Economics of water
 - Water pricing and valuation in the absence of market prices
 - Water markets
 - Externalities
 - Economic efficiency and productivity of water supply and use
 - Water allocation
 - Investment in water supply and sewerage infrastructure
- Maintaining environment quality

There are many institutions involved in the production and use of water data at the country level

- Ministries of Government for
 - Water supply and management
 - Environment
 - Agricultural
 - National statistical offices
 - Economics and national development
 - Geological (groundwater)
- Government agencies at other administrative levels, within countries (e.g. cities, provinces, states) and also groups of countries (e.g. UN, OECD, etc))
- Water supply and sewerage “companies”
- Universities and other research agencies

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- International agencies

There are some difficulties with having so many institutions involved. All have systems for data for their own needs (e.g. to support administrative/management functions)

- Data are collected using different concepts and methods
- Data use different spatial boundaries (e.g. river basins, states/provinces)
- Difficult to assess if data is comprehensive / complete
- Some disincentives to cooperate or share data (e.g. the exposure of lack of progress against targets, inefficient use of resources, data is a source of revenue or power)
- Institutions may view each other with suspicion

There are many different professions or disciplines involved, for example hydrologist, engineers, scientists, economists, accountants, sociologists, politicians, etc.

- Different traditions, philosophies, viewpoints and imperatives
- Different vocabulary, definitions and interpretations of words
- Different concepts and methods
- Often view each other with suspicion

Because of the many data needs, the different institutions and professions involved data integration is difficult:

- Between different information areas (e.g. economic, social and environment)
- Across spatial and temporal scales
- Many concepts, frameworks and methods are used, some data exist but it is not complete and little data can be integrated or reliably compared over time
- Often confusion and misunderstanding of roles among data producers and data users

The solution is to use agreed frameworks and classifications. Many are in use, covering different aspects of water information:

Global

- World Water Assessment Program (WWAP) – environment, economic, and social
- Water Accounting (SEEA-Water) – environment and economic, some social
- Aquastat – hydrological and agricultural

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- Millennium Development Goals (MDGs) – MICS/JMP, social (covered in session 6.2.1)
- UNEP – GEMS – water quality
- Flow Regimes from International Experimental and Network Data (FRIEND) – hydrological flows
- International Groundwater Resources Assessment Centre (IGRAC) – groundwater
- Global Runoff Data Centre (GRDC) – surface water

Regional approaches

- Water Environment Partnership Asia (WEPA) – water quality
- Water Framework Directive
 - Water Information System for Europe (WISE) – EEA and Eurostat – water quality and quantity

There is a new framework, the System of Environmental-Economic Accounting for Water (SEEA-Water), which promises a way forward

- Developed by the international statistical community and adopted as an international statistical standard in 2007 by the United Nations Statistics Commission
- Comprehensive coverage of the environmental and economic stocks and flows of water (monetary and physical). Water quality and integration of social dimensions not yet fully integrated
- A total of 44 countries are using or intending to use water accounting: it is already used by 33 countries and planned to be used in 11 more
 - Examples: Australia, Austria, China, Jordan, Lebanon and Mexico
 - Shown to be useful, particularly in water scarce countries and those with concerns about water pollution and water quality

All frameworks need to be populated by data, and are only as good as the data within them.

- Basic data are generally collected by government agencies within countries
- These data are often supplemented by estimates based on a wide range of available data from within the country (e.g. from universities) or from near-by countries
- These data are assembled and used by a range of international agencies and research institutions

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Overall conclusion

The lack of integrated water related data is re-affirmed as a systemic impediment for informed decision making related to the sustainable use of water resources.

Progress has been hampered by a range of factors, including a lack of an overarching framework for data integration and lack of effective institutional and legal arrangements for data collection, integration and dissemination.

The SEEA-Water promises a way forward. The SEEA-Water is an internationally agreed accounting framework adopted by the United Nations Statistical Commission in 2007. The SEEA-Water is based on the existing, well established system of national accounts and is linked to hydrological systems.

What is needed are the enabling legal and institutional arrangements to collect, integrate and disseminate data. This requires strong leadership at the country and international levels.

Recommendations

That the issues of data collection, integration and dissemination needs to be elevated on the agenda of next World Water Forum.

In the interim an on-going process should be established to address the issues of data collection, integration and dissemination. This requires a process for bringing together hydrologists, economists, social scientists, statisticians, etc. and therefore the strengthening of the institutional processes to promote data sharing, the use of common standards and classification as well as the establishment of best practices (e.g. for metadata and data quality assessment). These processes need to involve countries and international organizations and all those institutions involved in the production and use of environmental (hydrological), economic and social data.

Countries need to develop strong legal and institutional arrangements to support data collection, data integration and dissemination. This includes establishing policies and procedures for the sharing of data and the development of metadata and quality assurance frameworks.

Countries need to increase the resources devoted to data collection, data integration and dissemination in countries, and where appropriate with assistance from the international donor community.

Proposals

It was agreed that the SEEA-Water provides a comprehensive framework for integrating economic and environmental data and that the current experience is promising. However, at present SEEA-Water is not widely known. As such there is a need for countries and international organizations to continue to work to promote the system and for additional countries to pilot the implementation of the SEEA-Water. Statistical capacity building and its funding should be scaled-up in developing countries to remedy data available and data quality and to promote the application of SEEA-Water.



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It was also recognized that there was a need to further develop the SEEA-Water to more fully integrate social data and water quality. This could be done under the auspices of the United Nations Committee of Experts on Environmental Accounting and Environmental Statistics (UNCEEA).

It was recognized that there were numerous global web based hydrological and water quality databases. Some of these were already linked and exchanging information but the latest data dissemination and exchange technologies need to use for data sharing at the local, national and international levels.

Please provide your name and contact information in case we need to clarify some of the information you have provided.

Name: Michael Vardon

Phone number:+1 646 387 3929

E-Mail Address: vardon@un.org