IWRM Action Hub

IWRM TOOL - B1.03

Monitoring and Evaluation Bodies

Summary

To ensure sustainable and integrated water resources management, water resource managers and decision-makers need to have timely and continuous access to reliable, up-to-date, and relevant data and information. A variety of monitoring and evaluation bodies produce and use the data needed to inform decision-making and assess actions taken on IWRM at different levels. This Tool discusses the various types of bodies involved in producing and monitoring data related to water management, details the role and responsibilities of M&E bodies, describes key pointers on how to evaluate the performance of M&E bodies, and identifies success factors for good performing water data management institutions.

Types of Monitoring and Evaluation (M&E) Bodies

Collecting and managing data related to water resources is a shared responsibility by various organisations. These monitoring and evaluation bodies are found at different levels (national, regional, basin, local) may undertake a limited or extensive range of monitoring and evaluation activities, depending on their mandates and capacities (Bureau of Meteorology, 2017). The extent of their involvement may also be mandated by law or be discretionary. Often, these monitoring and evaluation institutions are public institutions, but private sector, research institutions, civil society organisation or other non-governmental organisations also produce or hold relevant data.

The type of monitoring and evaluation bodies and related institutional arrangements vary from country to country. An initial list of potential data producers and holders is provided

below (adapted from INBO and UNESCO (2018)):

- The Ministry in charge of water resources management (Tool B3.02) or basin organisations (Tool B3.04), which usually manage data related to water cadastres and infrastructure inventories;
- Meteorological services, which are the main producers of meteorological data (see WMO (2015) for information on the role and operation of National Meteorological and Hydrological Services);
- Hydrological services, which are the main producers of hydrometric data;
- Environmental organisations or health-related institutions, which are often involved in the production of water quality data;
- Geological and mining institutions producing data on groundwater;
- The Ministry in charge of the energy sector/ dam managers etc, who often hold date on water uses for energy production;
- The Ministry in charge of agriculture/ irrigation system managers, which usually hold data on water uses for agricultural purposes;
- Statistics institutes, which collect data and statistics socio-economic variables;
- Geographic institutes, which usually produce topographic and geographic information;
- Other actors such as industries/ businesses, who may produce and hold data on various indicators relevant to their operations, including data on water use/ discharge etc.
- Civil society organisations/ individuals, who may collect in a more or less systematic way data on different indicators related to water resources management;
- When a monitoring and evaluation body is set up in relation to a specific project it can take the form of what is known as Impact Assessment Committees (Tool B1.04);

Many of the above institutions often operate at different levels (local, sub-national regional, national) and data production and use may be dispersed between different in-house department or services (INBO and UNESCO, 2018).

Role and Function of Monitoring and Evaluation Bodies

Monitoring and evaluation bodies/ water data institutions are integral parts of the broader water data management of a relevant spatial area, which spans from data production, shared and integrated data management, data processing and valorisation to information and knowledge dissemination and an overall data management governance structure (INBO and UNESCO, 2018) (Tool C2.05). The work done by these bodies hold informative and prescriptive value for the development of better and more sustainable water policies. When setting up or reforming monitoring and evaluation bodies, this systemic understanding helps to ensure that monitoring and evaluation bodies provide relevant services to support evidence-based decision-making on water resources.

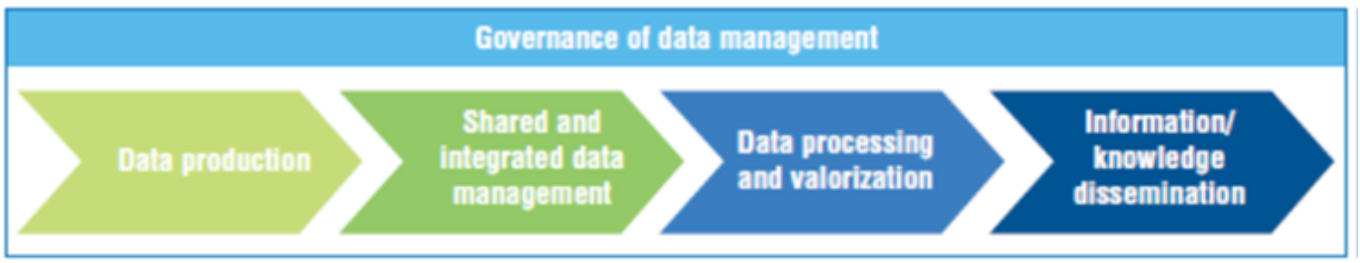

Figure 1: Water data management process. Source: INBO and UNESCO (2018)

Water resource monitoring is about assessing both its physical quantity and quality. Evaluating and monitoring water should be done in clear consideration of the hydrological cycle and the physical processes it involves – i.e. evaporation, condensation, precipitation, infiltration, runoff, and subsurface flow. In that sense, ecosystem demands should be also taken into account while performing M&E functions. M&E functions are also about tracking the use of water and in that sense may demonstrate the particular weaknesses of the water system. Tracing the evolution of water resources and presenting possible outlooks holds considerable informative and prescriptive values for policy making processes. In determining which parts of the water system are underperforming or could be enhanced, M&E bodies are essentially stacking up information that can be used by capacity building entities (Tool B4.01).

Monitoring and evaluation bodies are likewise responsible for shedding light on the socio-economic factors that influence water resources. The quantity and quality of water is in fact very much intertwined with the people and economic activities that surrounds it. Tools such as vulnerability assessments (Tool C1.02), social assessments (Tool C1.04), and others may be relevant instruments in that regard.

Assessing the Performance of M&E Bodies

Many challenges are related to the fact that data is produced and used by a large number of institutions and for a multiplicity of topics. Data hoarding and inefficient coordination can impede effective and efficient data production, sharing, and dissemination. Many institutions produce data for their own purposes and not necessarily to inform IWRM. Furthermore, lack of agreements and implementation of protocols between institutions can hamper data exchange. This can result in dispersed, heterogenous and incomplete data widely available for informed decision-making on IWRM (INBO and UNESCO, 2018). Furthermore, limited financial and human resources can be a great obstacle for these M&E bodies. Sometimes these limitations relate to the fact the institutions or governments funding M&E entities are themselves restricted to few or little resources. Although, in other cases, limitation can also relate to problems of internal coordination and to poor institutional collaboration.

When assessing the current landscape of M&E bodies in a country or a basin, the following questions can be useful to guide the assessment (adapted from Bureau of Meteorology (2017)).

Assessment of Types of M&E bodies

- Which institutions are involved in water data collection and management?
- Why are they involved and under what authority?
- What kind of data do they collect and/or manage and from what locations?
- Where are the overlaps, gaps, and synergies in their respective activities?
- What are the financial and human capacities/constraints of the institutions?

Assessment of Institutional Arrangements

- Is there any unnecessary duplication of effort in water data collection, curation,

analysis or distribution?
- Are there any critical gaps in effort?
- Does the overall effort meet the requirements of water stakeholders and their priority water management objectives?
- Is cooperation between institutions necessary and is it happening sufficiently?
- Are there efficiencies to be captured by working more closely together and sharing resources?
- Are there any impediments to working more closely together?
- Is water data being shared and is the effort required to obtain it reasonable?
- Do water data users trust the information being made available to them?

Success Factors of Water Data Management Institutions

The Bureau of Meteorology (2017) has analysed and collected some of the success factors for institutions in water data management, which might also inform the set-up and reform of M&E bodies and related institutional arrangements. Here are some key factors:

- **Domain knowledge**: It is difficult to manage water data effectively unless those responsible for the collection and curation of it have a good understanding of the provenance, fidelity, and use of the data. It is more likely that water data will be expertly curated and utilised if managed by people with solid water science and engineering knowledge.
- **Technical infrastructure**: It is beneficial to assign complex water data management roles to agencies with competencies in operating specialized IT infrastructure such as communication networks, data warehouses, Geographic Information Systems, hydrologic models, and web sites.
- **Aligned expertise**: Much water data has a close affinity to other types of environmental information such as weather, climate, hydrogeology, and ecologic data. Assigning certain water data management responsibilities to agencies with complementary subject matter expertise may yield efficiencies.
- **Operational experience**: Certain water data tasks that require high levels of service reliability and quality are best assigned to agencies with strong operational experience, underpinned by cultures of quality management.
- **Critical mass**: Having too few staff involved in any water data management task stymies career development for water data professionals and reduces organizational resilience. Hence, it is beneficial to group highly specialized staff into larger teams.
- **Independence**: When water resources are strongly contested between different users it may be of benefit to have certain water data functions managed by an agency independent of any water policy, water management or water regulatory function.

Thematic Tagging
Water services
