

# Water supply and sanitation sector assessments: A guide for country-level action



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**Water supply and sanitation sector assessments: a guide for country-level action.**

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# Abbreviations

<b>AusAID</b>	Australian Agency for International Development
<b>DHS</b>	Demographic and Health Survey
<b>EAPRO</b>	UNICEF East Asia and Pacific Regional Office
<b>ESAs</b>	External Support Agencies
<b>IWG</b>	Interagency Working Group
<b>JMP</b>	WHO and UNICEF Joint Monitoring Programme for Water Supply and Sanitation
<b>LSMS</b>	Living Standards Measurement Studies
<b>MDGs</b>	Millennium Development Goals
<b>MICS</b>	Multiple Indicator Cluster Survey
<b>NGO</b>	Non-Governmental Organization
<b>O&amp;M</b>	Operation and Maintenance
<b>PAHO</b>	Pan-American Health Organization
<b>SEARO</b>	WHO South-East Asia Regional Office
<b>TAT</b>	Technical Assessment Team
<b>UNICEF</b>	United Nations Children's Fund
<b>USAID</b>	US Agency for International Development
<b>WHO</b>	World Health Organization
<b>WHS</b>	World Health Survey
<b>WPRO</b>	WHO Western Pacific Regional Office

The WHO Western Pacific Regional Office (WPRO) and the UNICEF East Asia and Pacific Regional Office (EAPRO) wish to express their appreciation to all those who contributed to the preparation of this publication. It has been prepared by José Augusto Hueb, Consultant (formerly WHO, Geneva), Terrence Thompson, Regional Adviser in Environmental Health, WHO Western Pacific Regional Office, and Mark Henderson, Regional Adviser for Water and Environmental Sanitation, UNICEF East Asia Pacific Regional Office.

Information and approaches of similar unpublished tools used over the past years by the WHO regional offices of the Americas, South-East Asia and Western Pacific were extensively used in the preparation of this document. The current version of this guide is the result of considerable experience gathered in conducting national sector assessments in over 50 countries in different Regions.

A meeting of specialists to review a previous version of this document was organized by WPRO in Manila, Philippines from 28 to 29 June 2007.

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Major international initiatives associated with urgent needs at country level are pressing the governments of developing countries towards an acceleration of investments to expand safe drinking-water and basic sanitation services especially to the poor and underserved. Those deprived of these basic requirements for a healthy and prosperous life are under great risks of water-related illnesses and have a reduced possibility of breaking the cycle of poverty and hopelessness.

Among these international initiatives and agreements, the Millennium Development Goal target for drinking-water and sanitation is particularly important. This international goal is being used as a promotion and advocacy tool for sector development by governments, and multilateral and bilateral organizations. This target aims to halve the proportion of people without sustainable access to safe drinking-water and basic sanitation by 2015. Other vital initiatives include the International Decade for Action Water for Life, 2005–2015 and more recently, the International Year of Sanitation, 2008.

In order to achieve accrued benefits from water and sanitation sector investments, there is a need to develop mechanisms and tools to help understanding the status of drinking-water and sanitation at the country level. This helps identify priorities for the sector.

With this background in perspective, the WHO Western Pacific Regional Office and the UNICEF East Asia and Pacific Regional Office (UNICEF) decided to prepare this document. It is intended to serve as an instrument for governments of the Region to establish a sector assessment process in their respective countries, and to generate national performance assessments of the water supply and sanitation sector recurrently. This document is intended to provide orientation on how to build up a sustainable process, rather than being merely a tool to prepare sector assessment reports.

This guide covers the most relevant aspects of drinking-water supply and sanitation services, including health, institutional, financial, management, legal, technical and social issues. Although this guide is primarily focused on drinking-water, sanitation and hygiene, it also provides guidance on how to generate relevant insights into water resources and environmental issues.

Drinking-water and sanitation sector reports prepared through this guide will provide invaluable information and accurate analysis, which are crucial for decision- and policy-making, as well as programme formulation and implementation. Such reports are also sound instruments to facilitate the dialogue between government, the private sector and multilateral and bilateral agencies.

The first part of this guide is focused on basic issues and suggestions for the establishment of a sector assessment process at the country level. Annex I provides specific guidance for the preparation of a sector assessment report. An electronic file (Excel file with extension: Data\_Collection.xls) with a structured questionnaire is provided to facilitate the collection of information for the preparation of the sector assessment report.

## 1.1. Objectives of this document

This document is intended to serve as a tool in establishing or improving a sustainable national drinking-water and sanitation sector assessment process. Such a process is aimed at generating recurrent information for policy- and decision-making to accelerate investments and action towards the attainment of the MDG drinking-water and sanitation target. It is recognized that the achievement of such a target is fundamental to improving the health and well-being of the poor and underserved. These are the people who are highly exposed to health risks from the use of unsafe drinking-water and inadequate sanitation facilities.

This guide should not be considered as a blueprint for application everywhere. It should be adapted to each specific situation according to known needs and information limitations.

The specific objectives of this document are:

- To be used as a tool for the improvement or establishment of a national drinking-water and sanitation sector assessment process;
- To serve as a guide for preparing recurrent national drinking-water and sanitation sector assessment reports as a means to track progress towards the MDG drinking-water and sanitation target;
- To serve as an instrument to promote a core set of basic information to be generated in the various countries of the Region, which will contribute to subsequent inter-country and regional analysis;
- To serve as an instrument to generate information of crucial importance for promoting the sector nationally and for national planning.

## 1.2. Target users

The target users of this document include the following individuals or organizations:

- High-level personnel of national water and sanitation institutions, especially the ministries or the specific ministry or institutions responsible for water supply and sanitation services nationally;
- High-level personnel of regional or state governments interested in assessing the sector in their areas of responsibility;
- External support agencies (ESAs), including bilateral and multilateral agencies as well as national or international NGOs;
- National or international consultants responsible for supporting national institutions in conducting sector assessments.

### 1.3. History

The WHO and UNICEF Joint Monitoring Programme for Water Supply and Sanitation (JMP) has tracked and analyzed trends in access to drinking-water and sanitation services since 1990 in nearly every country in the world. In addition to global monitoring, one of the objectives of the JMP is to strengthen countries' capacities to monitor progress in achieving the MDG drinking-water and sanitation target.

Although the major aim of the JMP is to track progress at country, regional and global levels in terms of access to improved drinking-water and sanitation services, selected regional offices of WHO in collaboration with their respective UNICEF regional partners and other multilateral agencies promoted and supported the preparation of national sector assessments that stretched beyond just coverage to also address other basic issues characterizing the performance of the sector. For example, national sector assessments were supported by WHO and UNICEF in Latin America and the Caribbean over the late 1990s and early in this decade in every country in this Region. On a pilot basis, support was provided to a number of countries in Asia early in this decade for the preparation of national sector assessments, through the use of guidelines developed by WHO South-East Asia Regional Office (SEARO). This work was conducted in partnership with UNICEF's respective regional offices.

A review of the above assessments showed great variation from country to country regarding the degree of analysis and reflection, participation of stakeholders, and ownership of findings. Despite the gaps and difficulties, the sector assessments contributed substantively to policy-making and national planning in these countries.

Current regional work plans of WHO Western Pacific Regional Office (WPRO) and UNICEF East Asia and Pacific Regional Office (EAPRO) share the common objective of supporting countries in the

Region in achieving the Millennium Development Goal target for drinking-water and sanitation. It has been agreed in principle that the joint efforts of these two organizations to stimulate and support national planning processes, through national sector assessments, not only converge but would generate important synergies. This is due to the fact that national planning requires a shared understanding among development partners of the legal, institutional, policy, managerial, social, environmental, economic and financial framework prevailing in the sector.

The experience provided by the foregoing national assessments provided the elements for preparing this document. It was reviewed by an interagency meeting hosted by WHO/WPRO on 28 to 29 June 2007. The current version takes into account the recommendations of such a meeting.



The primary objective of a sector assessment process is to collect and analyse information and produce recurrent evidence-based reports on the performance of national drinking-water and sanitation institutions as well as an evaluation of the services provided by such institutions.

The specific objectives are:

- Generate an evidence-based instrument to support informed decisions towards increasing investment aimed at the achievement of the MDG drinking-water and sanitation target, as well as the goals of the Decade for Action, and the International Year of Sanitation;
- Demonstrate how drinking-water, sanitation and hygiene relate to health and economic development;
- Support ongoing national planning and policy reform initiatives;
- Guide technical assistance programmes;
- Serve as a platform to accommodate exchange of information through a web-based database containing the data collected for the sector analysis.

## 2. Objectives of a national drinking- water and sanitation sector assessment process



### 3. Use of this document

The subsequent sections of this document provide guidance on the establishment of a sector assessment process, including the respective outputs of this process. Annex I provides specific guidance for the preparation of sector assessment reports.

The guidance provided in this document should be used in a flexible manner, taking into account national requirements, sector potentials and limitations, and the actual need of information for a sound drinking-water and sanitation sector analysis.

National sector assessment reports by no means are a replacement to thorough sector studies or national drinking-water and sanitation master plans. While the latter are comprehensive and provide the basis for major sector programmes and investments, the former contain basic information organized in a concise and dynamic manner to provide policy- and decision-makers with an up-to-date snapshot of the status of the sector.

The set of indicators presented in the suggested annotated table of contents for a national sector assessment report (Annex I) should be adapted to the country's needs by those leading the process at the country level. Additional issues beyond the foregoing basic set may be included in the country reports according to national requirements.

## 4. The drinking-water and sanitation sector assessment process

### 4.1. Government ownership of process and outputs

In each country, the national government should be the owner of the process and corresponding outputs. This should be reflected in the organization of a country Interagency Working Group (IWG) and in defining the roles of the national drinking-water and sanitation institutions, as well as bilateral and multilateral agencies. The role of WHO and UNICEF as well as other external support agencies and NGOs is to support the respective government in implementing the process and in preparing and disseminating the assessment report and database, as well as supporting the corresponding follow-up actions.

### 4.2. Scope of a sector assessment process

Ideally, a national sector assessment process should address drinking-water, sanitation and water-related health issues in urban and rural areas and should include a specific analysis of slums. However, more realistically, a decision on the scope depends on how the sector is organized and the funding focus of multilateral and bilateral external support agencies. In some cases, assessments may be made only either in urban or rural areas or slums. With the move of the international community to strengthen their support to wastewater and sanitation, there is a growing need for separate studies and assessments addressing these settings.

The country Interagency Working Group should decide early on the overall organization of the programme including the formulation of the scope of the process and the selection and definition of indicators that will be used for the sector assessment. A national sector assessment report will present aggregations and consolidated information worked out from a massive amount of information provided by different sources. It is advisable that a proper information system with a sound database be implemented to make such information available to those that require

expanding the analysis contained in the sector assessment report. A decision should be taken on the contents of the database and how the information system will be made accessible to potential users.

### 4.3. Sources of information and data availability

There is a need to define precisely the indicators that will be part of the information system. Such indicators should be defined in a realistic manner according to the ability of the sector agencies to provide the requested information. Conversely, an eventual current lack of information should not serve as a justification to reduce drastically the scope of the sector assessment process. Where essential information is not available, the sector agencies should be in a position to generate such information in due course of time.

The process should draw heavily upon existing information. Drinking-water and sanitation coverage can be obtained from the latest JMP global assessment report, which is now based on service user information rather than service provider information. The country Interagency Group might wish to see a breakdown of categories of services further than that offered by the JMP database. In this case, the JMP can provide the basic information used for the JMP country statistics, which might allow the calculation of these detailed figures ([www.wssinfo.org](http://www.wssinfo.org)).

Service providers, on the other hand, can provide information on the quality and level of service, tariffs, capital and operation and maintenance costs. Many countries with development assistance from external support agencies would have developed sector studies from which some basic information can be found.

A crucial aspect of data collection is the reliability of the collected information. A critique of the data is fundamental. The information collected should be verifiable, evidence-based (where possible) and accurate.

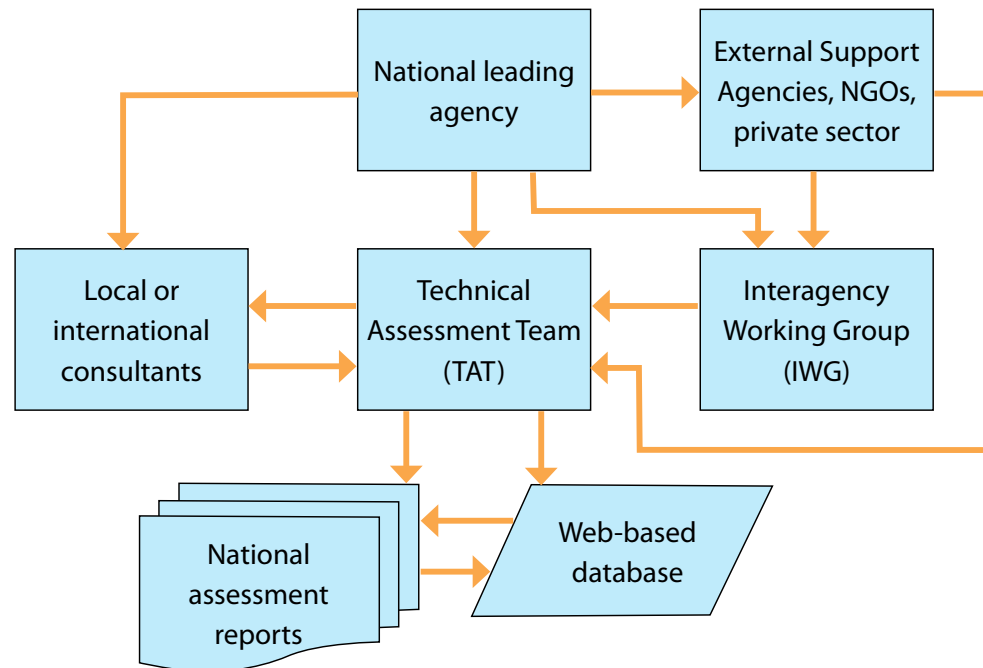
#### 4.4. Organization of the Interagency Working Group (IWG)

Where there is a recognized leading drinking-water and sanitation agency, such an agency should be responsible for establishing the Interagency Working Group. This Group should be formed by representatives of the major stakeholders in the sector (government, water and sanitation service providers, policy makers, regulatory bodies, local governments, donor agencies, private sector, etc.) to steer the sector assessment process. If such a leading agency is not clearly defined, the Interagency Working Group members will decide on the agency leading the sector assessment process.

In case an interagency coordinating mechanism already exists in the country, it is normally advisable to conduct the process through that mechanism rather than establishing a new one. The lead agency, with the endorsement of the IWG, should form a small Technical Assessment Team (TAT) to manage the process on a day-to-day basis, to write the recurrent sector assessment reports and to maintain the database. The members of the IWG should provide support and guidance to the TAT. The TAT membership should include at least one sector specialist, one statistician, one epidemiologist and one water and sanitation economist working part-time for the programme.

Where the Government or external support agencies can afford technical staff contributing a substantive part of their time as part of the assessment team, the latter might be in a position to undertake all the work comprised in this process. Where this is not possible, it might be necessary to engage short-term consultants to undertake specific tasks, such as writing the recurrent sector assessment reports and designing the foregoing information system, including the database. Such consultants should be working with the members of the TAT and as needed with the members of the IWG. To further foster government ownership of the process and ensure sustainability, consultants should be required to transfer knowledge to their counterparts in the TAT and the IWG.

Figure 1 Organization of a national sector assessment process



#### 4.5. Stakeholder participation and consultations

Consultations between the TAT and the IWG should be organized periodically for discussion on the different issues requiring a higher-level decision. Such active participation of decision-makers generates a true ownership of the process, which is crucial as the outputs of this work actually belong to the stakeholders including the relevant government institutions. Individual consultations between members of the TAT and selected national institutions may be required



where the advice of the latter is required for specific controversial or complex issues. It may be appropriate to convene a national sector meeting to review the draft assessment report prior to finalization.

#### **4.6. Work plan for the establishment of the sector assessment process**

Regardless of the complexity of the sector, size of the country, and local practices, the IWG, with the support of the TAT, should prepare a work plan aimed at the establishment of the sector assessment process, including the preparation of the sector assessment report and design/management of the database. Such a work plan should include the required activities and milestones as well as the corresponding definition of responsibilities involving the IWG members, TAT personnel and the different partner institutions. The work plan is an indispensable management tool to help keep the process on track.

#### **4.7. Time requirement to prepare a sector assessment report**

The length of time needed to prepare an assessment report will depend on the availability of information, the complexity of the sector, the required preparatory work, the effectiveness of the existing institutional framework, and the size of the country. For small countries with sound sector information and simple sector organization, the process could possibly be completed in six months. In large countries with data gaps, where the existing institutional arrangements are not favourable to this type of exercise, the whole process may require about 9 to 12 months.

## 5. Contents of a typical country sector assessment report

The contents of a national sector assessment report may vary considerably depending on national requirements, sector complexity and availability of information. The table of contents suggested below should be adapted to local conditions:

### Executive Summary

- (1) Introduction
  - (2) Background
  - (3) Status of drinking-water, sanitation and hygiene
  - (4) Water, sanitation and development: health, social and economic aspects
  - (5) Water, sanitation and the environment
  - (6) Institutional structure, legal framework and information
  - (7) Financing and investments for the sector
  - (8) Sector issues and constraints
  - (9) Major sector plans and programmes
  - (10) Sector recommendations
- Bibliographic references  
Annotated list of relevant sector publications

The guide for the preparation of the different chapters of the country sector assessment report can be viewed in Annex I.



## National Drinking Water and Sanitation Sector Assessment Reports – Guide for Preparing Each Chapter

It is suggested that the different chapters of the sector assessment report should be prepared according to the annotated table of contents below. Each section starts with an introductory note containing overall guidance for the preparation of the corresponding chapter of the sector assessment report. This introductory note is followed by specific instructions and guide questions, whose answers will provide the elements for the preparation of the respective chapter. The national team responsible for the preparation of the national sector assessment report is expected to review the annotated table of contents presented in this document and adapt it to the specific requirements of the country. It is likely that the team might wish to create further subheadings to the headings below to improve the clarity and coherence of the document.

The executive summary should provide a synthesis of the most relevant findings of each chapter, emphasizing the current drinking water and sanitation sector situation, trends, analysis of the institutional framework and financing for the sector and whether the major existing plans and programmes address properly the sector issues and requirements to move the sector forward. The executive summary is intended to provide busy readers with a summary of basic information and analysis produced by this report.

This chapter should provide the rationale for preparing the country-level sector assessment report as a necessary tool for moving the sector forward. It should explain how this report is linked to the national planning process responsible for generating sector development plans, such as roadmaps for achieving the MDG drinking water and sanitation target. It should also describe the process and institutional arrangements adopted in preparing the assessment report.

## General aspects

- Describe the rationale for undertaking the country-level sector assessment as part of the efforts to support governments in achieving the MDG drinking water and sanitation target and the national objectives of the sector. It should point out that such country-level sector assessments are a useful and necessary step towards the development of roadmaps or any other planning mechanism conducive to the achievement of the MDG drinking water and sanitation target.
- Is this the first comprehensive sector assessment? What were the main findings of previous sector assessments?
- Describe the assessment process and its organization involving government agencies and donors.

## Objectives

State the objectives of the sector assessment report. Such objectives are normally the following:

- to provide qualitative and quantitative information on the sector status, including an understanding of the financial situation, a mapping of institutional roles and responsibilities, an analysis of the quality of services rendered to the population, an assessment of the national

priorities, and an understanding of the processes decision-makers and planners should follow to achieve change and progress for the sector;

- to provide an analysis of weaknesses and constraints to sector development;
- to provide a financial analysis demonstrating the costs and benefits of improving the sector against the inaction and business as usual;
- to provide elements for the analysis of impact of action and inaction on health using risk analysis methodology;
- to provide recommendations and proposals for sector improvement presenting different investment and financing scenarios and the strategic actions needed for sector improvement or reform, including the action required to achieve the MDG drinking water and sanitation target;
- to serve as a tool for advocacy towards sector development.

### Target audience

The target groups of sector assessment reports frequently include: policy- and decision-makers responsible for development and reform processes; planning groups; regulatory agencies; operators; national investors; the private sector; international banks and donors; NGOs and civil society groups.



## 2. Background

This chapter should describe the following: the political and socioeconomic context under which the sector is operating; water resources management and how it relates to water supply and sanitation; trends in water and sanitation coverage since 1990 using JMP data; MDG targets; trends in financing the sector and relation to the total government budget; government policies and strategies for the development of the sector.

- Give a brief description of the geographical, political and socioeconomic background of the country, including the following:
  - Major geographical features; climate; annual rainfall averages;
  - Population and population growth in urban and rural areas; population distribution among capital city, other metropolitan areas, medium-sized cities, small towns, concentrated and dispersed rural areas and indigenous communities; population projections;
  - Type, frequency and severity of natural disasters affecting the country;
  - Status of decentralization;
  - Main economic activities of the country;
  - National trend in per capita income and differences in per capita income among various segments of the population and/or regions.
  - Health indicators, including infant mortality rate and life expectancy; major waterborne and water related diseases;
  - Education indicators, such as literacy and primary school enrolment rate; poverty indicators; rate of urbanization.
- Describe in an overall manner the country's water resources in terms of development and use for water supply, irrigation, and hydropower; describe its adequacy for water supply in terms of per capita availability by source, and water quality in terms of major water quality

indicators (river and lakes); what is the most common source for water supply in urban areas and in rural areas?

- Describe briefly the trend in water supply and sanitation household coverage since 1990, using JMP data. Explain briefly the reasons for the improvement or decline.
- Describe the trend in financing for the sector. Is it increasing or decreasing? What percent of the total government budget is spent on water supply and sanitation?
- Describe briefly the government policies and strategies with regard to the development of the water supply and sanitation sector. These policies could be in the areas of coverage, financing, cost recovery, tariffs, service levels, local governments and decentralization, regulation, private sector participation, community participation, and other areas.

## 3. Status of drinking water, sanitation and hygiene

This chapter should describe the levels and quality of water supply and sanitation services in urban and rural areas, including drinking-water quality control; access to services in urban-poor communities; water and sanitation service providers, and, where possible, the status of drinking water and sanitation in primary and lowest secondary schools and health establishments. It addresses also how the country is performing with regard to the promotion of hygiene behaviours.

### Drinking water supply services

- What types of improved and unimproved services are provided in urban and rural areas, according to latest JMP data update ([www.wssinfo.org](http://www.wssinfo.org))? See below JMP definitions of improved and unimproved drinking water (Table 1). Interesting illustrations for this section might include photographs of typical low-cost water supply facilities. Provide a coverage breakdown for each type of service (improved, unimproved) for urban areas and for rural areas. What proportion of the population pay for non-piped water supply, such as from water vendors (bucket, tanker truck)? If government coverage figures or other data vary significantly from JMP data, cite both and discuss possible reasons for the difference.
- What are the current levels of coverage of water, sanitation and wastewater treatment infrastructure in the capital city, other metropolitan areas, middle size cities, small towns, rural areas (concentrated and dispersed) and indigenous communities? If there are significant differences between these population groups how is this explained?
- What has been the trend of coverage in historical terms for access to water supply services?
- For piped systems in urban and rural areas, do they provide 24-hour service? If not, how many hours a day on average is water provided?
- What proportion of the population is served by a piped supply that includes an active cross-connection and backflow prevention device as supported by regulatory requirements?



- What is the percentage of rural water supplies not functioning at any one time? Is this excessive? If yes, what are the reasons for the inadequate functioning of rural systems?
- What services are available for the urban poor? Provide a breakdown of types of services used by the urban poor (slums).
- What is the government policy with regard to providing services for the urban poor?
- Who is responsible for maintaining the facilities? Who pays for the cost of operations and maintenance? Are these maintained by the communities through organized community-based organizations (CBOs)? Who provides technical, institutional and financial support to these communities or CBOs with regard to operation and maintenance costs? Is this support effective? Is it sufficient?
- Assess the performance of the main water utilities with regard to levels of water loss, metering, macrometering, mapping, users registering, illegal connections, services for the urban poor, cost recovery, quality of services, etc.
- Provide the types of drinking water technologies that have proved to be effective and those that did not perform well over the past years. Explain the reasons why.
- Are standards for adequate service levels defined for the different population settings? What are the minimum standards as defined by the government for water supply? Does this differ from the JMP definition of improved and unimproved water sources?
- Are levels of service for water supply promoted by the government, or service operators, generally compatible with the given social, cultural and economic conditions of the different target populations?
- Do users have a choice in deciding what level of service they receive? Do users receive sufficient information to enable them to make informed decisions?

**Table 1** Types of drinking water technologies considered as improved and unimproved by the JMP

Improved drinking water sources	Unimproved drinking water sources
Piped water into dwelling, plot or yard	Unprotected dug well
Public tap/standpipe	Unprotected spring
Tubewell/borehole	Cart with small tank/drum
Protected dug well	Bottled water <sup>a</sup>
Protected spring	Tanker-truck
Rainwater collection	Surface water (river, dam, lake, pond, stream, canal, irrigation channels)

<sup>a</sup>Bottled water is considered improved only when the household uses water from an improved source for cooking and personal hygiene.

## Drinking water quality

- Does the country have official national drinking-water quality standards? Are these national standards more or less stringent than the WHO Guidelines for Drinking-Water Quality? What are the basic differences?
- Describe the process of drinking water quality control at different levels (utilities, rural areas, slums). What are the levels of free residual chlorine of the effluent water in treatment plants?
- Who has the responsibility for drinking water quality surveillance? How is it carried out? Is there a regular drinking water quality reporting system derived from the existing surveillance mechanisms? How would you assess the control of drinking-water quality in this country for different settings (urban, rural, type of facility)? Justify. Is there any evidence that backs up such an assessment?
- What kind of water treatment is used for most piped systems? Provide the population served by each type of water treatment system. What is the percentage of urban and rural drinking-water systems using effective central water treatment and disinfection?
- What proportion of the population receives water treated to remove chlorine resistant pathogens, such as *Cryptosporidium* (e.g. using ultraviolet irradiation, ozone, microfiltration or coagulation-flocculation-sedimentation-filtration)?

- What proportion of the population receives water that is known to meet the major health-related WHO quality parameters at the point of supply (the microbial faecal indicator criteria and the nitrate, arsenic, lead and fluoride criteria)? What proportion of the population receives water that is thought to meet all health-related WHO quality parameters at the point of supply?
- Have the water agencies adopted or have plans to adopt water safety plans as a means to reduce risks associated with poor drinking water quality?
- Do these agencies operate and maintain their systems within the context of a comprehensive, source-to-consumer systematic drinking water safety plan (WSP) or drinking water quality risk management plan? Examples of such a WSP might include a Drinking Water Safety Plan, Water Safety Plan, Hazard Analysis and Critical Control Points (HACCP) system, ISO 22000 (food safety management), Public Health Risk Management Plan or any other risk management plan that fully conforms to the principles and guidance of the WHO Water Safety Plan and covers the entire water supply system, including source protection, treatment, distribution and use.
- Is the Water Safety Plan independently audited? If the plan is independently audited, is the plan audited by a health authority or by persons authorised and approved by a health authority, or is it audited by a third party auditor that does not require approval of the health authority?
- What is the national percentage of households using effective household drinking water treatment? What are the main methods used? Provide a breakdown of type of household treatment and population using such methods.

### Sanitation services

- What types of improved and unimproved services are provided in urban and rural areas, according to the latest JMP statistics update ([www.wssinfo.org](http://www.wssinfo.org))? See below JMP definitions of improved and unimproved sanitation (Table 2). If possible, illustrate with photographs of



**Table 2** Types of sanitation technologies considered as improved and unimproved by the JMP

Improved sanitation facilities <sup>a</sup>	Unimproved sanitation facilities
Flush or pour-flush to: <ul style="list-style-type: none"> <li>• piped sewer system</li> <li>• septic tank</li> <li>• pit latrine</li> </ul> Ventilated improved pit latrine Pit latrine with slab Composting toilet	Flush or pour-flush to elsewhere <sup>b</sup> Pit latrine without slab or open pit Bucket Hanging toilet or hanging latrine No facilities or bush or field

<sup>a</sup> Only facilities which are not shared or are not public are considered improved.

<sup>b</sup> Excreta are flushed to the street, yard or plot, open sewer, a ditch, a drainage way or other location.

typical low-cost sanitation technologies. Provide percentage breakdown for each type of coverage (improved, unimproved) for urban areas and for rural areas. If government coverage figures or other coverage statistics vary significantly from JMP data, cite both and discuss possible reasons for the difference.

- What has been the trend of coverage in historical terms for access to sanitation, as well as for wastewater treatment?
- What is the percentage of rural sanitation facilities not functioning at any one time? Is this excessive? If yes, what are the reasons for the inadequate functioning of rural systems?
- What types of sanitation technologies are adopted officially by the Government for urban, rural and slum areas? Are these adequate? Explain. Are these technologies in fact adopted by the communities? What proportion of the urban-poor population uses the official type of technology? How are these provided and financed?

- For sewerage systems, what wastewater treatment methods (primary, secondary, etc.) are commonly used? What is the proportion of wastewater collected by sewer pipes that is treated through effective wastewater treatment plants?
- For septic tanks, are these regularly de-sludged? If yes, on average, how frequently (number of years)? How much is charged for de-sludging services? Are de-sludging services provided by the government or this is carried out by private contractors?
- Provide the types of sanitation technologies that have proved to be effective and those that did not perform well over the past years. Explain the reasons why.
- Are levels of service for sanitation promoted by the government, or service operators, generally compatible with the given social, cultural and economic conditions of the different target populations?
- Do users have a choice in deciding what level of service they receive? Do users receive sufficient information to enable them to make informed decisions?

## Hygiene

- Are there clearly defined roles and responsibilities for implementation of hygiene behaviour programmes? List the institutions responsible as well as their respective responsibilities.
- Is there a sound programme for hygiene promotion which includes components such as: social mobilization; communication; social marketing; community participation; and, advocacy? Provide a summary of this programme.
- Determine which hygiene behaviours are regularly promoted and compare these with those considered internationally to be essential: washing hands properly with soap after defecation, after handling child's faeces, before feeding, before eating and before preparing food; disposing of all faeces safely, especially those of young children; practicing safe drinking-water management in households; practicing safe food management in households.

## 4. Water, sanitation and development: health, social and economic aspects

This chapter should describe the principal health implications of unimproved water supply and sanitation facilities and associated economic costs, social effects, and productive opportunities afforded by better services. Where available, the total economic cost of meeting national targets for water and sanitation coverage should be provided. It is important to note that economic variables are broader than financial ones, as economics is concerned with the overall efficiency and equity of water and sanitation provision.

- What is the overall disease burden from water, sanitation and hygiene-related diseases? Key variables include prevalence (for chronic diseases), annual incidence (for acute diseases), and case fatality rates, to estimate annual deaths. What is the relative disease burden in rural and urban areas? How much do water, sanitation and hygiene-related diseases disproportionately affect children under five years old, women and the elderly? What is the link between disease burden and economic status (e.g. poverty)? What are the unit and total annual costs to the health system and to the population (care-seekers) of treating these diseases?
- What are the other gender-specific impacts of poor water and sanitation, such as time spent in water collection; the associated physical burden and stress of water collection; and time spent caring for sick children? What are the gender implications of poor water and sanitation in schools, such as for school enrolment and absenteeism? What implications do poor water supply and sanitation in work places have for employment choices of women?
- What is the current demand for water and sanitation services, as measurable in market terms: overall consumption of water and sanitation services and market value (i.e., total sales volume in monetary terms)? What is the willingness to pay for improved water and sanitation services, measured either by tariff levels or consumer surveys? What is the economic value of non-monetised behaviour such as time spent in water haulage, time and materials spent in household water treatment (by major treatment types), and in-kind contributions to improved water and sanitation services such as building materials and unpaid labour? How do these variables vary by geographic location (e.g. water scarcity) and by urban or rural area?



- What is the economic value of water resources in productive uses, such as agriculture, aquaculture, processing and manufacturing industries, and small-scale ('cottage') industry? Is there an untapped potential for water use in these different productive activities? How do future demand scenarios for these water uses compare with the predicted supply of water over the next 10-20 years? Given possible constraints in water supply growth, what options exist for demand management (e.g. price increases, supply restrictions)? How do these variables vary by geographic location (e.g. water scarcity) and by urban or rural area?
- What are the damage costs of release of untreated human waste in the wider environment, such as loss of productive land and productive loss due to water pollution?
- Is there a potential productive use and local market for human waste, such as agricultural or home garden fertilizer, or the production of biogas? To what extent is human waste currently used in generating these products, in terms of the number of facilities or households, and market value?
- What are the full economic costs of water and sanitation services from different providers, in different locations (rural, urban) and for schools, work places, and public places (e.g. open market, stores) as well as households?
- What specific economic benefits are associated with meeting the Millennium Development Goal target for improved access to safe drinking water and sanitation facilities, based on the characteristics of the populations who are targeted to receive these improvements? What are the economic benefits of achieving universal coverage?

## 5. Water, sanitation and the environment

This chapter should describe how the environment is affected by the current water resources management approaches and drinking water and sanitation practices in river basins. Of particular relevance to this assessment are issues such as the way water resources are managed, the effectiveness of wastewater treatment, use of wastewater in agriculture or aquaculture, and how groundwater or surface sources are affected by on-site sanitation or inadequate sewerage systems.

- Summarize any available information from evidence-based studies relating environment management to water and sanitation. Elaborate an analysis of the impact to environment and health of the discharge of raw domestic wastewater or industrial wastes into receiving bodies, including the impact on downstream users. Assess how the discharge of raw wastewater expressed in terms of percentage of the total volume of wastewater collected by public sewers that is treated by functioning sewage treatment plants affect the environment and the health of those exposed to this practise.
- Describe the country's approach to water resources management. Does the country adopt sound integrated water resources management or is this done independently by different water-using sectors? Describe any legal, regulatory and organizational aspects of water resources management officially adopted. How does it occur in practice? Has the country conducted a water resources assessment lately? What are the conclusions of such an assessment? Are the water resources evenly distributed both in time and location in the country? If not, how does the country manage this problem? Do water service providers pay for the use of water resources? To whom? Comment on how prices are set.
- What proportion of the population is served with water supply through water drawn from fully protected surface water sources, e.g. wilderness forests? What is the total supply of water resources for the provision of drinking-water (lakes, rivers, aquifers and rainwater), supply per capita, and what changes are expected in the future?

- What proportion of the population is served by water from fully protected deep wells? What proportion of the population is sourced by water from designated source water protection areas that are not fully protected, but where source water protection is a consideration in development control and is actively supported by surveillance and regulatory enforcement?
- What proportion of the population is serviced by surface waters that are sourced from another country, such as a river or pipe coming over the border?
- Provide any relevant information from existing studies, projects and practices addressing the use of wastewater (treated or raw) for agriculture and aquaculture. Has the impact to health and environment of such practices been estimated? Provide a description of findings.
- Has the impact to the quality of water from shallow or deep wells from inadequate sanitation systems (latrines nearby, leaking sewer pipes, etc) been assessed? Summarize the findings of these assessments.
- What is the extent and frequency of natural and other disasters in the country and what are the most common impacts on the delivery or management of water and sanitation services? Do such disasters consistently affect one particular area of the country, or impact disproportionately on a particular population group and if so why?
- Have preparedness or mitigation measures been identified and put into place by sector organizations and planners to cope with different aspects of responding to, and recovering from, a major disaster event?
- Do current sector policies and legislation include reference to disaster management issues and do they make provisions for risk management, operational mandates and financial arrangements for post-disaster rehabilitation?
- Do the current sector norms, standards and technical guidelines account for the potential impact of disasters? Do adequate norms exist for all target areas; i.e. rural systems, indigenous communities, small towns, urban poor and urban formal systems?



## 6. Institutional structure, legal framework and information

This chapter should describe the institutional structure of the sector, the organizations/agencies responsible for the different functions at the various levels from national down to the villages and their respective functions and responsibilities. It should also describe the different types of service providers for the sector and how the institutions (including the local water providers) are performing, considering the mandate given to them. The sector assessment should reveal the total picture on institutional performance including an assessment of the human resources capability within the sector. This section should also deal with the legal framework affecting the water and sanitation sector to verify if it enables policy implementation adequately. The analysis should include the overall assessment of laws, regulations, decrees and other legal instruments that directly affect sector institutions and activities to identify gaps, overlaps and duplications.

### Sector structure

- Describe the institutional structure of the water supply sector at the various levels (national, state, provincial, municipal, village/communities) in terms of planning, budgeting and resource allocation, implementation, monitoring, financing and regulation (water quality, tariff setting). Which agency or organization (government or private or NGO/CBO) is responsible for each of the above functions? Draw an organizational chart or a matrix showing these relationships and assignment of responsibilities at the various levels.
- Describe briefly the main functions/responsibility of each of the water and sanitation agencies comprising the sector above. Are the functions (provision of water and sanitation services) decentralized to local bodies (local government units)? Or are they performed by local units of national agencies? What is the role of local government units? Who makes decisions in terms of laws, policies, and budgeting / resource allocation? What is the degree of autonomy of public service providers? Discuss any gaps or overlaps in the functions among these agencies/organizations, if any. What potential exists for the use of economic criteria (e.g. cost-benefit analysis, cost recovery) to assist in setting government spending priorities and private

sector investment decisions?

- What type of mechanisms exists in the sector to link national agencies with regional and local governments to achieve sector objectives?
- What kinds of organizations are operating and managing the water utilities in urban areas? Are these under the local governments? Are they operated by a national water supply agency with local offices/branches? Are there private operators among the water service providers? Describe the different levels of public/private partnerships in urban and rural areas. Is the impact of the different types of private sector participation measured? Are there any lessons to be learned? Are there significant differences in current levels of coverage of water, sanitation and wastewater treatment infrastructure among the public and private providers? How is this explained?
- Is there a community-based model in use? Is this model formally recognized for the rural sector? Is there clarity about roles and responsibilities for the provision of back up support to these community-managed water supply and sanitation systems? Assess whether this model is working well and how it could be improved.
- Which are the main policies and sector objectives that guide water, sanitation and hygiene sector development in the capital city, other metropolitan areas, middle-sized cities, small towns, concentrated and dispersed rural areas and indigenous communities?
- How is operation and maintenance of drinking water and sanitation systems organized and performed in different settings (e.g. water utilities, small rural systems, etc)?
- What is needed to strengthen any major weaknesses in institutional capacity at the national, regional and local government levels?



## Legal framework

- Does the existing legal framework adequately address water and sanitation for all key target groups? Or are there any gaps, overlaps or duplications among existing legal instruments in the sector or other related sectors?
- What sets of laws address participation of the private sector in water and sanitation provision (property rights, pricing, enforcement of contracts, etc.)? What incentives are provided for the involvement of the private sector (subsidies, minimum prices, tax breaks, etc.)? How does government regulate negative externalities such as water resources pollution (standards, taxes and fees)?
- Give an assessment of how the institutions (including the local water providers) are performing considering the mandate given to them. Assess the human resources capability of the agencies/ organizations involved in the sector. This should include those in the sector agencies, those operating and maintaining the water and sanitation facilities, as well as the private sector. Are there enough contractors, well drillers, consultants, etc., to support the development of the sector? In what areas is there a requirement to support capacity building?
- Does the regulator participate in monitoring national policies' implementation? Is this participation satisfactory? If there is no participation on the part of the regulator (for example in rural areas), or if there is no formal regulator, how does the national or regional government act when national policies are not implemented?
- What is the role of the regulator in public/private partnerships? How is the regulatory body financed? In cases where the Government provides subsidies to service providers, do regulators play any role?
- Are the main stakeholders involved in the formulation of water, sanitation and hygiene policies and national strategic plans? What methods are used for their involvement? Is the stakeholder involvement normally translated into clear support or action? Do the policies address the unserved and underserved populations? Is there a special policy for slum areas?

## Sector assessments and monitoring of coverage

- Assess the various sector information and monitoring systems, evaluation tools, and uses of these systems in decision-making. Is there a reliable and sensible sector management information system in place? Is it focused and streamlined to monitor implementation of sector policies, goals and strategies? If not, what is missing? How do country water and sanitation goals compare with the MDGs? Comment on their feasibility.
- What are the prospects for conducting recurrent sector assessment reports similar to this one? Who is responsible for the management of such a process? Is there a database accessible to potential users containing basic information on water and sanitation indicators?
- Is there a well established system for monitoring access to drinking-water and sanitation services at national and sub national levels? Who has the responsibility to generate coverage information and measure progress towards the achievement of the MDG drinking water and sanitation target? What methodology is used to derive coverage estimates?
- Who is the leading agency or institution responsible for monitoring coverage?
- How is this activity placed in the structure of such an agency?
- Are there other partner institutions involved in collecting and disseminating information? Describe their roles and responsibilities.
- Does this monitoring system address drinking water and sanitation coverage only or is this comprised in a broader context (a sector assessment process, water resources management, health, etc)?
- Do the indicators address drinking water and sanitation coverage in urban and rural areas, or just one of these?
- Does it cover the whole sector or only part of it (e.g. only drinking water or only sanitation, etc.)?

- Is it only national or also sub-national?
- Does it cover hygiene behaviours?
- Is this the official national mechanism to track progress towards the MDG drinking water and sanitation target?
- What are the sources of information used for the calculation of the drinking water and sanitation coverage indicators?
- What are the national household surveys used as the sources for the coverage calculations?
- Is the primary survey data available for consultation? How?
- Indicate (in an annex) the basic information that characterizes each survey used for the calculations: agency responsible for the household survey; dates of implementation of the survey; scope; drinking water and sanitation questions and response categories; size of the sample; representativeness of the survey (national, urban, peri-urban, rural, drinking water, sanitation).
- What is the definition of coverage in this monitoring system? What are the indicators adopted in this monitoring system? Are the official national coverage figures adopted from the last JMP global assessment report? If not, are the coverage figures derived from household surveys (sample household surveys such as DHS, MICS, World Health Surveys, censuses, etc)? If not, what is the source used?
- What is the method used to calculate the coverage figures? How was the coverage trend calculated?
- What is the source of the population data used to calculate the coverage figures?
- Is there a breakdown of total coverage in terms of drinking water, sanitation, urban and rural? Is coverage in peri-urban areas available? Is there a breakdown of the coverage figures by types of facilities (e.g. access through household connection, protected well, spring, standpost (water), or toilet flushing to sewer, septic tank, ventilated improved latrines, etc (sanitation)?

Is there a breakdown of coverage by province, municipality, etc?

- What is the frequency of the drinking water and sanitation coverage updates?
- Is the status of the country in terms of coverage reported regularly? What are the mechanisms to report coverage? Who is the target audience of these reports (policy- and decision-makers, practitioners, media, sector engineers, a specific ministry, etc)?
- Are the drinking water and sanitation coverage statistics comparable to those provided by the JMP? If the coverage indicators and respective statistics are distinct from those provided by the JMP, explain the reasons for such a difference.



## 7. Financing and investments for the sector

This chapter should describe how the sector is financed, whether by loans and grants, national or local governments, and external donor agencies. It should also describe government's financing policy on grants, loans, cost recovery for operation and maintenance costs and capital development as well as tariff levels. It should estimate the upfront and recurrent financing needs to meet government coverage targets.

- What has been the investment spending on water and sanitation over the past five years and what investment is planned under the current national development plan period? Spending should be provided for water supply and sanitation separately, and according to different financing agents: national government, local government, households, private commercial sector, and external partners/donors. Investment spending figures should be disaggregated by improvement type, region, and rural / urban area.
- As well as absolute sizes of financial flows, how is investment spending being channelled, and who is accountable? What is the source of investment money: is it from existing revenues (tax revenue), retained earnings, savings, grants, or additional borrowing?
- What is the expected length of life of the technical options chosen? In other words, after how many years will different types of improved water supply and sanitation facilities need to be replaced (with further implications for financing)? Can you estimate how much the life span of the different types of facilities could be extended by regular maintenance as opposed to inadequate maintenance?
- What is the past, current and future recurrent spending on water and sanitation, separately? Recurrent spending refers to operation and maintenance costs, which occur after the initial capital investment has been made.
- What is the government policy for funding water and sanitation projects? What type of projects get grants? What projects get loans? Is there a government policy on cost recovery? Please describe.



- What is the government policy on tariffs? Who regulates the setting of water tariffs?
- Are 'lifeline' tariffs available for the poor (i.e. lower tariffs for basic minimum requirements)?
- Are there subsidies for providing access to water supply services for the poor in the rural or peri-urban areas? Describe the subsidy scheme especially how they target the poor to have access to services.
- Who is responsible for operation and maintenance expenses? Are tariffs enough to cover these expenses? Does the government provide subsidies for operation and maintenance expenses? How much is the average monthly bill for piped water supply services in urban areas? For sewerage systems, how much are the average monthly bills for sewerage services?
- Who provides financing for capital costs of urban water supply systems? Are capital costs to be recovered from tariffs for urban water supply systems? Are current tariff levels sufficient to recover capital costs?
- Where possible, make an assessment of government subsidies provided for both capital investment and operation and maintenance expenses, and government policy on the use of subsidies.
- Provide a brief assessment, if possible, of investment levels compared to coverage levels. What resources have been utilized to achieve current coverage levels? Based on the government's current policy on cost sharing and cost recovery in the water and sanitation sector, and the availability of financing from other sources (e.g. donors), what would it cost the government annually and in total to meet the Millennium Development Goal target for water supply and sanitation? What would it cost to achieve universal access? Indicate any possible financing gaps between required budgets and funding availability.
- Provide a summary matrix of significant funding interventions (current and/or planned) from external support agencies (development banks and bilateral agencies).

- What borrowing opportunities do households have to meet the costs of water and/or sanitation investments?
- Please provide an analysis of economic and political risks associated with investments in drinking water and sanitation.
- Analyse the information provided in this section in the light of the information collected for section 4. Among the many possible focus areas of this analysis it would be crucial to conduct a cost-benefit study, comparing the costs of providing drinking water and sanitation services with the health and economic benefits associated with the provision of such services.

## 8. Sector issues and constraints

This chapter should summarize the sector issues and constraints that might be hampering the development of the sector. It should provide an assessment of how best to address these issues and constraints.

- Based on the discussions in the previous sections, provide a brief assessment of water supply and sanitation sector issues and principal constraints to enhancing the effectiveness and efficiency of the sector. These could be in the areas of policy, strategies, planning, organization of the sector, financing and subsidies, performance of water and sanitation service providers, regulation of the sector, and services to the poor.

## 9. Major sector plans and programmes

This chapter should describe major sector plans and programmes including budget allocations and financing sources. It should include an assessment of whether these plans and programmes are addressing the issues and constraints identified in the previous chapter.

- Describe the major plans and programmes (government and externally funded) that are ongoing as well as those planned for the future (as in future sector development plans).
- Make a brief assessment of whether these plans and programs are addressing the sector issues and constraints identified in Chapter 8.
- What are the remaining gaps that need to be addressed, if any?



## 10. Sector recommendations

This final chapter should include recommendations on how unresolved issues and constraints will be addressed with proposed recommendations for the preparation of a sector road map towards the achievement of the MDG drinking water and sanitation target or any other national targets.

- Describe the issues and constraints that have remained unresolved and propose recommendations as to how these will be addressed.
- Propose recommendations on different aspects spotted by the national sector assessment (policies, strategies, legislative action, reorganization of the sector, capacity building, additional financing, etc) that would be of relevance for the preparation of a roadmap towards the attainment of the MDG drinking water and sanitation target or any other national targets.
- How should future sector assessments be made? How often? What issues arose in conducting the present sector assessment that future sector assessments can learn from? What were the major data gaps, and how can these be filled?



A reference list should be prepared following WHO's style guide for writers: [http://www.unaids.org.in/new/KnowledgeCentre\\_WHOStyleGuide.pdf](http://www.unaids.org.in/new/KnowledgeCentre_WHOStyleGuide.pdf)

The entire assessment document should use this guide as a reference for spelling, punctuation, terminology and formatting. The reference list should contain only those documents cited in the text as sources of data or information.

# Acronyms

List only the acronyms that are used many times in the document. Spell out directly in the various sections of the document the abbreviations that are rarely used.

The acknowledgement section should provide the names and affiliations of the members of the Assessment Team, the Interagency Working Group, the writers and reviewers of the document, stakeholders, donors and other supporters that provided information or contributed in any way to produce this report.

### **Annotated list of relevant sector publications**

Identify the most prominent and useful country sector publications referring to different aspects of drinking water and sanitation sector development including master plans, sector studies, etc. Provide a short description of each.

This list should include useful materials that were consulted in preparing the sector assessment whether or not they were cited in the text. It is expected that the annotated list of relevant sector publications will contain all the materials cited in the list of bibliographic references in addition to other materials that might be of relevance to those that wish to expand their understanding and analysis of the drinking water and sanitation sector.







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