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Activities relating to drinking water and wastewater services — Guidelines for the assessment and for the improvement of the service to users

*Activités relatives aux services de l'eau potable et de
l'assainissement — Lignes directrices pour l'évaluation et
l'amélioration du service aux usagers*

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 224, *Drinking water, wastewater and stormwater systems and services*.

This second edition cancels and replaces the first edition (ISO 24510:2007), which has been technically revised.

The main changes are as follows:

- completion of content of the contracts in terms of rights of the user and user obligations;
- addition of new services (e.g. online services, e-bills);
- development of user segmentation to differentiate procedures and better meet expectations;
- better accessibility to services for all, including vulnerable customers;
- addition of stormwater management in the service agreement;
- addition of reference to the United Nations sustainable development goals.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

0.1 Water issues: global context and policies framework

Water constitutes a worldwide challenge for the 21st century, both in terms of the management of available water resources and the provision of access to drinking water and sanitation for the world's population.

A number of international efforts and resolutions have been tackling the challenge of the provision of water services since 2000 and some progress has been made. Currently the focus is through the UN's Sustainable Development Goals (SDGs),¹⁾ which provide the blueprint to achieving a better and more sustainable future for all. These address global challenges, including those related to poverty, inequality, climate change, environmental degradation, peace and justice. The 17 goals are all interconnected and are intended to be achieved by 2030. Water and sanitation are particularly related to SDGs 3 and 6 but are relevant to all of them. The United Nations Commission on Sustainable Development (CSD13) has emphasized that governments (referred to as “relevant authorities” in this document) have a primary role in promoting improved access to safe drinking water and basic sanitation through improved governance at all levels and appropriate enabling environments and regulatory frameworks, with the active involvement of all stakeholders. This process should incorporate institutional solutions to make the water sector more productive and the management of water resources more sustainable. In this respect, the ministerial declarations from the third and fourth World Water Forums recommended that governments endeavour to reinforce the role of parliaments and local public authorities, particularly with regard to the provision of adequate water services, and recognized that an effective collaboration with and between these actors is a key factor for meeting water-related challenges and goals.

Examples of key issues for efficient drinking water and sanitation services policy frameworks are:

- clear definition of the roles of the different stakeholders;
- definition of sanitary rules and organization for assessment of compliance;
- processes to ensure consistency between the policies regarding urban development and water utility infrastructure;
- regulation for water withdrawal and wastewater discharge;
- information for users and communities.

0.2 Water utilities: general objectives

In addition to public health and environmental protection, sound management of drinking water utilities, wastewater utilities and stormwater utilities (hereinafter jointly referred to as “water utilities”) is an essential element of integrated water resource management. When applied to these utilities, sound management practices will contribute, both quantitatively and qualitatively, to sustainable development. Sound utility management also contributes to social cohesion and economic development of the communities served, because the quality and efficiency of water services have implications for virtually all activities of society.

As water is considered a “social good” and activities related to water services support the three aspects of sustainable development (economic, social and environmental), it is logical that the management of water utilities be transparent to and inclusive of all stakeholders identified in accordance with the local context.

There is a broad array of types of stakeholders that can play a role in activities related to water services.

Examples of such stakeholders include:

- governments or public agencies (international, national, regional or local) acting with legal or legislative authority;

1) <https://sdgs.un.org/goals>

- associations of the utilities themselves (e.g. international, regional, multinational and national drinking water or wastewater associations);
- autonomous bodies seeking to play an overview role (e.g. organizations concerned, such as non-governmental organizations);
- users and associations of water users.

The relationships between stakeholders and water utilities vary around the world. In many countries, there are bodies that have responsibility (in whole or in part) for overseeing the activities related to water services, whether the utilities are publicly or privately owned or operated and whether they are regulated by relevant authorities or acting in a system of technical self-regulation. Standardization and technical self-regulation are possible ways of ensuring the involvement of all stakeholders and meeting the subsidiarity principle.

The aim of water utilities is logically to offer services to everybody in the area of responsibility of the utility, and to provide users with continuous services under economic and social conditions that are acceptable to the users and to the utility. Water utilities are expected to meet the requirements of relevant authorities and the expectations specified by the responsible bodies in conjunction with the other stakeholders, while ensuring the long-term sustainability of the service. In a context of scarcity of resources, including financial resources, it is advisable that the investments made in installations be appropriate and that necessary attention be paid to proper maintenance and effective use of the installations. It is advisable that water tariffs generally aim at meeting cost-recovery principles and at promoting efficiency in the use of the resources, while striving to maintain affordable basic access to water services.

It is advisable that the stakeholders be involved in both setting service objectives and assessing the adequacy and efficiency of service.

0.3 Objectives, content and implementation of this document

The objective of this document is to provide the relevant stakeholders with guidelines for assessing and improving the service to users, and with guidance for managing water utilities, consistent with the overarching goals set by the relevant authorities and by the international intergovernmental organizations noted in 0.2. This document is intended to facilitate dialogue between stakeholders, enabling them to develop a mutual understanding of the functions and tasks that fall within the scope of water utilities.

The group of International Standards addressing water services consists of this document (service-oriented), ISO 24511 and ISO 24512 (management-oriented).

This document addresses the following topics:

- a brief description of the components of the service relating to the users;
- core objectives for the service, with respect to users' needs and expectations;
- guidelines for satisfying users' needs and expectations;
- assessment criteria for service to users in accordance with the provided guidelines;
- examples of performance indicators linked to the assessment criteria that can be used for assessing the performance of the service.

ISO 24511, ISO 24512 and ISO 24536 address the following topics:

- a brief description of the physical or infrastructural and managerial or institutional components of water utilities;
- core objectives for water utilities, considered to be globally relevant at the broadest level;
- guidelines for the management of water utilities;

- guidelines for the assessment of water services with service assessment criteria related to the objectives and performance indicators linked to these criteria.

The performance indicators presented in this document, ISO 24511, ISO 24512 and ISO 24536 are for the purposes of illustration, because assessing the service to users cannot be reduced to a single or universal set of performance indicators.

The scope formally excludes the installations inside a user's premises. However, attention is drawn to the fact that the quality of the supplied water (or discharged wastewater) can be adversely impacted between the point-of-delivery (or, in the case of wastewater, the point-of-collection) and the point-of-use (or, in the case of wastewater, the point-of-discharge) by the installations inside the premises. Some stakeholders, such as relevant authorities, owners, contractors and users, can have a role to play regarding this issue.

Because the organization of water utilities falls within a legal and institutional framework specific to each country, this document does not prescribe the respective roles of various stakeholders, nor does it define required internal organizations for local, regional or national bodies that can be involved in the provision of water services. In particular, this document does not interfere with the free choice of the responsible bodies regarding the general organization and the management of their utilities. This document is applicable to publicly and privately owned and operated utilities alike and does not favour any particular ownership or operational model.

The guidelines given in this document, ISO 24511 and ISO 24512 focus on users' needs and expectations and on the water services themselves, without imposing a means of meeting those needs and expectations, the aim being to permit the broadest possible use of this document, ISO 24511 and ISO 24512 while respecting the cultural, socio-economic, climatic, health and legislative characteristics of the different countries and regions of the world. It should therefore be understood that, in the short-term, it is not always possible to meet the expectations of local users. This can be due to factors such as climate conditions, resource availability and difficulties relating to the economic sustainability of the water services, particularly regarding financing and the users' ability to pay for improvements. These conditions can limit the achievement of some objectives or restrict the implementation of some recommendations in developing countries. However, this document is drafted with such constraints in mind and, for example, allows for differing levels of fixed networks and the need for on-site alternatives. Notwithstanding the need for flexibility in terms of engineering and hardware, many recommendations in this document, such as consultation mechanisms, are intended to apply universally.

In order to assess and improve the service to users and to ensure proper monitoring of the improvements, an appropriate number of performance indicators (PIs) or other methods for checking compliance with requirements can be established. The use of PIs is only one of the possible support tools for continuous improvement. Stakeholders can select PIs from the examples given or develop other relevant PIs, taking into account the principles described in this document, ISO 24511 and ISO 24512. The PIs logically relate to the objectives for which they are defined through the assessment criteria and are used to measure performance. They can also be used to set required or targeted values. This document does not impose any specific indicator or any minimum value or performance range. It respects the principle of adaptability to local contexts, facilitating local implementation.

While it is in no way intended that this document, ISO 24511 and ISO 24512, and more specifically the performance indicators given as examples, be considered as a prerequisite or condition for the implementation of a water policy or for the financing of projects or programmes, they can serve to assess progress towards policy goals and the objectives of financing programmes.

The objective of this document, ISO 24511 and ISO 24512 is not to lay down systems of specifications supporting direct certification of conformity, but to provide guidelines for the continuous improvement and for the assessment of the service.

This document, ISO 24511 and ISO 24512 are consistent with the principle of the "plan-do-check-act" (PDCA) approach: they propose a step-by-step process, from identifying the components and defining the objectives of the utility to establishing performance indicators, with a loop back to the objectives and to the management, after having assessed the performances. [Figure 1](#) summarizes the content

and application of this document. Implementation of this document, ISO 24511 and ISO 24512 does not depend upon the adoption of ISO 9001 and/or ISO 14001. Nevertheless, this document, ISO 24511 and ISO 24512 are consistent with those management system standards. Implementation of an overall ISO 9001 and/or ISO 14001 management system can facilitate the implementation of the guidelines contained within this document, ISO 24511 and ISO 24512; conversely, these guidelines can help to achieve the technical provisions of ISO 9001 and ISO 14001 for organizations choosing to implement them.

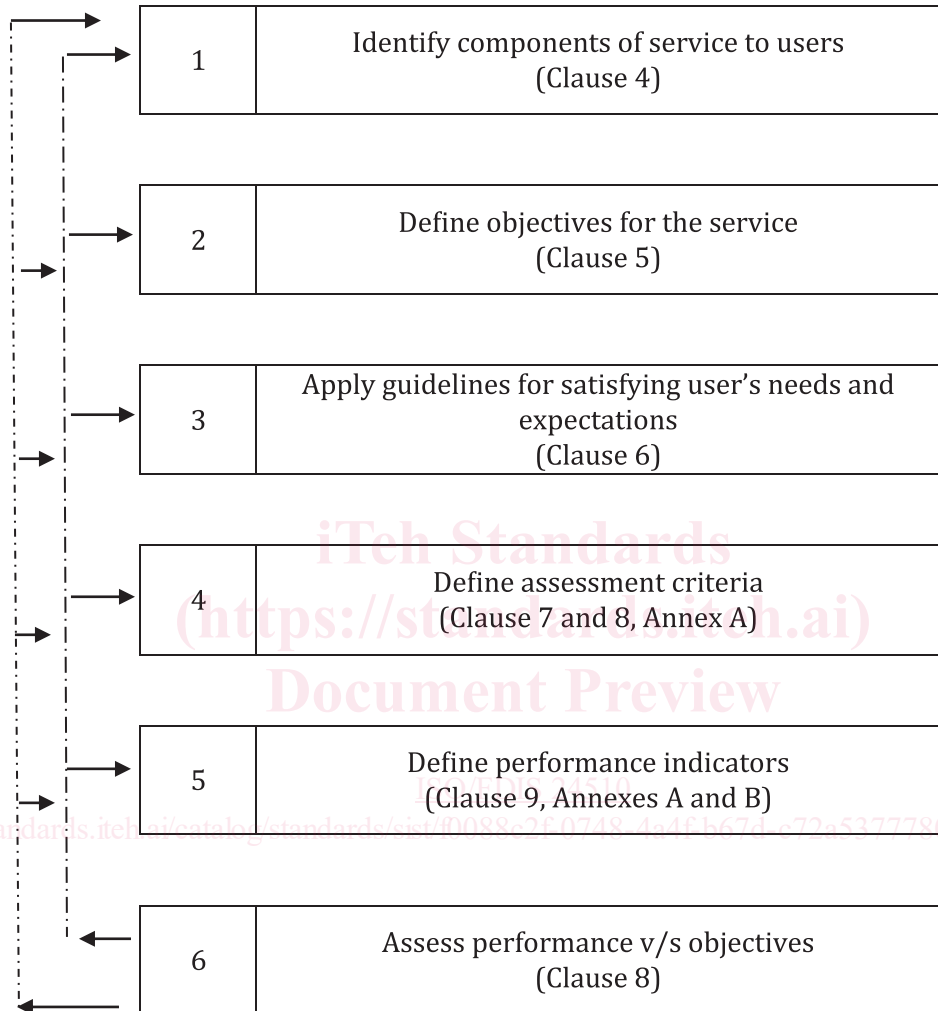


Figure 1 — Content and application of this document

0.4 Service to users

This document is different in nature from ISO 24511 and ISO 24512. The target audience of this document addresses users' expectations that pertain to relevant authorities, responsible bodies and operators. It is written from the perspective of the users rather than from that of the water utility. Consequently, some of the content of this document, ISO 24511 and ISO 24512 relates to the same issues but the guidelines it contains are complementary, due to their differences in perspective and target audience.

Activities relating to drinking water and wastewater services — Guidelines for the assessment and for the improvement of the service to users

1 Scope

This document specifies the elements of drinking water and wastewater services of relevance and interest to users. It also provides guidance on how to identify users' needs and expectations and how to assess whether these are being met.

The following are within the scope of this document:

- the definition of a language common to the different stakeholders;
- the definition of key elements and characteristics of the service to users;
- the objectives for the service with respect to users' needs and expectations;
- guidelines for satisfying users' needs and expectations;
- assessment criteria for service to users;
- introduction to performance indicators;
- examples of performance indicators.

The following are outside the scope of this document:

- methods of design and construction of drinking water and wastewater systems;
- the regulating management structure and methodology of operation and management of activities relating to drinking water and wastewater services, including contracting;
- topics relating to the system inside buildings.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 24513, *Service activities relating to drinking water supply, wastewater and stormwater systems — Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 24513 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1
registered user
customer

user for whom relevant information is recorded by the responsible body or operator

Note 1 to entry: The term “customer” can be considered as a synonym, given that a customer has a commercial relationship, such as a service agreement, with the water utility. The term “customer” is currently used in such expressions as “customer relations”.

Note 2 to entry: The term “user” indicates the water consumer, whether or not subscribed to the service. An example of a non-subscribed user is a consumer who lives in a residential building where only the main meter is included in the service agreement.

Note 3 to entry: The term “vulnerable user” indicates a person with disabilities (e.g. with difficulties to understand or use the services) or a person belonging to a vulnerable economic group (e.g. with limited economic resources).

3.2
water services

services delivered by a water utility that include drinking water supply, wastewater collection and stormwater management

4 Elements of the service relating to users

4.1 General

To promote the continuous improvement of service to users, its elements should first be identified. The essential elements of service to users are:

- access to and provision of the water, wastewater and stormwater service and access to customer relationship services;
- contract management, billing and collection of invoices and management of users with payment defaults;
- water consumption measurement;
- promoting a good relationship with the users;
- protection of the environment;
- safety and emergency management.

Unless stated otherwise, most of the elements of the service with regard to users are common to both drinking water services and wastewater services.

4.2 Access to water services

Access to services means not only connection to networked drinking water and wastewater systems but also, if these are not available, access to other means of service. For drinking water supply, other options, such as wells, mobile water delivery, regulated bottle water vendors and drinking water points, including springs, can be used. For wastewater services, this could include septic tanks, pit latrines, composting toilets and other forms of disposal.

Beyond physical access to water, access to water services should include the affordability of customer relationship services for all users, including the most vulnerable.

4.3 Provision of the service

4.3.1 Application and termination of the service

Clear, simple and transparent procedures should be established for users to apply for and terminate water services.

4.3.2 Water services

Water services include all the procedures for supply and maintenance of the quality of drinking water services or recycled water services. Wastewater services (collection, treatment and disposal) include all the procedures for provision and maintenance of the quality of wastewater services. Stormwater management services include all the procedures for the planning, infrastructure and management of stormwater hazards

4.3.3 Water quality

The quality of drinking water or recycled water comprises the health and aesthetic aspects of the water provided. The quality of wastewater or stormwater comprises the environmental aspects of the water collected, treated and discharged or managed.

4.4 Contract management and billing

4.4.1 Service agreement

The service agreement includes the establishment of an agreement, implicit or explicit, between the registered user and the water utility.

4.4.2 Billing

Billing encompasses the conditions relating to billing for service, terms of payment and information on applicable rates.

4.5 Promoting a good relationship with users

Promoting a good relationship with users implies identifying their needs and expectations, in terms of access and quality of service, providing the proper communication channels and timely response to their inquiries, as well as enabling a participatory process on matters of general interest related to the water service.

4.6 Protection of the environment

Protection of the environment encompasses preventing or mitigating all the permanent or temporary impacts of the water utilities' service activities on the environment. It includes the quality of the wastewater or stormwater discharged, whether to land or water bodies, and the appropriate management of any residues produced. The protection of the environment and all measures for resource prevention, in particular by a water consumption control, includes the maintenance of the infrastructure and the long-term protection of the water resources and, where possible, the encouragement of water usage management and efficiency.

4.7 Safety and emergency management

Safety and emergency management procedures include the information, plans and solutions to maintain or restore service in the event of major incidents or natural disasters.

5 Objectives for the service in respect of users' needs and expectations

5.1 General

This clause should be used to identify the needs and expectations of users. The quality of the service provided to the users depends on the ability of the institutions providing the water services to meet the users' needs and expectations under sustainable conditions. All elements of need and expectation listed relate to both drinking water services and wastewater services, unless stated otherwise.

5.2 Access to water services

Because access to water and sanitation has been declared a human right,²⁾ users and potential users expect that all practical steps be taken to ensure their access to those services. Users expect to have access to the service, even if this access does not include a physical connection to the infrastructure. Users also expect the relevant authority or responsible body to plan the development and provision of water services within the service area and inform them of the timing of providing such access.

Vulnerable users expect the water service and the relevant authority or responsible body to ensure that the services provided take into account any vulnerabilities (disabilities or economic limitations) they have.

5.3 Provision of the service

5.3.1 Time to establish new service provisions

The user expects to be provided with the service in a reasonable and specified time within the service area. An explanation may be required on the specific conditions under which the service can be provided, and when.

5.3.2 Repairs

The user expects repairs that affect the provision of the service to be completed within a reasonable time, as well as to be warned in advance of planned repairs that would affect the service. Water services may determine and publish a level of service standard regarding the length of service interruptions. In all cases, the user expects the inconvenience to be minimized. If the service is affected and an interruption occurs over a long period, an alternative drinking water service (e.g. emergency pipes, tankers, water bottles) should be implemented.

The interruption of supply should be reduced to a minimum. The corresponding duration is part of the service level and should be defined locally.

5.3.3 Price of service

The user expects the service to be fairly priced and the relevant authority or responsible body to ensure that affordability is not a barrier to access, particularly in the case of vulnerable users.

5.3.4 Quantity of water services

The user expects to receive sufficient drinking water or recycled water at the point-of-delivery to satisfy his or her needs or collected wastewater or managed stormwater volumes reflecting general user expectations or declared levels of service standards.

2) https://www.un.org/waterforlifedecade/human_right_to_water.shtml