मानकः पथप्रदर्शकः
Bureau of Indian Standards

COMPENDIUM OF INDIAN STANDARDS for

WATER UTILITY SERVICES

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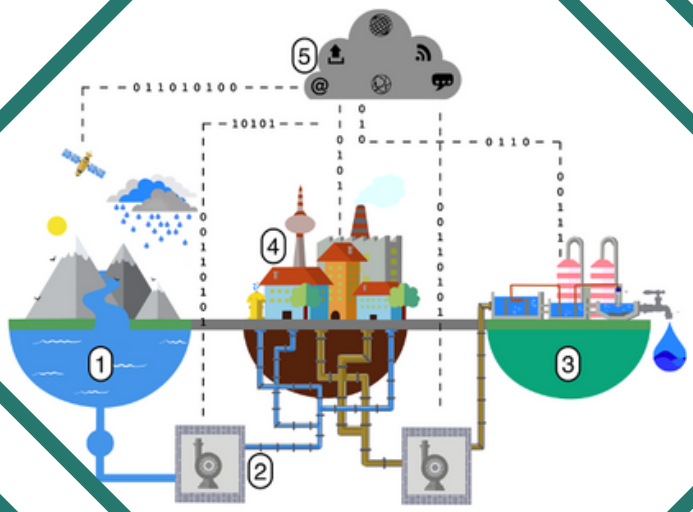


PREFACE

With the expanding population of India along with the overall development, the usage of water is expanding drastically. In 2000 water demand was 634 km^3 and it is probably going to be 1093 km^3 by 2025. As indicated by the global standards, a nation is sorted as 'water stressed' if accessibility is under 1700 m^3 for per capita/year and delegated as 'water scarce' if it is under 1000 m3 per capita per year. It is estimated that the country will become water stressed by 2050 as the per person surface water accessibility to become 1140 m^3. This compendium on Standards for Water Utilities, consolidates Indian Standards to ensure safe, efficient, and equitable water services.

Words from the Constitution of India:

"It shall be the duty of every citizen of India, to protect and improve the natural environment including forests, lakes, rivers and wildlife, and to have compassion for living creatures" (Article 51A – Constitution of India).

INTRODUCTION

SERVICES STANDARDS FOR WATER UTILITIES

In India, the establishment and enforcement of service standards for water utilities are pivotal due to the nation's multifaceted water management challenges.

The standards are instrumental in safeguarding public health by setting stringent expectations for water quality, reliability, and service continuity. It is paramount to ensure that water utilities consistently provide safe and clean drinking water, especially in a nation where water quality concerns are widespread. By emphasizing reliability and outlining expectations for water supply continuity, these standards contribute to reducing the risk of waterborne diseases and improving the overall well-being of the population.

In addition, service standards encourage operational efficiency, accountability, and resource allocation within water utilities. They provide a framework for measuring and enhancing utility performance, aiding in the efficient allocation of resources and the resolution of operational inefficiencies

Moreover, these standards emphasize the need for environmentally sustainable water management practices, an especially critical consideration in India, where water scarcity and pollution are prevalent issues. In this context, service

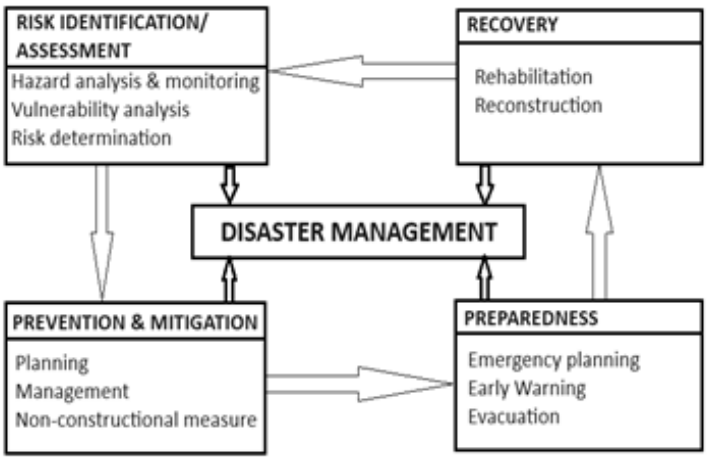
standards promote responsible water use and help mitigate the environmental impact of water resource extraction and distribution. A list of such Indian standards is given in the table on the next page.

BIS STANDARDS FOR WATER UTILITIES

List of Indian Standards for Water Utility Services (such as Jal Boards) that covers the management and services concept for a better service delivery is given below with a brief description.

1	**IS 17482 : 2020** Drinking Water Supply Management System — Requirements for Piped Drinking Water Supply Service	This standard lays down the requirements of a water utility including the processes involved in the procurement of raw water, its treatment, storage and distribution, the quality of the water provided and guidelines on how to ensure the same, and the responsibilities of the management. Compliance with this standard will not only facilitate the water utility to achieve control over its Non-Revenue Water (NRW) and continuous water supply but also develop trust between utilities and regulatory authorities.
2	**IS 16761 : 2018** **ISO 24510 : 2007** Activities related to drinking water and wastewater services — Guidelines for the assessment and for the improvement of the service to the users	This standard is recommendatory in nature and assists in assessing and improving the quality and performance of drinking water and wastewater services to meet the needs and expectations of the users while. It provides a brief description of the components of the service relating to the users. The core objectives for the service, with respect to users' needs and expectations is highlighted and guidelines for satisfying users' needs and expectations are covered. It also sites examples of performance indicators linked to the assessment criteria that can be used for assessing the performance of the service.
3	**IS 16632 : 2017** **ISO 24511:2007** Activities relating to drinking water and wastewater services — Guidelines for the management of wastewater utilities and for the assessment of wastewater services	Wastewater systems are built and operated mainly to protect public health and the environment. The type of wastewater system needs to be chosen and adapted in context with the density of the population, climatic conditions, environmental requirements for treatment and the technical/socio-economical ability of the responsible body to implement it, operate it and maintain it. This Standard guides the service providers how to manage wastewater utilities and assess the wastewater services. To further help in implementation of this standard, it also highlights examples of performance indicators, without setting any target.

4	**IS 16633 : 2017 ISO 24512:2007** Activities relating to drinking water and wastewater services — Guidelines for the management of drinking water utilities and for the assessment of drinking water services	Water Utilities have constructed infrastructure and facilities that are operated primarily to supply drinking water to users of the service. Many utilities can supply the users either by direct pipe connection or by other means (e.g. trucks, bottles). In broad terms, the social objectives of the service are to promote public health and social and economic development, while protecting the environment. This standard guides the management and assessment of these drinking water utilities and its services. It not only lays down the objectives but also talks about the service assessment criteria and related performance indicators, appropriate for the assessment of drinking water services.
5	**IS 18182 : 2023** Management of assets of drinking water supply systems — Guidelines	This standard is intended to provide guidance on the assets typically owned or operated by drinking water utilities engaged in the collection, treatment, pumping, storage and distribution of drinking water and are expected to meet customer needs and expectations over longer periods. Effective asset management in water utilities significantly improves the reliability of water services by ensuring proper maintenance and efficiency of treatment and distribution systems, leading to fewer disruptions and enhanced water quality. This proactive approach optimizes resource allocation, reducing lifecycle costs and saving valuable funds in the long run. Overall, it empowers utilities to make informed choices about their infrastructure, ensuring the continued provision of clean and safe water while optimizing resource utilization and minimizing risks.
6	**IS 17395 (Part 1) : 2020/ISO 24516-1 : 2017** Guidelines for the management of assets of water supply and wastewater systems Part 1 — Drinking water distribution networks	The assets (underground pipes, reservoirs, storage tanks, treatment plants, etc.) collectively form the physical infrastructure of the drinking water utilities are the consequence of the accumulated capital investments and operational expenditures on maintenance and rehabilitation over many years. Considering the importance of providing guidelines on management of assets of drinking water networks to maintain value from existing assets and to follow the uniform practices globally, this standard was developed.

		This document describes the information required and how to collect and process reliable inventory, condition, operational and context data about drinking water systems. Condition data for the underground water infrastructure notably include data on failure. These data serve mainly as a basis for systematic maintenance and can also contribute data needed for benchmarking.
7	**IS 17395 (Part 3) : 2020/ISO 24516-3 : 2017** Guidelines for the management of assets of water supply and wastewater systems Part 3 — Wastewater collection networks	The condition of wastewater infrastructure greatly influences the adequacy of the wastewater service from various aspects of quantity, quality . As the installation and development of wastewater assets mature, the optimization of networks will become necessary in many places in order to respond to changing societal and economic conditions. This standard guides regarding the technical aspects, tools and good practices for the management of assets of wastewater networks so that the value from existing assets is maintained in the long run. Though this does not apply to the management of treatment plants. To better understand, this document also includes examples of good practice approaches at various level of organisation.
8	**IS 17392 : 2023** Disaster management in drinking water utilities — Requirements	This standard deals with the preparation, response, and recovery of drinking water supply systems from any natural or manmade disasters. 

9	**IS 17390 : 2020** **ISO/TS 24520 : 2017** Service activities relating to drinking water supply systems and wastewater systems — Crisis management — Good practice for technical aspects	This document can be used as a toolkit by water utilities where they wish to review their current capability to prepare for, respond to and recover from a crisis in an effective and efficient manner. The approach of a water utility when preparing for any crisis should encompass all pertinent aspects of water supply and the collection, treatment and safe disposal of wastewater. The water utility needs to cooperate with all relevant stakeholders concerned with the crisis, such as authorities and public. Effective crisis management should ensure that the actions taken before, during and after the crisis consider the natural environment as well as the impact on the health and wellbeing of the population. To ensure this, the document provides guidance to water utilities on good practice in technical aspects of crisis management.
10	**IS 17006 : 2018** **ISO 24521 : 2016** Activities relating to drinking water and wastewater services — Guidelines for the management of basic on-site domestic wastewater services	Poor sanitation facilities are often linked to contaminated water sources, which in turn are linked to transmission of diseases such as cholera, diarrhoea, dysentery, hepatitis A and typhoid. This standard provides guidelines on the management of basic on-site domestic wastewater services with a focus on improving hygiene, considering social norms through stakeholder communication, management of assets and better management of human waste and wastewater.
11	**IS 17391 : 2020** **ISO 24523 : 2017** Service activities relating to drinking water supply systems and wastewater systems — Guidelines for benchmarking of water utilities	Benchmarking is a systematic process for the identification, familiarization and adoption of successful practices from benchmarking partners. Typically, it is a continual or recurrent process. This standard provide generally accepted criteria for successful benchmarking of drinking water and wastewater services and can be applied at all levels of detail and for any specific improvement objectives.

12	**IS/ISO 24536 : 2019** Service activities relating to drinking water supply wastewater and stormwater systems — Stormwater management — Guidelines for stormwater management in urban areas	The impacts of urban flooding can include loss of human life, damage to property, disruption of traffic and other services and deteriorations of limited freshwater resources, water ecosystems and hygienic living conditions. This standard provides guidance to stormwater management authorities and relevant stakeholders on both structural and non-structural stormwater management approaches. This standard can be used by stormwater management authorities and relevant stakeholders for the evaluation of design, operation and performance of stormwater systems and it also provides guidance to them on consideration of relevant policies, planning, design criteria and implementation processes for stormwater management, and performance evaluation.