**Draft Roadmap document on Drinking Water Supply Wastewater and Stormwater System Services Sector**

**1 General Description**

Today the world is propelled by technological innovations and technology is expanding at unimaginable pace. The challenge before us individually as well as collectively is to adopt best global practices and standards. For developing standards that are comparable to international standards and aligned to the latest development in the relevant fields, it is necessary to associate the best scientific and professional brains in the country working in those fields. Services, are the road to development. The growing importance of the services sector in the global economy is not only a well-documented trend, it is also a powerful opportunity to leverage millions of jobs and encourage the creation of more innovative companies.

**1.1 Issues and Challenges**

Water is a cross-cutting issue that is of critical importance as India is to make progress on major development challenges, including food security, rapid urbanization, sustainable rural development, disaster risk management, adaptation to climate change, equitable allocation of natural resources, and economic cooperation with its neighbours in the region.

Water permeates the cultural, social, economic and political fabric of India. A massive concentration of people (1.21 billion), a monsoonal climate (June-Sept, with 90% of river flow in 4 months, 50% of rain in 15 days) creates great susceptibility to hydrological shocks by any global standards. As a result, more than 60 percent of India’s irrigated agriculture and 85 percent of drinking water supplies are dependent on groundwater. Climate change is expected to intensify monsoon, glacier melt, and flooding, further exacerbating India’s “difficult hydrology”. But it is also the immense scale of this susceptibility combined with the considerable potential for the productive development of water resources in India that together create unusually complex challenges and major opportunities.

On a national basis, total demand for water resources is expected to exceed the utilizable potential by 2050. Groundwater is being depleted at an alarming rate. A nationwide assessment (2004) found 29 percent of groundwater blocks to be in the semi-critical, critical or overexploited categories, with the situation rapidly deteriorating. At the same time, diversion and contamination of surface water threatens the health of rivers and the people dependent upon them. Policies of data secrecy inhibit the effectiveness of agencies responsible for planning, resource allocation and disaster preparedness and add to the atmosphere of mistrust. In the absence of a credible system for defining and enforcing resource allocations, conflict will continue to arise as a result of scarcity and competition for use.

**1.2 Government Strategy**

The Government’s **National Water Mission under the National Action Plan** on Climate Change addresses many of these issues. With its main objective of “conservation of water, minimizing wastage and ensuring its more equitable distribution both across and within States through integrated water resources development and management,” it has the potential to shift focus from supply augmentation to efficient utilization of available resources. The Mission identifies the following five goals:

1. comprehensive water data base in public domain and assessment of impact of climate change on water resource;
2. promotion of citizen and state action for water conservation, augmentation and preservation;
3. focused attention to vulnerable areas including over-exploited areas;
4. increasing water use efficiency by 20%, and
5. promotion of basin level integrated water resources management.

**Swachh Bharat Abhiyan** is a national level campaign by the Government of India covering 4041 statutory towns to clean the streets, roads and infrastructure of the country. The Swachh Bharat Mission - Urban (SBM-U), launched on 2nd October 2014 aims at making urban India free from open defecation and achieving 100% scientific management of municipal solid waste in 4,041 statutory towns in the country. Objectives of Swachh Bharat Abhiyan:

1. Construction of individual, cluster and community toilets.
2. To eliminate or reduce open defecation.
3. Initiative of establishing an accountable mechanism of monitoring latrine use.
4. Public awareness about the drawbacks of open defecation and promotion of latrine use.
5. Proper, dedicated ground staff to bring about behavioural change and promotion of latrine use.
6. For proper sanitation use, the mission aim at changing people’s attitudes, mindsets and behaviours.
7. Villages to be kept clean with Solid and Liquid Waste Management.
8. Solid and liquid waste management through gram panchayats.
9. To lay water pipelines in all villages, ensuring water supply to all households.
10. To make India Open Defecation Free (ODF) India, by providing access to toilet facilities to all.
11. To provide toilets, separately for Boys and Girls in all schools.
12. To provide toilets to all Anganwadis

The Government of India has launched the **Smart Cities Mission** on 25 June 2015. The objective is to promote sustainable and inclusive cities that provide core infrastructure and give a decent quality of life to its citizens, a clean and sustainable environment and application of ‘Smart’ Solutions.

**1.3 Opportunities for Improving Water Resources Management and Service Delivery**

To improve performance, reduce water-related shocks, and increase resilience and adaptation to growth and change, more comprehensive reform is needed in the following areas:

Enabling water policies, institutional and legal frameworks to improve the stewardship of the resource base and service delivery for end users, and to facilitate inter-jurisdictional management and development.

Inter-sectoral approaches at the basin level that integrate surface water with groundwater, urban with rural, quantity with quality, and minimum flows and ecosystem services with river regulation for hydropower, flood management and abstraction for water supply and irrigation.

Restructuring of public sector institutions (including through capacity building and the strategic realignment of incentive structures and skills mixes) and the establishment of new institutions (including regulatory authorities, associations, river basin agencies, and public-private partnerships).

Decentralized and participatory service delivery mechanisms, with a particular focus on improving customer/user service, enhancing accountability and transparency, and extending service to the poor.

Modern management practices and technology applications, including improved operations and maintenance through asset management planning, and the development of a comprehensive knowledge base and decision support tools.

Financial sustainability of resource management and service delivery through rational charges and tariffs and improved financial management, including removing distorting subsidies and moving towards user charges that reflect at least O&M costs.

Openness and cooperation on water resources data, research and knowledge sharing, not only within India but also with neighbours in the region.

**1.4 Government Initiatives in this Sector and Role of BIS**

Ministry of Commerce has identified 12 Champion Sectors for services. To give focused attention on Services Sector, a separate Division Council dedicated to services has been created for formulation of standards in these champion sectors, which includes Tourism, Logistics & Transport, Banking, Health, Education, Construction, Communication, IT & IT Enabled Services, Accounting & Finance, Environmental Services, Public Drinking Water Services etc.

BIS has formed technical Committees on each of them and strives to ensure that the best possible service be ensured to every citizen of India. Reforming and adapting public-sector services has its challenges as it means taking a number of socio-economic, environmental and political factors into consideration in the provision of services.

The Government of India is expected to invest highly in the infrastructure sector, mainly highways, renewable energy, and urban transport. The following missions have already been initiated by the government

**2 National Regulations or Policy issues in the country**

Policy documents on drinking water supply, Wastewater and Stormwater System Services available in the country:

1. Guidelines for water Quality Management published by Central Pollution Control Board, Delhi
2. Guidelines for water Quality Monitoring published by Central Pollution Control Board, Delhi
3. Guidelines to Regulate and Control Ground Water Extraction in India issued by Central Ground Water Authority, Ministry of Water Resources, River Development and Ganga Rejuvenation.
4. Manual on Storm Water Drainage System 2019, published by CPHEEO, Ministry of Housing and Urban Affairs;
5. Manual on Sewerage and Sewage Treatment System 2013, published by CPHEEO, Ministry of Housing and Urban Affairs;
6. Manual on Sewerage and Sewage Treatment System 2013, published by CPHEEO, Ministry of Housing and Urban Affairs;
7. Manual on Operation and Maintenance of Water Supply System 2005, published by CPHEEO, Ministry of Housing and Urban Affairs;
8. Manual on Water Supply and Treatment 1999, published by CPHEEO, Ministry of Housing and Urban Affairs;

**3 Stakeholders in the field of Drinking Water Supply services**

The government or private bodies involved in the collection, treatment and distribution of drinking water are the relevant stakeholders holders here. The list includes State Jal Boards, Water Supply and Sewerage Boards, Municipal Bodies, PHEs, Water Association, Institutes, Smart Cities Nodal Agencies etc.

**4 Status of National Standardization**

A dedicated committee titled Drinking Water Supply, Wastewater and Stormwater System Sectional Committee SSD 14, has been formulated under the Service Sector Division Council (SSDC), for the formulation of standards related to Drinking Water Supply, Wastewater and Stormwater System services.

A brief detail of the SSD14 Sectional Committee is provided.

***Title****:* *Drinking water supply, wastewater and storm water system services sectional committee SSD 14.*

***Scope****: Standardization of the management concepts for service activities and processes relating to drinking water supply, wastewater and storm water systems.*

*This structure includes activities necessary to fulfil the objectives of water supply, wastewater and storm water systems. Water supply for purposes other than drinking*

*water can be included in this management concept structure.*

***Excluded****:*

* *Normative target or threshold values for service quality criteria;*
* *Normative limits of acceptability for drinking water quality or for wastewater and storm water discharges to the environment;*
* *Product specifications for chemical and biological additives for water and wastewater treatment;*
* *Standardization in sludge recovery, recycling, treatment and disposal;*
* *Standardization in water reuse;*
* *Methods for the measurement of water quality.*

***Coordination with****:*

*ISO/TC 224 – Service activities relating to drinking water supply, wastewater and storm water systems*

**5 Strategic Direction of the SSD14 Sectional Committee**

This Roadmap covers the activities of the Drinking Water Supply, Wastewater and Stormwater System Services Sector. This document describes the impact standardization can have on the industry and how this impact can most effectively be used. General recommendations for action are given.

Objectives of the strategy

1. Increase awareness about Drinking Water Supply, Wastewater and Stormwater System Services standardization and to engage with the different service providers and other relevant stakeholders in order to better understand their needs and to guide them regarding the use of Indian Standards in their sector.
2. Define a series of criteria that could help to identify priority areas with a more urgent need for standardization and with a higher potential to benefit from it.
3. Ensure that the Indian service standards are at par with the international service standards as well as those of other nations by comparison with their standards and suggesting suitable modifications to the Indian standards wherever applicable.

**6 Existing international or other national standards in the service sector.**

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| **S. No.** | **ISO Published Standard** | **Title** | **Scope** |
| 1 | IS 16761 :2018/ ISO 24510 : 2007 | Activities relating to drinking water and wastewater services — Guidelines for the assessment and for the improvement of the service to users | This International Standard 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 they are being met.  The following are within the scope of this International Standard:  — 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;  — service to users assessment criteria;  — introduction to performance indicators;  — examples of performance indicators.  The following are outside the scope of this International Standard:  — 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;  2— topics relating to the system inside buildings.  NOTE 1 **This International Standard, ISO 24511 and ISO 24512 comprise a series of standards addressing water services.** It is therefore advisable to use these three International Standards in conjunction with each other.  NOTE 2 The list of terms and definitions in Clause 2 is common to this International Standard, ISO 24511 and ISO 24512.  NOTE 3 Annex A contains three tables of correspondence between equivalent terms in English, French and Spanish. |
| 2 | 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 | This International Standard provides guidelines for the management of wastewater utilities and for the assessment of wastewater services.  This International Standard is applicable to publicly and privately owned and operated wastewater utilities, but does not favour any particular ownership or operational model.  NOTE 1 Wastewater is always generated when water is used or consumed. Accordingly, sources of wastewater can be residential, industrial, commercial or institutional. Collected storm water or (melted) snow can also be considered as wastewater, as it often carries contaminants and pathogens picked up from air or ground surfaces on its way to a collection system. In certain circumstances, especially in undeveloped areas, sanitary waste is collected in an undiluted form.  This International Standard addresses wastewater systems in their entirety and is applicable to systems at any level of development (e.g. pit latrines, on-site systems, networks, treatment facilities).  The following are within the scope of this International Standard:  — the definition of a language common to different stakeholders;  — objectives for the wastewater utility;  — guidelines for the management of wastewater utilities;  — service assessment criteria and related examples of performance indicators, all without setting any target values or thresholds.  The following are outside the scope of this International Standard:  — methods of design and construction of wastewater systems;  — regulation of the management structure and the methodology of wastewater service activities of operation and management;  — regulation of the content of contracts or subcontracts;  — topics related to the systems inside buildings, between the point-of-discharge and the point-of-collection.  NOTE 2 This International Standard, ISO 24510 and ISO 24512 comprise a series of standards addressing water services. It is therefore advisable to use these three International Standards in conjunction with each other.  NOTE 3 The list of terms and definitions in Clause 2 is common to this International Standard, ISO 24510 and ISO 24512.  NOTE 4 Annex A contains three tables of correspondence between equivalent terms in English, French and Spanish. |
| 3 | 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 | This International Standard provides guidelines for the management of drinking water utilities and for the assessment of drinking water services.  This International Standard is applicable to publicly and privately owned and operated water utilities. It does not favour any particular ownership or operating model.  This International Standard addresses drinking water systems in their entirety and is applicable to systems at any level of development (e.g. on-site systems, distribution networks, treatment facilities).  The following are within the scope of this International Standard:  — the definition of a language common to different stakeholders;  — the definition of the components of drinking water supply systems;  — guidelines for the management of drinking water utilities;  — guidelines for objectives, service assessment criteria and related performance indicators, appropriate for the assessment of drinking water services.  The following are outside the scope of this International Standard:  — target values and thresholds for proposed objectives, service assessments criteria and related performance indicators;  — matters relating to the design and construction of drinking water systems;  — matters relating to the management structure of drinking water utilities;  — matters relating to the regulation of drinking water services, including management and operational activities;  — matters relating to regulating the content of contracts or subcontracts;  — installations between point-of-delivery and point-of-use.  NOTE 1 This International Standard, ISO 24510 and ISO 24511 comprise a series of standards addressing water services. It is therefore advisable to use these three International Standards in conjunction with each other.  NOTE 2 The list of terms and definitions in Clause 2 is common to this International Standard, ISO 24510 and ISO 24511.  NOTE 3 Annex A contains three tables of correspondence between equivalent terms in English, French and Spanish. |
| 4 | ISO 24513:2019 | Service activities relating to drinking water supply, wastewater and stormwater systems — Vocabulary | This document defines individual concepts that together constitute a vocabulary common to different stakeholders with interests in water service provision. It is intended to facilitate common understanding and communication on the provision and management of service activities relating to drinking water supply, wastewater and stormwater systems.  The following are within the scope of this document:  — definition of a vocabulary common to the different stakeholders;  — definition of key elements and characteristics of the service to users;  — definition of the components of drinking water supply, wastewater and stormwater systems. |
| 5 | ISO/TR 24514:2018 | Activities relating to drinking water and wastewater services — Examples of the use of performance indicators using ISO 24510, ISO 24511 and ISO 24512 and related methodologies | This document provides several examples of varying complexity which illustrate the use and intent of the performance assessment methodology set out in ISO 24510, ISO 24511 and ISO 24512. The document also provides examples of the parallel and similar practices for measuring performance or establishing benchmarks as found in various institutional circumstances. These examples represent practices in a range of utilities (e.g. small, medium and large water utilities; water utilities from developed and developing countries; water utilities in both the public and private sectors; government and non-governmental agencies; and utilities with and without certified management systems). They are drawn from many geographical locations. |
| 6 | IS 17676(Part 1): 2021/  ISO 24516-1:2016 | Guidelines for the management of assets of water supply and wastewater systems — Part 1: Drinking water distribution networks | This document specifies guidelines for technical aspects, tools and good practices for the management of assets of drinking water networks to maintain value from existing assets.  This document does not apply to the management of assets of waterworks (including catchment and treatment, pumping and storage in the network), which are also physically part of the drinking water system and can influence the management of assets of the pipe network.  NOTE 1 The drinking water network is taken to include both pressurized and non-pressurized (i.e. containing free surface flow) conduits and accessories such as valves and control or metering equipment.  NOTE 2 The management of assets of drinking water pumping stations and storage in the network will be included in another part of the ISO 24516 series.  This document focuses on the assets typically owned or operated by drinking water utilities (networked drinking water systems) that are expected to meet customer needs and expectations over longer (multi-generational) periods.  This document includes examples for good practice approaches on the strategic, tactical and operational levels.  This document is applicable to all types and sizes of organization and/or utilities operating drinking water systems, and all different roles/functions for the management of assets within a utility (e.g. asset owner/responsible body, asset manager/operator, service provider/operator).  NOTE 3 Depending on the size and structure of an organization, the utility can decide to what extent it applies the guidance in this document, but in any case, the philosophy of this document remains applicable to small and medium utilities. |
| 7 | ISO 24516-2:2019 | Guidelines for the management of assets of water supply and wastewater systems — Part 2: Waterworks | This document specifies guidelines for technical aspects, tools and good practices for the management of assets of waterworks to maintain value from existing assets. This document includes the following asset types: treatment plants, sludge treatment facilities, pumping stations, reservoirs, tanks and dosing equipment, metering and ancillary infrastructure irrespective of where they are sited, in the waterworks or in the drinking water distribution network.  For further guidance on drinking water distribution networks see ISO 24516-1.  NOTE 1 The management of transmission mains is addressed in ISO 24516-1 irrespective of where these assets are sited in the drinking water system.  This document is focused on the assets typically owned or operated by drinking water utilities (drinking water systems) that in parts are expected to meet users’ needs and expectations over longer (multi-generational) periods.  This document includes examples of good practice approaches on the strategic, tactical and operational levels.  This document is applicable to all types and sizes of organization and/or utilities operating drinking water systems.  NOTE 2 Depending on the size and structure of an organization, the utility can decide to what extent it applies the guidance in this document. In any case, the philosophy of this document remains applicable even to small and medium utilities.  NOTE 3 This includes all different roles/functions for the management of assets within a utility (e.g. asset owner/responsible body, asset manager/operator, service provider/operator). |
| 8 | 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 | This document specifies guidelines for technical aspects, tools and good practices for the management of assets of wastewater networks to maintain value from existing assets.  This document does not apply to the management of assets of treatment plants, which are also physically part of the wastewater system and can influence the management of network assets.  NOTE 1 The management of the following individual assets will be covered by ISO 24516-4: wastewater pumping stations, retention and detention in the network, wastewater treatment plants and sludge treatment facilities.  This document includes examples of good practice approaches on the strategic, tactical and operational levels.  This document is applicable to all types and sizes of organizations and/or utilities operating wastewater networks, and all different roles/functions for the management of assets within a utility (e.g. asset owner/responsible body, asset manager/operator, service provider/operator).  NOTE 2 Depending on the size and structure of an organization, the utility can decide to what extent it applies the guidance in this document, but in any case, the philosophy of this document remains applicable to small and medium utilities. |
| 9 | ISO 24516-4:2019 | Guidelines for the management of assets of water supply and wastewater systems — Part 4: Wastewater treatment plants, sludge treatment facilities, pumping stations, retention and detention facilities | This document specifies guidelines for technical aspects, tools and good practices for the management of assets of wastewater treatment plants, sludge treatment facilities, pumping stations, and retention and detention facilities in the wastewater system to maintain the value of existing assets.  NOTE 1 For simplicity in reading this document, reference to wastewater treatment plants includes all the asset types described above.  For further guidance on wastewater networks see ISO 24516-3.  NOTE 2 For simplicity of interpretation of wastewater system assets, the management of pumping stations and retention and detention facilities in the network, excluded from ISO 24516-3, is addressed in this document irrespective of where these assets are sited in the wastewater system.  This document is focused on the assets in wastewater systems typically owned or operated by wastewater utilities that are expected to meet users’ needs and expectations over longer, sometimes multi-generational, periods.  This document includes examples of good practice approaches on the strategic, tactical and operational levels.  This document is applicable to all types and sizes of organizations and/or utilities operating wastewater systems.  NOTE 3 Depending on the size and structure of an organization, the utility can decide to what extent it applies the guidance in this document. In any case, the philosophy of this document remains applicable even to small and medium utilities.  NOTE 4 This includes all different roles/functions for the management of assets within a utility (e.g. asset owner/responsible body, asset manager/operator, service provider/operator). |
| 10 | IS 17392 :2020/ ISO 24518 : 2015 | Activities relating to drinking water and wastewater services — Crisis management of water utilities | This International Standard provides general guidance to water utilities to develop and implement a crisis management system.  This International Standard may be applicable to all sizes of public or private water utilities that want to prepare, respond, and recover from a crisis. |
| 11 | 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 provides guidance to water utilities on good practice in technical aspects of crisis management.  This document is applicable to all water utilities, of whatever size, whether public or private, that wish to review the effectiveness and efficiency of their service activities relating to preparation for, response to and recovery from a crisis. |
| 12 | 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 | This International Standard provides guidance for the management of basic on-site domestic wastewater services, using appropriate technologies in their entirety at any level of development.  This International Standard supplements and is intended to be used in conjunction with ISO 24511. It includes the following:  — guidelines for the management of basic on-site domestic wastewater services from the operator's perspective, including maintenance techniques, training of personnel and risk considerations;  — guidelines for the management of basic on-site domestic wastewater services from the perspective of users;  — guidance on the design and construction of basic on-site domestic wastewater systems;  — guidance on planning, operation and maintenance, and health and safety issues.  The following are outside the scope of this International Standard:  — limits of acceptability for wastewater discharged into a receiving body;  — analytical methods;  — the management structure of sanitary waste/wastewater service activities of operation and management;  — the content of contracts or subcontracts.  This International Standard is applicable to both publicly and privately operated basic on-site domestic wastewater (black and grey water) services, for one or more dwellings.  NOTE 1 Management of on-site domestic wastewater, especially in rural areas and areas under development, is sometimes provided by the owners of the premises where wastewater is generated. In such cases, the owners of the premises carry out the management of domestic wastewater by themselves. In this International Standard, the term “services” includes “self-services” provided by the owners of the premises.  NOTE 2 Especially in undeveloped areas, domestic wastewater is collected in an undiluted form (i.e. sanitary waste). Sources of sanitary waste/wastewater in this International Standard are residential, excluding storm water runoff.  NOTE 3 Annex A contains a table of correspondence between equivalent terms in English, French and Spanish.  NOTE 4 Annex B gives some examples of schematics of basic on-site domestic wastewater systems and components. |
| 13 | ISO/TS 24522:2019 | Event detection process: Guidelines for water and wastewater utilities | This document provides guidance for water utilities on the detection and classification of water and wastewater events.  The following subjects are within the scope of this document:  — publicly and privately owned and operated water utilities. It does not favour any particular ownership or operating model;  — all aspects of the drinking water system and the wastewater system;  — all causes of abnormal changes in water and/or wastewater service provision capable of detection by monitoring systems including accidents, unexpected operational changes, natural hazards and intentional disruption.  This document is independent of the measurement methods used to collect the data.  The document focuses on events which could imminently affect the water utility’s interested parties.  The following are outside the scope of this document:  — methods of design and construction of drinking water and wastewater systems;  — plumbing and drainage systems not under the control of the water utility.  This document does not include details about action taken as a result of event detection. For such details see ISO 24518 and EN 15975 Part 1. |
| 14 | IS 17391 :2020/ ISO 24523 : 2017 | Service activities relating to drinking water supply systems and wastewater systems — Guidelines for benchmarking of water utilities | This document provides guidelines on good benchmarking practice of drinking water and wastewater utilities. It describes the basic framework and methods associated with benchmarking in the water sector. The guidelines are intended primarily for voluntary benchmarking. Specific objectives set forth by the authorities and which are to be achieved by the water utility are not covered by this document.  This document is applicable to water utilities of any size managed by a public or private entity. It does not favour any particular ownership or operating model. |
| 15 | ISO/TR 24524:2019 | Service activities relating to drinking water supply, wastewater and stormwater systems — Hydraulic, mechanical and environmental conditions in wastewater transport systems | This document details the hydraulic, mechanical and environmental conditions generally found in wastewater transport systems from toilets through to wastewater treatment plants, the general powers of wastewater services to manage discharges to sewers, and the responsibilities imposed on wastewater services by applicable local, regional or national legislation. |
| 16 | ISO 24527:2020 | Service activities relating to drinking water supply, wastewater and stormwater systems — Guidelines on alternative drinking water service provision during a crisis | This document provides guidelines on alternative drinking water service (ADWS) provision during a crisis.  This document addresses:  a) ADWS principles and methods;  b) ADWS operational planning and implementation.  This document is not applicable to:  1) planned water supply interruptions forming part of drinking water utilities’ normal operations;  NOTE However, many of the principles and methods described can be appropriate in such circumstances.  2) drinking water supplied for the ongoing operation of key establishments and facilities during a crisis, such as hospitals, homes for the aged, schools, reception facilities and vital plants;  3) water supplied for industrial, agricultural or commercial purposes;  4) water supplied to temporary settlements such as refugee camps;  5) The development and implementation of a crisis management system for water service, which is covered by ISO 24518 and ISO/TS 24520. |
| 17 | ISO 24528:2021 | Service activities relating to drinking water supply, wastewater and stormwater systems — Guideline for a water loss investigation of drinking water distribution networks | This document provides a methodology for undertaking a water loss investigation and establishing general principles for water loss management in drinking water distribution networks in order to improve the sustainability of drinking water utilities and protect the environment by saving water, energy and use of chemicals.  This document establishes a procedure to estimate water loss components through water balance calculations and to define general principles of water loss management. This document deals with the preparation of a water loss management plan for water loss reduction and management projects but does not cover its execution.  This document does not cover bulk drinking water supply systems, but can relate to pumping, storage and transmission within the drinking water distribution network.  This document can be used analogously for non-public supply systems, raw water and industrial water systems.  This document is intended for drinking water utilities and other stakeholders. |
| 18 | ISO 24536:2019 | Service activities relating to drinking water supply, wastewater and stormwater systems — Stormwater management — Guidelines for stormwater management in urban areas | This document provides guidance to stormwater management authorities and relevant stakeholders on both structural and non-structural  approaches. The guidance includes consideration of relevant policies, planning, design criteria and implementation processes for stormwater management, and performance evaluation. This document can be applied to new stormwater systems and to the extension or improvement of existing systems for both fully separated and combined storm and sanitary sewers.  This document is applicable to stormwater sewer systems as well as combined sewer systems.  This document is not applicable to sanitary sewer systems. |
| 19 | ISO/TR 24539:2021 | Service activities relating to drinking water supply, wastewater and stormwater systems — Examples of good practices for stormwater management | This document provides examples of good practices in stormwater management related to ISO 24536 and information on standards and guidelines used in various countries. |
| 20 | ISO/TS 24541:2020 | Service activities relating to drinking water supply, wastewater and stormwater systems — Guidelines for the implementation of continuous monitoring systems for drinking water quality and operational parameters in drinking water distribution networks | This document specifies guidelines for the implementation of continuous monitoring systems for drinking water quality and operational parameters in drinking water distribution networks.  It provides guidance for determining the:  — effective number of continuous monitoring stations in the drinking water distribution network;  — location of monitoring stations in the drinking water distribution network;  — types of operational and drinking water quality parameter measuring devices (MDs) that can be installed in a continuous monitoring station;  — quality control, maintenance and calibration requirements of the continuous monitoring system.  This document excludes guidance on the design, structure, number and type of MDs to be installed in a continuous monitoring system. |
| 21 | ISO 46001:2019 | Water efficiency management systems — Requirements with guidance for use | This document specifies requirements and contains guidance for its use in establishing, implementing and maintaining a water efficiency management system. It is applicable to organizations of all types and sizes that use water. It is focused on end-use consumers.  This document is applicable to any organization that wishes to:  a) achieve the efficient use of water through the ‘reduce, replace or reuse’ approach;  b) establish, implement and maintain water efficiency;  c) continually improve water efficiency.  This document specifies requirements and contains guidance for its use regarding organizational water use. It includes monitoring, measurement, documentation, reporting, design and procurement practices for equipment, systems, processes and personnel training that contribute to water efficiency management.  NOTE 1 ‘Reduce’ includes the use of water-efficient fittings and equipment and, for example, putting in place a proper monitoring system for usage and leak detection.  NOTE 2 ‘Replace’ includes substitution of drinking water with reclaimed water, sea water and rainwater wherever feasible.  NOTE 3 ‘Reuse’ includes recycling of, for example, process water or grey water. For utilizing water reuse systems, ISO/TC 282 documents can be referred to as guidelines.  NOTE 4 Guidance in the annexes provides additional practical information to support implementation. Annex A provides guidance on the use of this document and Annex B gives examples of scenarios in water efficiency. |

**7 Standard Published under SSD14 Sectional Committee**

The Drinking Water Supply, Wastewater and Stormwater System Services Sectional Committee SSD14 has formulated an Indian standard **IS 17482 : 2020** “**Drinking Water Supply Quality Management System — Requirements For Piped Drinking Water Supply Service**” to lay down the requirements for water utility/service provider including the processes involved in the intake of raw water, its treatment and distribution, the quality of the water provided and guidelines to implement the requirements of IS 10500.

**8 Subject for Standardization**

The SSD14 Sectional Committee in its 4th meeting held on 29 January 2021 considered the suggestions of the Panel for drafting roadmap SSD 14/P1 regarding new subjects for standardization under the Committee.

The list of topics identified by the panel to start standardization process is as given below:

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| Subject under Panel SSD 14/P3 i.e. Panel for drafting standards on distribution networks and vocabulary | | |
| 1. a) ISO 24513:2019 Service activities relating to drinking water supply, wastewater and storm water systems — Vocabulary 2. b) ISO 24528:2021 Service activities relating to drinking water systems and wastewater systems — Guideline for a water loss investigation of drinking water distribution networks 3. c) ISO 24516-1:2016 Guidelines for the management of assets of water supply and wastewater systems — Part 1: Drinking water distribution networks | Dr Ramakant, CPHEEO (Convener)  Shri J C Singhal, IEI, Delhi  Ms Preeti Chaturvedi, CSIR — Indian Institute of Toxicology Research, Lucknow  Shri Rajat Jain, WAPCOS, New Delhi  Shri Rajesh Singh, National Institute of Hydrology, Roorkee  Shri Padmanabh Maniyar, IDSE Military Engineer Services | |
| Subject under Panel SSD 14/P4 Panel for drafting standards on crisis management | | |
| 1. a) ISO/TR 24525 Service activities relating to drinking water supply systems and wastewater systems - Crisis management - Examples of practiced crisis management 2. b) BS ISO 24527:2020 Service activities relating to drinking water supply, wastewater and stormwater systems. Guidelines on alternative drinking water service provision during a crisis 3. c) ISO 24518:2015 Activities relating to drinking water and wastewater services — Crisis management of water utilities | | Shri Rajat Jain, WAPCOS, New Delhi (Convener)  Dr Ramakant, CPHEEO  Shri Chandan Ghosh, NIDM Delhi  Ms Neelima Garg, Uttarakhand Jal Sansthan  Col. A K Chaubey, in Personal Capacity  Shri Anuja Anand, Quality Council of India, New Delhi  Shri R S Tyagi, Indian Water Works Association, New Delhi  Ms Monika Bahl, GIZ New Delhi  Shri Rahul Sharma, GIZ New Delhi  Shri Deepak Khare, IIT Roorkee  Ms Sonia Grover, TERI Delhi  Ms Niyati Seth, TERI Delhi |

Reference:

www.ISO.org

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