Draft TOR for

Research Project on

Water Audit and Water Use Efficiency

Title	**:**	**Study of principal, processes, and procedures to conduct water audit in water utility and estimation of water use efficiency**
Sectional Committee	**:**	**Drinking Water Supply, Wastewater and Stormwater Systems and Services Sectional Committee SSD 14**
Project Supervisor	**:**	**Member Secretary of SSD 14**
Duty Station	**:**	**All over India**
Duration	**:**	**6 Months**

Introduction:

Drinking Water Supply, Wastewater and Stormwater Systems and Services Sectional Committee SSD 14 of BIS has identified the subject of Water Audit and Water Use Efficiency to formulate an Indian Standard. In order to take a holistic view of the subject and to formulate an indigenous Indian Standard, a detailed study of already developed principal, processes and procedures for conducting water audits in different top-tier water utilities in the country and their methods for estimation of water use, is required to be conducted.

The purpose of this research and development (R&D) project is to conduct a comprehensive study on water audits in water utilities and use of the outcome of these audits for water use efficiency in water utilities, with the objective of formulating standards for sustainable water management, reduction of water losses, and optimization of water use. The project aims to develop guidelines, methodologies, and benchmarks that will serve as the basis for standard formulation in the field of water audit and water use efficiency.

Proposed Scope of the Project

A comprehensive study of existing literature, research, and case studies related to water audit and water use efficiency of at least five water utilities located in different regions of the country to analyze data and assess the current practices, methodologies, and technologies used in water utilities for water audit and water use efficiency and prepare a comprehensive report documenting the research findings for the formulation of Indian Standards on water audit and water use efficiency in water utilities, considering best practices and technological advancements.

Objective

The primary objectives of the project are as follows:

a. Assess the current practices and methodologies of water audit in water utilities.

b. Identify the key challenges and opportunities for improving water use efficiency and reducing water losses.

c. Develop a framework for conducting water audits in water utilities, including data collection, analysis, and reporting.

d. Establish performance indicators and metrics for evaluating water use efficiency and water losses in water utilities.

e. Formulate standards for water audit and water use efficiency in water utilities, encompassing best practices and technological advancements.

Criteria for Identification of Expert Organisation/Individual to Conduct Research Work

The expert organization**/**individual shall

a. have Infrastructure for conducting research work.

b. have capabilities and competence in the field of Water Audit and Water Use Efficiency and experience to conduct such research in the related fields.

c. be a member of the Sectional Committee.

Note — The acceptance of the proposal is subject to the recommendation of working group, SSD14/WG01 and approval of the Sectional Committee and Screening Committee of BIS based on the above and BIS norms.

Deliverables

In consultation with BIS, the expert organization willing to take up the research should focus on the following deliverables and data but are not limited to, to be incorporated in the report:

a. A framework for conducting water audits in water utilities, including data collection, analysis, and reporting requirements.

b. key performance indicators (KPIs) and metrics for evaluating water use efficiency and water losses in water utilities.

c. the current practices, methodologies, and technologies used in water utilities for water audit and water use efficiency.

d. A final project report summarizing the research findings, methodologies, and technologies used in water audit along with a **working draft for formulating an Indian standard**.

NOTES

1 The expert organization shall share the methodology for research and study on the above issues while submitting a proposal to the Drinking Water Supply, Wastewater and Stormwater Systems and Services Sectional Committee, SSD 14. A detailed budget breakdown, including resources for personnel, equipment, travel, and other project-related expenses, is to be submitted in the proposal.

2 The proposal will be first placed before the Sectional Committee, SSD 14 for discussions and approval. After the approval of SSD 14, the proposal would be put up to the Internal Committee of BIS for final approval.

Terms and conditions

1. Stakeholder Engagement

Close collaboration and interaction with relevant stakeholders, water utility authorities/regulatory bodies (need base), is required throughout the project. Stakeholder engagement activities will include consultations, and knowledge sharing sessions to gather inputs, promote the work of SSD 14 and disseminate findings to the SSD 14.

2. Reporting and Communication

Monthly progress reports are to be prepared and submitted to the project supervisor. Communication channels, including meetings, emails, and progress updates, are to be established.

3. Ethics and Compliance

The project shall adhere to ethical guidelines and ensure compliance with BIS research guidelines, data protection, and confidentiality requirements. (link of the guideline)

4. Evaluation and Review

Project shall be reviewed by the committee, SSD 14 from time to time to assess the progress, identify challenges, and ensure the achievement of the project's objectives. Lessons learnedand recommendations and implementation will be documented and shared with relevant stakeholders.

5. Funding of the Project

The funds would be released as per the BIS Guidelines for Funding R&D Projects for Establishment and Revision of Indian Standards, Special Publications and Handbooks, (as attached)