

**Presentation on**

**Capacity Building Program for  
Irrigation & Flood Control**

**held at NITS Noida on 21-22/08/2023**

**by**

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**Jal Shakti (I&FC) Department Jammu**

# Summary of the Capacity Building Program

- Following officers from Jal Shakti Department, UT of J&K participated in the capacity building program:

S. No.	Name of the Officer	Designation
1.	Javid Ahmed Kurpal	Assistant Executive Engineer
2.	Mohammad Akeeb Dar	Assistant Executive Engineer
3.	Sunil Singh	Assistant Executive Engineer
4.	Vinod Mehra	Assistant Executive Engineer
5.	Rohin Jamwal	Assistant Engineer
6.	Nidal Raj Bhuria	Assistant Engineer

- Presented [मानक गीत](#)
- Overview**
  - What is BIS?
  - Correct symbol of ISI Mark
- Preparation of sample code on **Sprinkler Irrigation Pipes** [[IS 14151 \(Part-1\):1999](#)] with reference to **Un-Plasticized PVC Pipes for Potable Water Supplies** [[IS 4985:2021](#)]
- First hand training on various pages of Bureau of Indian Standards (BIS) website and BIS Care App
- Presentations by Food & Agriculture Department**
  - Indian Standards on Micro Irrigation System : **Drip Irrigation System**
  - Indian Standards on Micro Irrigation System : **Chemical Injection System & Sprinkler Irrigation System**
  - Indian Standards on **Agricultural Drainage, Irrigation Water Quality and Guidelines for evaluation of soil properties**
- Presentation by Water Resources Department** on various Indian Standards
- Visit to [Central Laboratory of BIS](#) at Sahibabad, U.P., India.

# Brief Overview

- **Bureau of Indian Standards** (BIS) was previously called **Indian Standards Institution** (ISI).
  - The ISI was registered under the Societies Registration Act, 1860.
- BIS was established by the Bureau of Indian Standards Act, 2016 which came into effect on 12 October 2017.
  - The Act establishes the **BIS as the National Standards Body of India** under Department of Consumer affairs, Ministry of Consumer Affairs, Food & Public Distribution, Government of India.
- National Institute of Training for Standardization (**NITS**) at Noida is a training institute of BIS which was set up in 1995.
  - The primary activities of NITS include conducting training programs for Industry, Employees, Developing countries etc.
- Important certification logos by BIS are:



Compulsory Registration Logo



CM/L-7407873

Product Certification Mark



BIS Logo for Hallmarking

- BIS #Freedom From Fake campaign is raising awareness among the consumers regarding presence of fake products in the market.
- BIS Talks Portal has posted videos on various topics covering different fields.

## ■ **What is a Standard?**

- A Standard is a **document**, established by **consensus** and **approved by a recognized body**, that provides for common and repeated use, rules, guidelines or characteristics for activities or their results, aimed at the achievement of the optimum degree of order in a given context.
- Standards are to be based on the consolidated results of science, technology and experience, and aimed at the promotion of optimum community benefits.
- Standards offer orderly approach to a specific activity.
- Standards bring best practices available to everyone.
- Standards protect the interest and safety of the Nation or Consumer/Stakeholder.
- Standards establish the benchmark for quality and safety of goods and services.
- **However, standards usually go unnoticed.**
- Importance felt only when problem arises.
- Lack of standards can have severe consequences - from mere frustration to loss of life & property

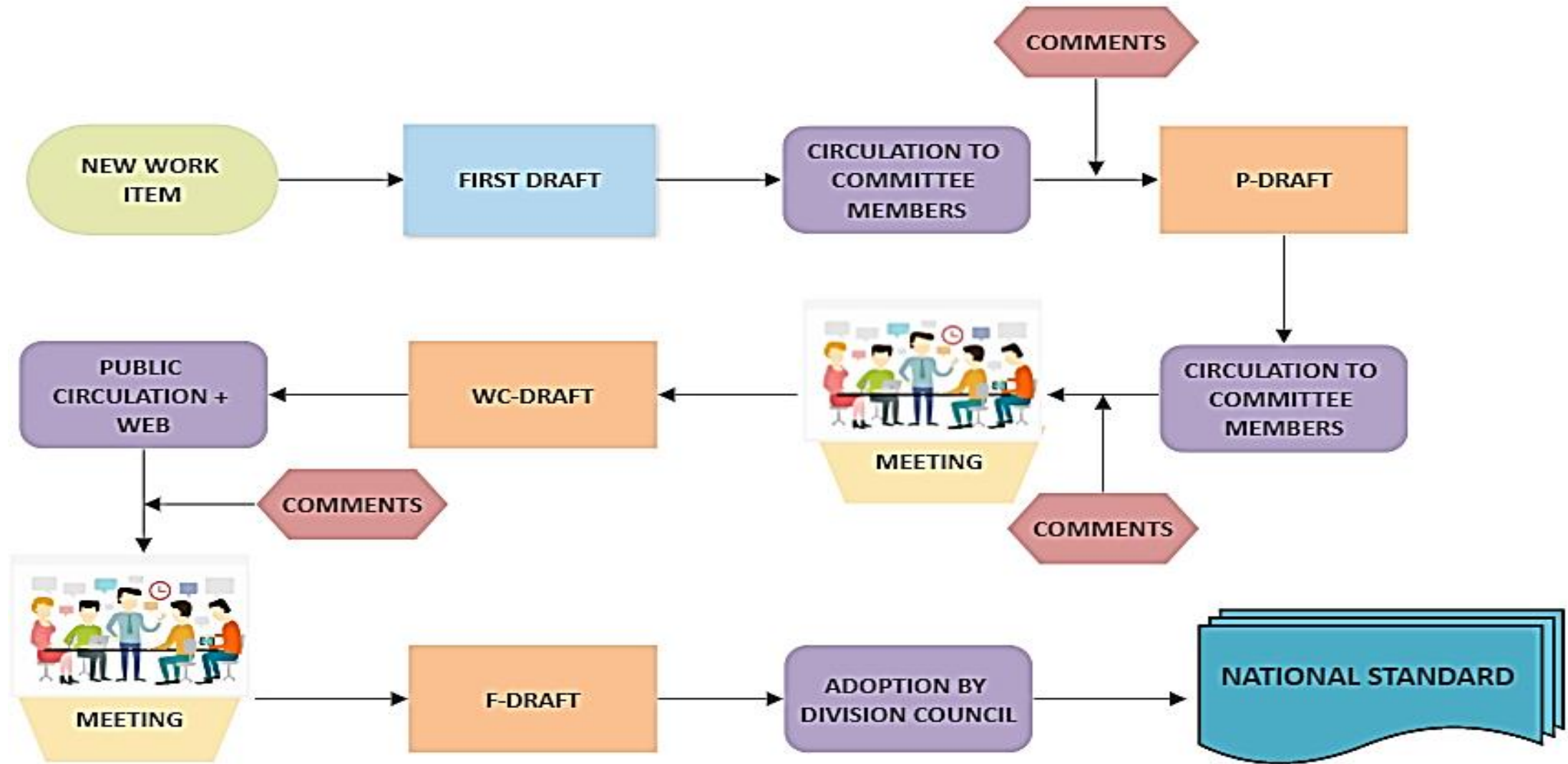
# Stakeholders in National Standards Development



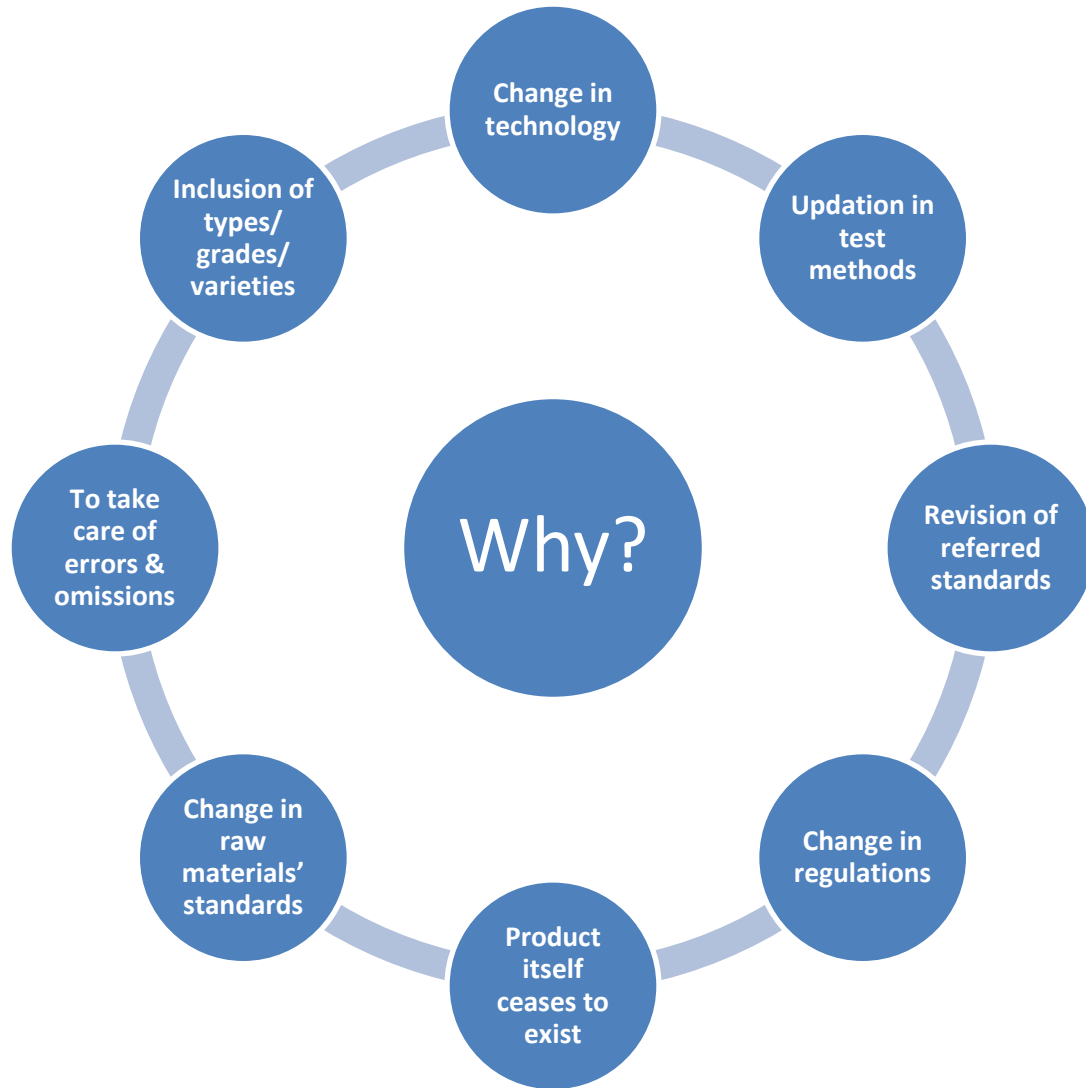
## 16 No. DIVISIONAL COUNCILS OF BIS

- AYUSH
- CIVIL ENGINEERING
- CHEMICAL
- ELECTROTECHNICAL
- FOOD & AGRICULTURE
- ELECTRONICS & INFORMATION TECHNOLOGY
- MECHANICAL ENGINEERING
- MANAGEMENT SYSTEMS
- METALLURGICAL ENGINEERING
- MEDICAL EQUIPMENT & HOSPITAL PLANNING
- PETROLEUM, COAL & RELATED PRODUCTS
- PRODUCTION & GENERAL ENGINEERING
- SERVICE SECTOR
- TRANSPORT ENGINEERING
- TEXTILES
- WATER RESOURCES

# Standards Development Process



## Review of Indian Standards through action research based approach



### Frequency of reviewing

- **Before completion of 5 years**
  - based on technological updations,
  - change in international scenario,
  - comments received from stakeholders on standards,
  - change in regulations, etc.
- **Periodical review: once in 5 years**

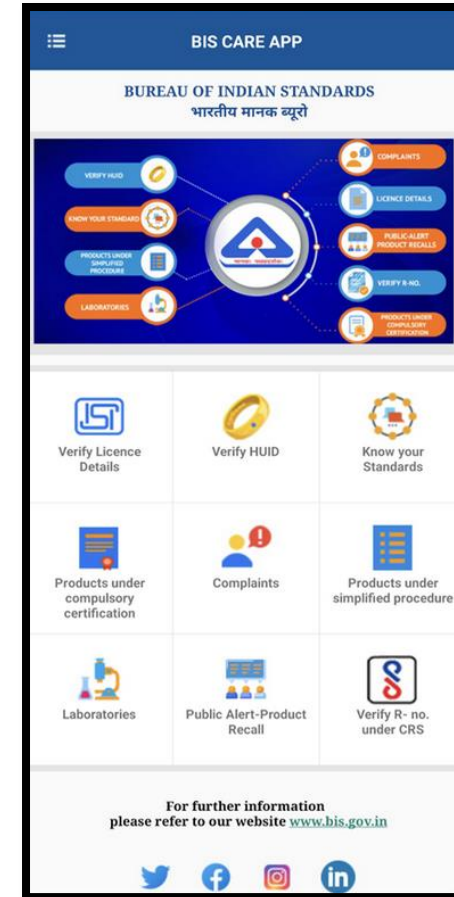
**Note:-** Standards published by Electronics & Information Technology Division Council are reviewed at a period not more than 3 years.

# Digital Platforms of BIS

1. **BIS website** : [www.bis.gov.in](http://www.bis.gov.in)
2. **eBIS** : <https://www.manakonline.in>
3. **BIS Care App** : <https://play.google.com/store/apps/details?id=com.bis.bisapp>
4. **Facebook** : <https://www.facebook.com/IndianStandards/>
5. **Instagram** : <https://www.instagram.com/indianstandards/>
6. **You Tube** : <http://bit.ly/BISYouTubeOfficial>
7. **LinkedIn** : <http://bit.ly/BISLinkedInOfficial>
8. **Twitter** : <http://bit.ly/BISTwitterOfficial>
9. **Indian Standards** : <https://standardsbis.bsbedge.com>



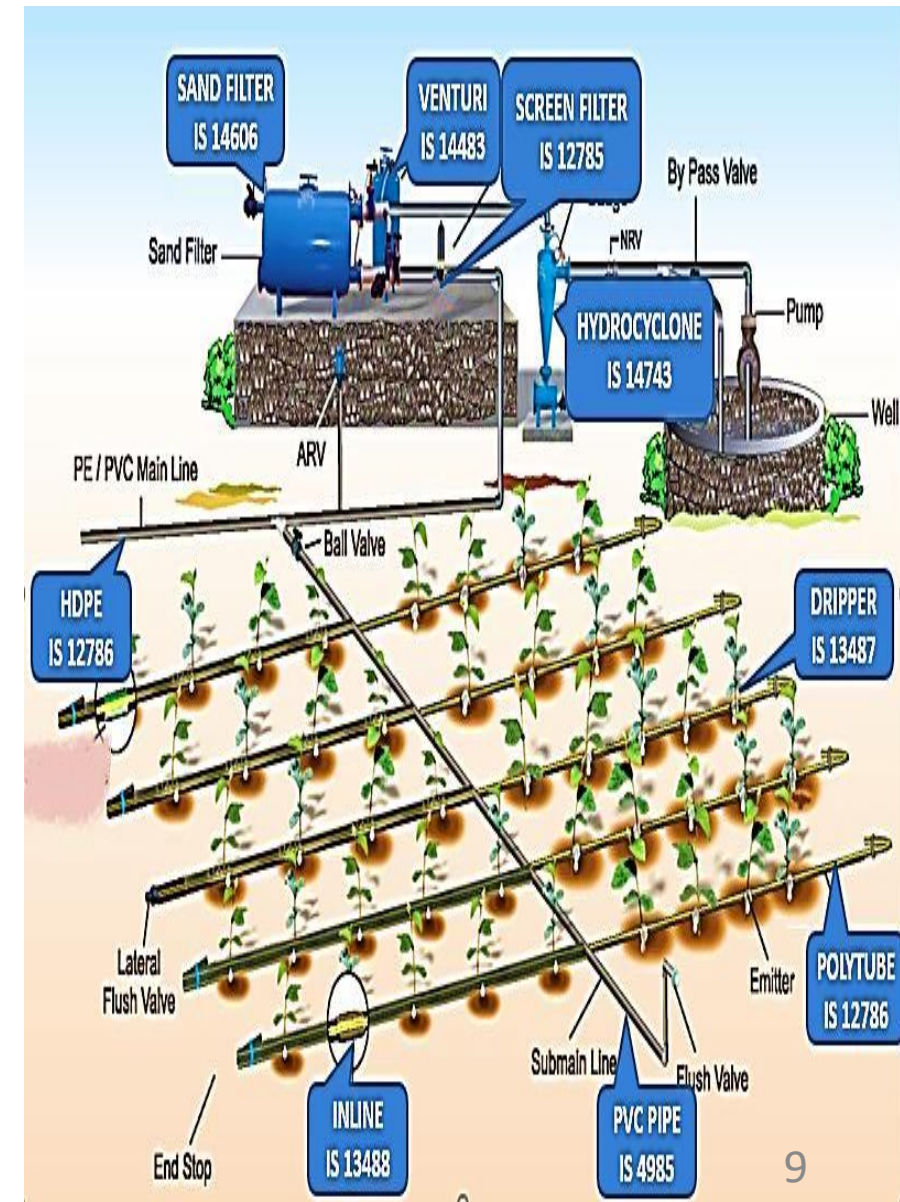
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BIS CARE APP





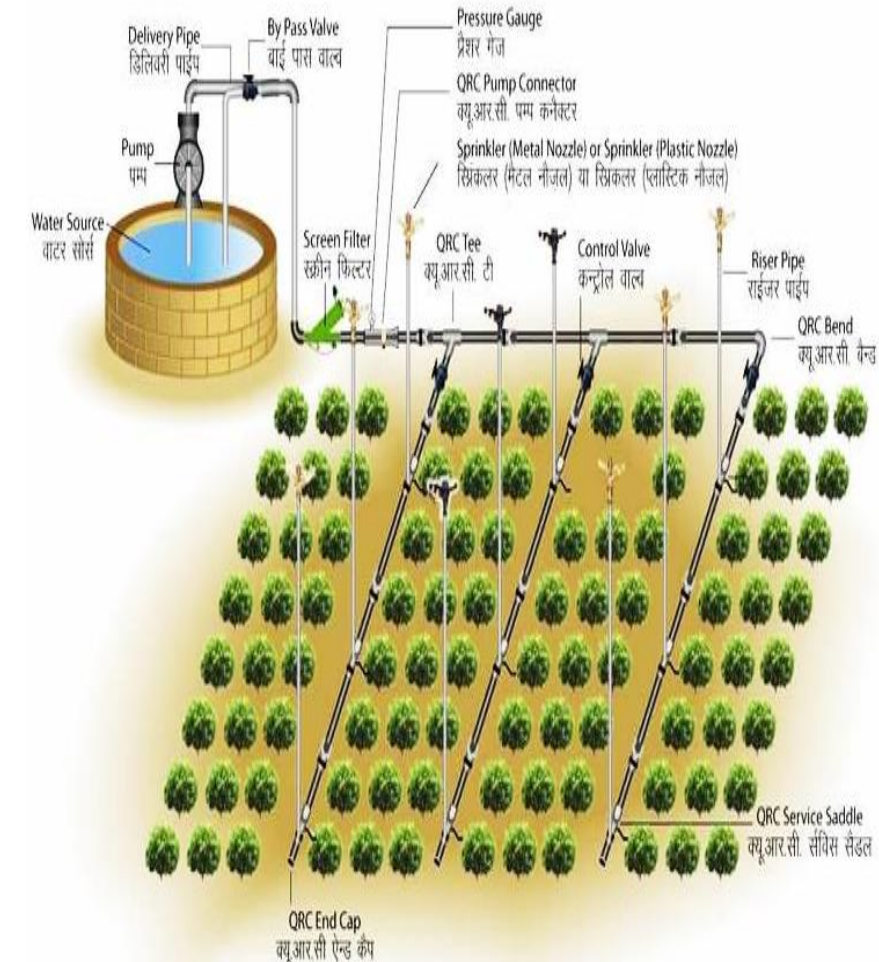
# Drip Irrigation System

- **Drip irrigation:** Dripping water onto the soil at very low rates (2-20 litres/hour) from a system of small diameter plastic pipes fitted with outlets called emitters or drippers.
  - Sub-surface drip irrigation: Water is applied below the soil surface
  - Surface drip irrigation: Water is applied directly to the soil surface
- **Indian Standards for Pipes:**
  - [IS 12786:1989](#) - Irrigation Equipment - Polyethylene Pipes for Irrigation Laterals
  - [IS 13488:2008](#) - Irrigation Equipment - Emitting Pipe systems
- **Indian Standards for Emitter:**
  - [IS 13487:1992](#) – Irrigation Equipment - Emitters
- **Indian Standards for Filters:**
  - [IS 12785:1994](#) – Irrigation Equipment – Strainer type filters
  - [IS 14743:1999](#) – Irrigation Equipment – Hydrocyclone filters
  - [IS 14606:2022](#) – Irrigation Equipment – Media filters
- **Indian Standards for Prevention & Treatment:**
  - [IS 14791:2000](#) – Prevention & treatment of blockage problem in drip irrigation system



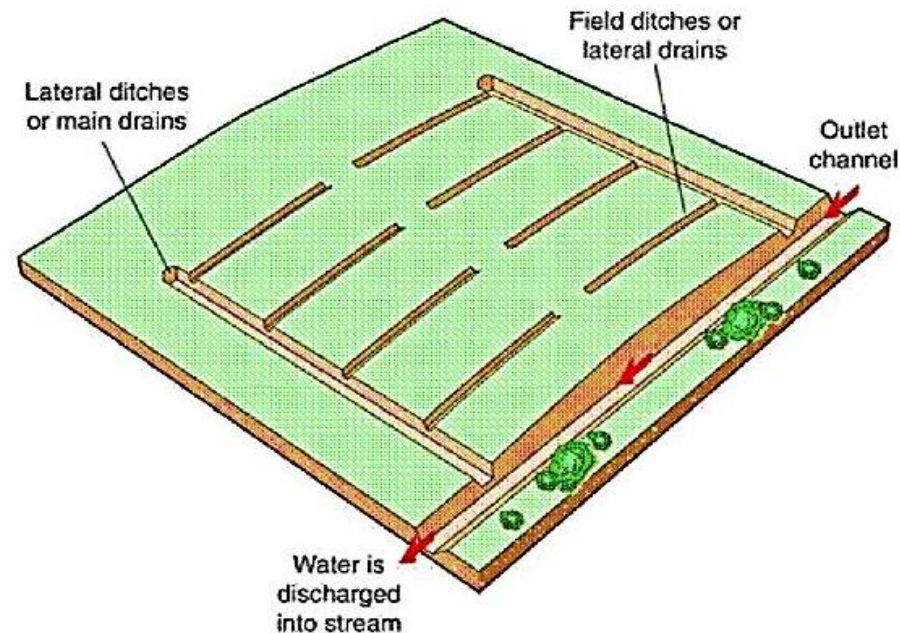
# Sprinkler Irrigation System

- **Sprinkler/spray irrigation** is the method of applying water similar to rainfall. The water is distributed through a network that may consist of pumps, valves, pipes, and sprinklers.
- ❑ **Indian Standards for Chemical Injection System:**
  - [IS 14483:1997 \(Part 1\)](#) – Fertilizer and chemical injection system – Venturi Injector
  - [IS 14483:2002 \(Part 2\)](#) - Fertilizer and chemical injection system – Water driven chemical injector pump
  - [IS 14483:2018 \(Part 3\)](#) - Fertilizer and chemical injection system – Fertilizer tank
- ❑ **Indian Standards for Pipes:**
  - [IS 17425:2020](#) – Irrigation Equipment – Quick coupled polyethylene pipes and fittings for sprinkler irrigation systems - specifications
- ❑ **Indian Standards for Sprinklers:**
  - IS 12232:1996 (Part 1) – Irrigation Equipment – Rotating Sprinklers – Design & operational requirements
  - [IS 12232:1995 \(Part 2\)](#) – Irrigation Equipment – Rotating Sprinklers – Test method for uniformity of distribution
- ❑ **Indian Standards for Design & Installation:**
  - [IS 14792:2000](#) – Irrigation Equipment - Design, Installation and Operation of Sprinkler Irrigation Systems



# Agricultural Drainage, Soil Properties & Water Quality

1. [IS 11495:1986](#) - Code for design of surface farm drainage system
2. [IS 11494:1986](#) - Code for construction and maintenance of surface farm drainage systems
3. [IS 10907:1984](#) - Code for design of farm drainage tile or pipe system
4. [IS 11538:1986](#) - Code of practice for design and installation of farm drainage pumping plant
5. [IS 11624:2019](#) - Quality of Irrigation Water - Guidelines
6. [IS 10317:1982](#) - Guide for evaluation of soil properties relevant to irrigation



# Water Resources Department (WRD) of BIS

## ▪ **Scope of WRD**

- Standardization in the field of water resources development and management.
- Utilization of water resources for all uses.
- Making the availability of raw water for treatment and distribution.
- All facets of technology and engineering covering entire hydrologic cycle.
- Planning and design of hydroelectric development and powerhouse structures but may not include generation, transmission and distribution equipment.

## ▪ **Broad categorization of WRD sphere**

- Surface water resources
- Ground water resources
- River training works
- Management of water resources

# Sectional Committees (SC) in WRD BIS

1	WRD 1	<b>Hydrometry Sectional Committee</b>
2	WRD 3	Ground Water and Related Investigations Sectional Committee
3	WRD 5	Geological Investigation and Subsurface Exploration Sectional Committee
4	WRD 6	Water Resources Planning, Management and Evaluation Sectional Committee
5	WRD 8	Foundation and Foundation Treatment Sectional Committee
6	WRD 9	Dams and Spillways Sectional Committee
7	WRD 10	Reservoirs and Lakes Sectional Committee
8	WRD 12	Hydraulic Gates And Valves Sectional Committee
9	WRD 13	<b>Canals And Cross Drainage Works Sectional Committee</b>
10	WRD 14	Water Conductor Systems Sectional Committee
11	WRD 15	Hydroelectric Power House Structures Sectional Committee
12	WRD 16	Hydraulic Structures Instrumentation Sectional Committee
13	WRD 21	Safety In Construction, Operation And Maintenance of River Valley Projects Sectional Committee
14	WRD 22	<b>Flood Management, Erosion Management and Diversion Works Sectional Committee</b>
15	WRD 23	Measurement And Cost Analysis Of Works For river Valley Projects Sectional Committee
16	WRD 24	Environmental Assessment And Management of Water Resources Projects Sectional Committee
17	WRD 28	Coastal Zone Water Management Sectional Committee

# Indian Standards by WRD BIS

## □ Indian Standards on Hydrometry:

1. [IS 4986:2002](#) – Installation of Rain gauge (Non-Recording Type) and Measurement of Rain - Code of Practice
2. [IS 4987:1994](#) – Recommendations for establishing network of rain gauge stations
3. [IS 8389:2003](#) – Installation and Use of Rain gauges, Recording - Code of Practice
4. [IS 9116:2002](#) – Water Stage Recorder (Float Type)
5. [IS 15118:2014](#) – Water Level Measuring Devices
6. [IS 15772:2014](#) – Field Measurement of Discharge in Large Rivers and Rivers in Flood

## □ Indian Standards on Flood Sector (River Training Works):

1. [IS 13739:1993](#) – Guidelines For Estimation Of Flood Damages
2. [IS 4410:Part 11: Sec 5:1997](#) – Glossary of terms relating to river valley projects: Part 11 Hydrology Section 5 Floods
3. [IS 4410:Part 12: 1993](#) – Glossary of terms relating to river valley projects: Part 12 Diversion works
4. [IS 4410:Part 21: 1987](#) – Glossary of terms relating to river valley projects: Part 21 Flood control
5. [IS 4410:Part 22: 1994](#) – Glossary of terms relating to river valley projects: Part 22 Barrages & weirs
6. [IS 4410:Part 3: 1988](#) – Glossary of terms relating to river valley projects: Part 3 River and river training
7. [IS 7349: 2012](#) – Barrages and weirs - Operation and maintenance – Guidelines
8. [IS 7720: 1991](#) – Criteria for Investigation, Planning and Layout for Barrages and Weirs
9. [IS 8408: 1994](#) – Planning and design of groynes in alluvial river – Guidelines
10. [IS 14262: 1995](#) – Planning and design of revetments – Guidelines

□ **Indian Standards for Canals:**

1. [IS 3872:2002](#) – Lining of canals with Burnt Clay Tiles
2. [IS 7113:2003](#) – Soil-Cement lining for canals
3. [IS 6531:2021](#) – Canal head regulators criteria for design Second Revision
4. [IS 9447:2023](#) – Assessment of Seepage Losses from Canals by Analytical Methods-Guidelines
5. [IS 4701:1982](#) – Code of practice for earthwork on canals
6. [IS 3872:2002](#) – Lining of Canals with Burnt Clay Tiles - Code of Practice
7. [IS 3873:1993](#) – Laying cement concrete/stone slab lining on canals - Code of practice
8. [IS 4515:2002](#) – Stone Pitched Lining for Canals - Code of Practice
9. [IS 4558:1995](#) – Under-drainage of lined canals - Code of practice
10. [IS 9698:1995](#) – Lining of Canals with Polyethylene Film - Code of Practice
11. [IS 10646:1991](#) – Canal linings - Cement concrete tiles
12. [IS 3917:2003](#) – Scoop Type Bed Material Samplers
13. [IS 4410:Part 1:1991](#) – Glossary of terms relating to river valley projects: Part 1 Irrigation practice
14. [IS 4410:Part 15: Sec 1: 2023](#) – Glossary of Terms Relating to River Valley Projects - Part 15 Canal Structures-Section 1 General Terms
15. [IS 4410:Part 15: Sec 2: 2023](#) – Glossary of Terms Relating to River Valley Projects - Part 15 Canal Structures-Section 2 Transitions
16. [IS 4410:Part 15: Sec 3: 1977](#) – Glossary of Terms Relating to River Valley Projects - Part XV: Canal Structures-Section 3 Flumes
17. [IS 4410:Part 15: Sec 4: 1977](#) – Glossary of Terms Relating to River Valley Projects - Part 15: Canal Structures-Section 4 Regulating Works
18. [IS 4410:Part 15: Sec 5: 2023](#) – Glossary of Terms Relating to River Valley Projects - Part 15 Canal Structures-Section 5 Cross-Drainage Works
19. [IS 4410:Part 5: 2023](#) – Glossary of Terms Relating to River Valley Projects - Part 5 Canals
20. [IS 4410:Part 17: 1977](#) – Glossary of terms relating to river valley projects: Part 17 Water requirements of crops

# Emerging areas for standardization

1. Silt control and silt removal techniques
2. Piped irrigation network
3. Cost effective dams construction
4. Flood forecasting
5. Unconventional measures for groundwater harvesting
6. Performance monitoring of hydraulic structures
7. Mathematical modelling of groundwater
8. Aquifer mapping
9. Sediment control in canals and rivers



**Thank You**