BUREAU OF INDIAN STANDARDS
(WATER RESOURCES DEPARTMENT)
AGENDA

Environmental Assessment and Management of Water Resources Projects Sectional Committee, WRD 24			**19th Meeting**
Day and Date	**Time**	**Venue (Virtual Meeting)**	**Contact details**
Tuesday, 16 April 2024	**10:30 A.M.**	Meeting Link: https://bismanak.webex.com/bismanak/j.php?MTID=m3142ac70fb707fdecf1aa70371d995e0	**wrd@bis.gov.in**
CHAIRPERSON: **SHRI RISHI SRIVASTAVA, CHIEF ENGINEER (EMO), CWC**		**MEMBER SECRETARY:** **VAIBHAV JINDAL, ASSISTANT DIRECTOR, BIS**	

ITEM 0 WELCOME AND INTRODUCTORY REMARKS

ITEM 1 CONFIRMATION OF THE MINUTES OF THE PREVIOUS MEETING

The 18th meeting of WRD 24 was held on 4 August 2023 and the minutes duly approved by the Chairperson were circulated vide BIS email dated 17 August 2023. No comments have been received.

The Committee may CONFIRM the minutes as circulated.

ITEM 2 COMPOSITION OF THE SECTIONAL COMMITTEE

2.1 The present composition and attendance of the last three meetings of the Committee is given at ANNEX-A.

The Committee may NOTE.

2.2 The following are the fresh/New nominations received from the member organizations.

S.no	**Organization**	**Name**
1.	Central Ground Water Board, Faridabad	Shri A. Asokan, Member CGWB Shri G. Praveen Kumar, Scientist-D (Alternate)
2.	National Institute of Hydrology, Roorkee	Dr Pradeep Kumar, Sc. 'E' Dr Rajesh Singh Scientist 'E' (Alternate)

3.	Ministry of Environment Forest and Climate Change, New Delhi	Shri Munna Kumar Shah, Scientist E Dr. Saurabh Upadhyay, Scientist C (Alternate)

The Committee may NOTE.

2.3 The following are the nominations received from the member organizations for Co-option.

S.no	Organization	Name
1	DMR Hydroengineering &Infrastructures Limited	Shri K.K Gupta, Senior Vice President & Head Civil Shri B.B.N. Subudhi, Lead manager Civil (Alternate)

The Committee may CONSIDER and DECIDE.

ITEM 3 SCOPE AND PROGRAMME OF WORK

3.1 The present scope and programme of work under this Committee is given in ANNEX-B**.**

The Committee may NOTE.

3.2 Review of Published Standards:

All Indian Standards shall be reviewed periodically, at least once in five years by the concerned Sectional Committee. The standards have been formulated by the technical committee and are now to be revalidated as national standards. Members have an obligation to participate in the review exercise. While reviewing a standard, a committee has the following five options available:

i) Reaffirmation: Indicating the continuation of the current standard without change.
ii) Amendment and reaffirmation: Indicating the continuation of the current standard with necessary changes to bring it up to date.
iii) Take up for revision: Involving the routine procedure for a new project and reaffirming for the time being.
iv) Declaration of obsolescence: Indicating by an amendment that the standard is not recommended for use in new equipment but needs to be retained to maintain existing equipment that is expected to have a long working life.
v) Withdrawal: Indicating that the standard is no longer needed.

The following standards are due for review in 2024-25 and the Committee may kindly review the standards:

Sl. No.	IS No.	Title	Reaffirm	Remarks
1.	IS 15845 : 2009	Environment management plan for hydropower/ irrigation /flood control/ multipurpose river valleyprojects	Mar-2019	In the last meeting, the Committee noted that the standard is due for review in April 2024 and that the standard is currently under revision as Doc. No. **WRD 24 (23488)**. The Committee hence decided to reaffirm the standard for the time being and continue the revision of the standard in its current stage.
2.	IS 15442 : 2004	Parameters for environmental impact assessment of water resources projects	Feb-2020	-

The Committee may CONSIDER and DECIDE.

3.3 Standards National Action Plan (2022 – 27)

In the last meeting, the Committee deliberated on subjects listed in SNAP 2022-27 and found the following subject to be relevant to this sectional committee and decided to constitute a working group to work on the identified subject.

1. Environment & Socio-economic Impact due to river training works.

The following members agreed to work on the identified subject:

1. Shri R. K. Khanna, In Personal Capacity
2. Smt. Ranjana Ray Chaudhari, Teri School of Advanced Studies, New Delhi
3. Dr. Deeksha Katyal, Guru Gobind Singh Indraprastha University, Delhi.

Further, the Committee requested the members to send their expression of interest to participate in the Working Group for the preparation of a working draft on '**Environment & Socio-economic Impact Due to River Training Works'.** In this regard, expression of interest from the following member has been received vide email dated 8 Dec 2023.

S.no	Organization	Name
1	Cetus Consulting Solution Services Pvt Ltd	Shri Ajay Pradhan, President & CEO

The Committee may NOTE and DECIDE.

Item 4 DRAFT STANDARDS COMPLETED WIDE-CIRCULATION

4.1 Doc No. WRD 24 (10945), Guidelines for the Preparation of Catchment Area

Treatment Plan

In the last meeting, the Committee decided to circulate the modified document as Wide Circulation Draft for the comments of the stakeholders. The committee also decided to once again request MoEF&CC for the pending input so that the same can be deliberated in this meeting along with the comments received from the stakeholders. In this regard, the document was put in wide circulation on 5 Sep 2023. The document completed its wide circulation on 3 Nov 2023. The comments received on the wide circulated draft are placed in ANNEX-C.

The Committee may NOTE and DECIDE.

4.2 Doc No. WRD 24 (23488) Guidelines for Environmental Impact Assessment and Environmental Management Plan (EIA & EMP) for River Valley and Hydro-Electric Projects

In the last meeting, the Committee decided to circulate the document from Panel as WC-draft after incorporating all the resolved comments. In this regard, the document was put in wide circulation on 5 Sep 2023. The document completed its wide circulation on 3 Nov 2023. The comments received on the WC-draft document are placed in ANNEX-D.

The Committee may NOTE and DECIDE.

Item 5 DRAFT STANDARDS COMPLETED P-DRAFT CIRULATION:

5.1 Doc No. WRD 24 (23493), Recommendations for Remote Sensing and Geographical Information System as Relevant to Environmental Impact Assessment and Environment Management Plan

In the last meeting, The Committee decided to drop the document at its current stage and circulate it as a fresh preliminary draft (P-draft) among the committee members for comments. In this regard, document was dropped from current stage and circulated as a fresh P-draft vide BIS Email dated 5 Sep 2023 among the members for comments. The document completed its P-draft circulation on 4 October 2023. No comment has been received on the P-draft circulated document.

The Committee may NOTE and DECIDE.

5.2 Doc No. WRD 24 (23492), Guidelines for Parameters & Assessment Criteria for Downstream Flow to Maintain Ecological Balance

In the last meeting, The Committee decided to drop the document at its current stage and circulate it as a fresh preliminary draft (P-draft) among the committee members for comments. In this regard, document was dropped from current stage and circulated as a fresh P-draft vide BIS Email dated 5 Sep 2023 among the members for comments. The document completed its P-draft circulation on 4 October 2023. No comment has been received on the P-draft circulated document.

The Committee may NOTE and DECIDE.

ITEM 9 RESEARCH & DEVELOPMENT PROJECTS FOR FORMULATION AND REVIEW OF STANDARDS

9.1 BIS has realized the indispensable role of research and development (R&D) projects in the standardization process. Hence, BIS has started a scheme of awarding R&D projects for standards formulation. The guidelines for the same have been circulated with the agenda.

The Committee may NOTE.

9.2 Dr. Deeksha Katyal vide her email dated 20 Nov 2023 submitted the Terms of References (TOR) for R&D project titled "Developing the standard procedure for evaluation and assessment of microplastics in water" for consideration of the Committee. The TOR was shared with the Committee members vide email dated 21 Nov 2023 for their valuable inputs/comments. No comments have been received from the members. Additionally, it was found that the following documents are currently under development in International Standards Organization (ISO) Technical Committee ISO/TC147 Water Quality:

Sl No.	**Title**	**Scope**	**Current Stage**
1.	Analysis of microplastic in water Part 1: General and sampling for waters with low content of suspended solids including drinking water	This document sets out the general principles for microplastics analytics and provides guidance on the design of sampling programmes and sampling techniques for all aspects of sampling of plastics in waters with low contents of total suspended solids (TSS). Included are waters from various sources, for example drinking water, ground water, precipitation water, surface water and water resulting from water treatment processes.	CD
2.	Analysis of microplastic in water Part 2: Vibrational spectroscopy methods for waters with low content of suspended	This document specifies a method for the qualitative and quantitative analysis of microparticles of plastic or elastomeric materials in water using a microscopy technique coupled with vibrational spectroscopy. The aim is to generate reliable and comparable data on the potential	DIS

	solids including drinking water	presence of microplastics in clean waters with micro-Fourier transform infrared spectroscopy (μFTIR) and micro-Raman spectroscopy. For simplification, the addressed materials will be named "microplastics" in the document. The method allows: • Determination of the size distribution of microplastics (1 μm to 5 000 μm); • Identification of the composition of microplastics by characterizing, the type of polymer (PE, PP, PET, PTFE, PS, PVC, PC, PMMA, elastomers … The method is applicable to: • Ultrapure water in accordance with ISO 3696; • Water intended for human consumption (drinking water); • Bottled water; • Untreated groundwater.	
3.	Analysis of microplastic in water Part 3: Thermo-analytical methods for waters with low content of suspended solids including drinking water	This document sets out key principles for the investigation of microplastics using thermo-analytical methods in water with low content of natural suspended solids. This document gives requirements for the standardisation of methods towards harmonized procedures for determination of microplastics contents.	CD
4.	Water quality — Sampling — Part 27: Guidance on sampling for microplastics in water	This part of ISO 5667 describes the basic methods for sampling suspended microplastics in water (domestic water, freshwater, seawater, treated wastewater, and untreated wastewater), for their subsequent characterization. Suspended particles could also include synthetic or semi-synthetic polymeric materials (such as rubber). This standard does not cover chemical analysis, biological (ecotoxicological) methods or physical methods, nor the pre-treatment or digestion methods intrinsic to such analyses. This document covers general methodologies for grab sampling, sampling using a set of successive	DIS

		filters of different pore sizes (cascade filtration), for water samples with low, medium and high content of suspended solids; and net sampling, using, for example, manta, plankton or neuston nets.	

CHD 36 – Water Quality Sectional Committee of Chemical Department of BIS has liaison with ISO/TC147 and its Subcommittees.

The Committee may NOTE and DECIDE.

ITEM 8 ANY OTHER BUSINESS

8.1 Date and Venue for the Next Meeting.

8.2 The members are also requested to see the pdf attached along with the agenda circulation regarding the process reforms in standardization activity.

ANNEX-A

COMPOSITION OF ENVIRONMENTAL ASSESSMENT AND MANAGEMENT OF WATER RESOURCE PROJECTS SECTIONAL COMMITTEE, WRD 24

SCOPE: *Standardization in the field of environmental assessment, evaluation and management relevant to water resources project*

Sl No.	Name Of The Organization	Represented By	Meetings Attended		
			16th	17th	18th
1	Central Water Commission, New Delhi	Shri Rishi Srivastava, Chief Engineer, Emo - *Chairperson*	Y	Y	Y
2	All India Institute of Medical Sciences, Rishikesh	Dr Surekha Kishore	–	X	X
3	Central Board of Irrigation & Power, New Delhi	Dr K. K. Singh, Director Shri Sunil Sharma, Chief Manager (Alternate)	Y	X	Y
4	Central Electricity Authority, New Delhi	Shri Rajeev Varshney, Director Shri Ashish Kumar Lohiya, Deputy Director	X	X	Y
5	Central Ground Water Board, Faridabad	Shri A. Asokan, Member CGWB Shri G. Praveen Kumar, Scientist-D	X	Y	Y
6	Central Pollution Control Board, New Delhi	Shri Vishal Gandhi, Scientist E Shri P. K. Mishra, Scientist- E & Dh-(WQM Division 1)	Y	X	X

7	Central Water Commission, New Delhi	Shri Alok Paul Kalsi, Director (Em) Shri Abhishek Sinha, Director, Basin Planning-1 (Alternate)	X	Y	Y
8	Cetus Consulting Solutions Services Private Limited, New Delhi	Dr Ajay Pradhan Dr Vivek Kumar Singh (Alternate)	Y	X	Y
9	Forest Survey Of India, Dehradun	Shri Shailendra Kumar Singh, Deputy Director Smt. Ekta Singh, Senior Technical Assistant	–	X	X
10	Geological Survey of India, New Delhi	Smt. Neetu Chauhan, Director Shri Dharmendra Kumar, Senior Geologist (Alternate)	X	Y	Y
11	Guru Gobind Singh Indraprastha University, Delhi	Dr Deeksha Katyal (Nomination Awaited)	Y	X	Y
12	Hydro and Renewal Energy Department (IIT Roorkee), Roorkee	Prof. S K Mishra, Prof. Wrdm Prof M. K. Singhal, Associate Professor (Alternate)	Y	X	X
13	ICAR–Central Inland Fisheries Research Institute, Kolkata	Dr B. K. Das, Director	Y	X	X
14	India Water Partnership, New Delhi	Dr Veena Khanduri	Y	Y	Y
15	Indian Space Research Organisation, Bengaluru	Shri S. Bandyopadhyay Scientist - G/ Associate Director	X	X	Y
16	Indian Institute of Technology Roorkee, Roorkee	Prof. Brijesh Kumar, Deptt. of HRED	X	Y	Y
17	Maharashtra Engineering Research Institute, Nashik	Superintending Engineer (Data Collection, Planning and Hydrology) Executive Engineer, Hydrology Project Division (Alternate)	X	X	X

18	Maulana Azad Medical College, New Delhi	Dr Nandini Sharma	Y	Y	Y
19	Ministry of Environment, Forest and Climate Change, New Delhi	Dr S. Kerketta, Director Dr Mohit Saxena, Dy. Director (Alternate)	X	Y	X
20	Mu Gamma Consultants Private Limited, Gurugram	Dr Girija K. Bharat Smt. Avanti Roy Basu (Alternate)	Y	X	Y
21	Narmada Control Authority, Indore	Smt. Usha Dwivedi (Alternate)	X	X	X
22	Narmada Water Resources, Water Supply Department, Gandhinagar	Shri N. R. Makwana, Joint Director (Irrigation) Shri V.R.Rathwa, Research Officer (I/C) (Alternate)	X	X	Y
23	National Institute of Hydrology, Roorkee	Dr Pradeep Kumar, Sc. 'E' Dr. Rajesh Singh Scientist 'E' (Alternate)	X	X	Y
24	National Remote Sensing Centre, Hyderabad	Shri P.V Raju S/E ''G'' Group Director, WRG Dr V. M. Chowdary (Alternate)	Y	X	Y
25	National Water Development Agency, New Delhi	Shri R. K. Jain, Chief Engineer (Hq) Shri S. C. Awasthi, Superintending Engineer (Alternate)	X	Y	X
26	NHPC Limited, Faridabad	Dr. Avinash Kumar, General Manager (Environment) Shri Rajeev Ranjan Prasad, Deputy Gm (Evn) (Alternate) Ms. Shreya, Deputy Manager (Evn) (Alternate)	Y	X	Y
27	North Eastern Regional Institute of Water And Land Management, Tezpur	Dr Amulya Ch. Debnath, Associate Professor Dr Uzzal Mani Hazarika (Alternate)	X	X	X

28	NTPC Limited, New Delhi	Dr Vijay Prakash, Gm (Engg. Service) Dr D. L. Nandeshwar, Dy. Gm (Env. Engg.) (Alternate)	X	X	Y
29	Soil and Land Use Survey of India, Delhi	Smt. Rajni Taneja Shri Ravindra Kulkarni (Alternate)	Y	X	X
30	Teri School of Advanced Studies, New Delhi	Shri Vinay S. P. Sinha, Associate Professor Smt. Ranjana Ray Chaudhari, Lecturer (Associate Professor)	X	Y	Y
31	THDC India Limited, Rishikesh	Dr. D.L. Bhatt, DZGM (Env.) Shri Suraj Agrawal (Alternate Member)	Y	X	X
32	WAPCOS, Gurugram	Dr Aman Sharma Shri A. Stephen Leo (Alternate)	X	X	X
33	In Personal Capacity, New Delhi	Shri Er. R. K. Khanna	Y	X	Y
34	In Personal Capacity	Shri A. K. Tripathi	NR	X	Y

ANNEX-B

Program of Work

SCOPE: *Standardization in the field of environmental assessment, evaluation and management relevant to water resources projects.*

STANDARDS PUBLISHED

Sl. No.	IS No.	Title	Reaffirm	No. of Amds.	Degree of Equivalence
1.	IS 15442 : 2004	Parameters for environmental impact assessment of water resources projects	February, 2020	1	Indigenous
2.	IS 15832 : 2022	Glossary of Technical Terms Related to Environmental		-	Indigenous
3.	IS 15845 : 2009	Environment management plan for hydropower/irrigation/flood control/ multipurpose river valley projects	April, 2019	-	Indigenous
4.	IS 17422 : 2021	Guidelines for assessment of the environmental health impacts of river valley projects		-	Indigenous

STANDARDS UNDER P-draft

Sl. No.	Doc No	TITLE
1	WRD 24 (23492)	Guidelines for Parameters and Assessment criteria for downstream flow to maintain Ecological Balance
2	WRD 24 (23493)	Recommendations For Remote Sensing And Geographical Information System As Relevant To Environmental Impact Assessment And Environment Management Plan

STANDARDS under WC-Draft

Sl. No.	Doc No	TITLE
1	WRD 24 (10945)	Guidelines for the preparation of catchment area treatment plan
2	WRD 24 (23488)	Guidelines For Environmental Impact Assessment And Environmental Management Plan EIA EMP For River Valley And Hydro-Electric Projects

ANNEX-C

Comments on Doc No. WRD 24 (10945), Guidelines for the Preparation of Catchment Area Treatment Plan

1. **Name of The Commentator/Organization**: Dr. S Bandyopadhyay, ISRO

Document No. WRD 24(10945)WC	Title: Guidelines for the Preparation of Catchment Area Treatment Plan

Sl. No. **(1)**	**Name of Organization / Individual** **(2)**	**Clause/ Sub clause / Paragraph / Figure/Table commented** **(3)**	**Type of Comment (General / Technical / Editorial)** **(4)**	**Justification for change** **(5)**	**Proposed Change** **(6)**
		Section 4.4	General	Drainage characteristics may not be a climate factor.	
		Section 6.1	General	Categorization of Engineering, Bioengineering and Biological measures with examples would be helpful for understanding	
		Section 2.0	General	Important aspects of a catchment area treatment plan: • Understanding the catchment area: This includes identifying the different land uses, soil types, and slopes in the catchment, as well as the main sources of erosion. • Prioritizing areas for treatment: This is usually done by identifying the areas that are most at risk of erosion or that	

				have the greatest impact on water resources. • Selecting appropriate treatment measures: There are a variety of CAT measures available, including biological measures (such as afforestation and grassland restoration) and engineering measures (such as check dams and contour terraces). The best treatment measures will vary depending on the specific characteristics of the catchment area. • Monitoring and evaluation: It is important to monitor the effectiveness of the CAT plan and to make adjustments as needed. (to be included appropriately by the author avoiding repetition)
		Section 6.1	General	Some specific treatment measures: • Afforestation and reforestation: Planting trees and shrubs can help to stabilize soil and reduce erosion. • Grassland restoration: Restoring native grasslands can help to improve soil health and reduce runoff. • Check dams: Check dams can slow down water flow and reduce erosion. • Contour terraces: Contour terraces can help to trap sediment and rainwater. • Agroforestry: Agroforestry practices, such as planting trees and shrubs on farmland, can help to improve soil fertility and reduce erosion. • Improved agricultural practices: Practices such as conservation tillage and crop rotation can help to reduce soil erosion and improve water quality. (arranging the sections suitably with point-wise measures would be helpful for the readers)

2. **Comments from Shri Rang Lal Meena, Sr. SSO (HQ) SLUSI, New Delhi**

At point No. 3-Delineation of the catchment area:- The name of the organization is mentioned as All India Soil and Land Use Survey. Please rectify it as Soil and Land Use Survey of India (SLUSI) erstwhile All India Soil and Land Use Survey (AISLUS).

At point no. 4.3 - Soil parameters:- It is informed that Soil and Land Use Survey of India (SLUSI) also classify the soil types of the catchment area at 1:50 K scale & 1:10 K scale on the basis of USDA taxonomic classification. It is requested to include the name of Soil and Land Use Survey of India (SLUSI) along with National Bureau of Soil Survey and Land Use Planning (NBSS&LUP) in point No. 4.3.

3. **Comments from cetus:**

Besides, quantitative analysis, we need qualitative assessments and monitoring.
Here are some

1. Afforestation and Reforestation based on detailed land use planning based on, precipitation, landforms, drainage systems, etc.
2. maintain water quality in the Watershed and sub-watershed as well besides sediment control.
3. CheckStructuress besides Check Dams
4. CAT projects often include initiatives to improve the livelihoods of local communities in the catchment area, which can help reduce their reliance on natural resources from the area and reduce pressure on the ecosystem. This is especially true for indigenous populations.
5. Capacity building of local stakeholders and their engagement very essential to bring awareness of land and water management in the catchment area.

4. **Comments from Shri KK singh CBIP on Cetus comments:**

As pointed out in trailing mail, some provision to be made for capacity building and general awareness of local population and local stake holders in cost estimate and efficacy of treatment needs to be assessed compared to pretreatment.

5. **Comments from Shri KK singh CBIP**

At clause no.7 of monitoring, representative of developer should also be included along with other members who is paying for CAT plan.

ANNEX-D

Comments on Doc No. WRD 24 (23488) Guidelines for Environmental Impact Assessment and Environmental Management Plan (EIA & EMP) for River Valley and Hydro-Electric Projects

Comments from Cetus Consulting Solution Services Pvt Ltd

Though the document is well prepared in standard form. However, I would strongly suggest following at least the IHA protocol with the following;

- **a.** Climate Change Mitigation and Resilience
- **b.** Water quality and Sediment (Sedimentation and their removal plan as well)
- **c.** In cultural aspects, one must include indigenous people
- **d.** Community Health Safety is not covered by SIA

The other important aspects should be considered for Closed Loop and Off the River Reservoirs for PSH (Pump Storage Hydro Power), this is something going to be a huge issue in coming days.