

Terms of Reference for R&D Project

(Hydraulic Structures Instrumentation Sectional Committee, WRD 16, WRD, BIS)

1. Title of the Project: Study of Performance Monitoring and Surveillance of Hydraulic Structures

2. Background:

Hydraulic structures such as dams are pivotal for water management and protection against natural disasters.

Performance monitoring and surveillance are essential to ensure the integrity and safety of these structures, as well as to optimize their operation and maintenance.

There is a need for a comprehensive study to enhance the monitoring techniques and surveillance processes to incorporate the latest technology.

3. Objective:

3.1 To evaluate current practices and technologies in performance monitoring and surveillance of hydraulic structures.

3.2 To identify and assess new technologies and methods that can improve the accuracy and efficiency of these monitoring systems.

3.3 To provide a foundation for the development of Indian standards that will govern the monitoring and surveillance of hydraulic structures.

4. Scope:

4.1 Examination of existing literature on current monitoring technologies and surveillance practices used in hydraulic structures.

4.2 Field studies to observe existing surveillance systems to evaluate their performance and identify potential improvements.

4.3 Engagement with technology providers, engineers, and operators to explore solutions and industry challenges in monitoring of hydraulic structures.

4.4 Development of a guiding document that outlines the recommended practices for performance monitoring and surveillance.

5. Research Methodology (In accordance with Item 4):

5.1 **Comprehensive Literature Review:** Examination of current literature on surveillance and monitoring technologies for hydraulic structures including national and international standards and regulations.

5.2 **Data Collection:** Gather data relevant to the monitoring and surveillance of hydraulic structures.

5.3 **Project Site Visits:** Visit at least 4 dam sites to gather insights on the performance, efficiency and issues faced with monitoring and surveillance of various hydraulic structures.

5.4 **Stakeholder Engagement:** Contact and engage with users, and other stakeholders such as Regulatory bodies, R&D Institutions, and experts in the field of hydraulic structures through seminars or webinars for comprehensive information gathering and feedback through a structured questionnaire.

5.5 **Reporting and Documentation:** Compiling the findings, analysis, and recommendations into a comprehensive report.

6. Deliverables (In accordance with Item 4):

A comprehensive final report enclosing the following:

- **Comprehensive Study Report:** A detailed report encompassing all research findings, including reviews of existing literature, guidelines, and standards.
- **Analysis of Stakeholder Engagement:** Insights gathered from field visits and interactions with users, regulators, and other stakeholders.
- **Comparative Analysis:** A comparative study of various Hydraulic Structures Monitoring Technologies and applications, highlighting best practices.

7. Timeline and Method of Progress Review:

(Timeline is from the date of the award of the project)

S. No.	Stage	Timeline (Cumulative)
1	Report on Literature Review	60 Days
2	Stakeholder Engagement and visit to manufacturer and project sites	120 Days
3	First Draft	135 Days
4	Final Draft along-with report	150 Days

Interim review shall be carried out every 45 days.

8. Support from BIS:

BIS will provide access to the latest editions of Indian and International standards for the project.

9. Member Secretary & Sectional Committee:

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