

## INTRODUCTION

**Central Water Commission (CWC)**, a premier technical organization of India in the field of Water Resources has established Central Dam Safety Organisation (CDSO). CDSO provides technical and managerial assistance to dam owners and State Dam Safety Organisations for proper surveillance, inspection, operation and maintenance of all dams and appurtenant works in India to ensure safe functioning of dams and protecting human life, property and the environment. CDSO is also coordinating and supervising the Dam Rehabilitation and Improvement Project (DRIP) assisted by World Bank (estimated to cost Rs. 2100 crore) targeting rehabilitation and improvement of about 250 dams in seven states - namely: Karnataka, Kerala, Madhya Pradesh, Odisha, Tamil Nadu, Jharkhand and Uttarakhand. The project will also promote new technologies and improve institutional capacities for dam safety evaluation and implementation at the Central and State levels and in some identified premier academic and research institutes of the country.

**Karnataka Water Resources Department (WRD)** is engaged in planning and investigation, design, construction and maintenance of major and medium irrigation projects of Karnataka. Karnataka WRD consists of three major corporations; Krishna Bhagya Jala Nigam Limited (KBJNL), Karnataka Neeravari Nigam Limited (KNNL) and Cauvery Neeravari Nigam Limited (CNNL). These three corporations act as Special Purpose Vehicles for speedy implementation of irrigation projects. Karnataka WRD is a participant under DRIP with 27 large dams under rehabilitation.

**The Indian Institute of Science (IISc)**, Bengaluru, founded in 1909, is one of the premier institutes in India. Department of Civil Engineering in IISc focuses on advanced research and education in the broad areas of Geotechnical, Structural, Transportation and Water Resources & Environmental Engineering. IISc, Bengaluru is one of the premier academic and research institutes identified for capacity building in dam safety areas under DRIP.

Karnataka WRD and IISc are collaborating with CWC in organizing the Second National Dam Safety Conference during 12-13 January 2016 in Bengaluru.

## ABOUT THE CONFERENCE

National Dam Safety Conferences have been conceived as part of dam safety institutional capacity building, to be organized in different States as an yearly event. These Conferences propagate the concepts, techniques, instruments, materials, etc. for design and construction of new dams, as well as for monitoring, surveillance, operation, maintenance and rehabilitation of existing dams.

First National Dam Safety Conference organized in Chennai jointly by CWC, Tamil Nadu Water Resources Department (TNWRD) and Indian Institute of Technology Madras (IITM) received overwhelming response and generated great interest among dam professionals associated with various aspects of dam design, construction, operation and maintenance. Continuing with the thrust so generated, the second National Dam Safety Conference is planned to be held in the garden city, Bengaluru, focusing on key issues of dam safety that have been highlighted in the course of DRIP implementation.

Six Technical Sessions (TS) are planed during the Conference wherein technical papers and case studies are invited from engineers, hydrologists, geologists, dam owners / operators, industry representatives, academic & research institutes and other stakeholders.

## CONFERENCE THEMES

The themes for the Technical sessions are as under:

### TS 1: Design Flood Estimation and Methodology for Ensuring Hydrological & Hydraulic Safety of Dams

The theme will focus on estimation of flood and flood handling measures for new and existing dams and cover:

- State-of-the-art approach for design flood estimation;
- Spillway design;
- Performance of spillways and energy dissipation arrangements and remedial measures;
- Spillway capacity enhancement; and
- Case studies related to design floods and spillway designs.

### TS 2: Extent and Methodology for Site Investigations for the health and Safety of Dams

The theme will address challenges of dam site investigations before taking up new dam construction as well for unraveling site conditions of existing dams; it covers:

- Extent of investigations and state-of-the-art techniques for ascertaining geological and geotechnical uncertainties in dam- foundation system;
- Investigations relating to seismic safety of dams;
- Underwater dam investigations and bathometric survey of reservoirs;
- Laboratory and in-situ tests for site characterization, dam material properties, and environmental conditions;
- Investigations for health assessment of existing dams; and
- Case studies relating to challenges encountered in foundation and dam body investigations.

### TS 3: Planning and Design Considerations for Safe Dams

Faulty planning and poor designs have often been the cause of dam failures during their first fillings, besides being responsible for under utilization of dam capacities in some cases. With this realization, the theme covers:

- Dam planning and optimization;
- State-of-the-art approach for dam design towards hydraulic, structural and seismic safety;
- Numerical modelling tools for dam analysis and design;
- Use of new materials and technologies for enhanced dam performance and safety; and
- Case studies highlighting challenges encountered in planning and design of dam structures.

### TS 4: Challenges in Dam Health Monitoring and Mitigation of Dam Health Issues

With about 80% of India's large dams having crossed the age of 25 years, the monitoring of dam health and mitigation of their distress conditions have assumed paramount importance. The task ahead is highly challenging in view of absence of pertinent design records and drawings, inadequacy of performing dam instruments and instrumentation data, and shortage of experienced manpower for dam inspections. Accordingly, the theme covers:

- Needs of perpetual surveillance & institutional mechanism for dam health monitoring;
- State-of-the-art instrumentation, especially in existing dams deprived of performing instruments;
- Integration of health monitoring data, centralized archiving, ease of retrieval, and tools for analysis;
- Case studies highlighting emerging issues and challenges of dam health monitoring; and
- Case studies of extreme distress conditions and approaches for their mitigation.

### TS 5: Innovations and Integration of Technologies for Dam Safety

Over last few decades, the pace of innovations and technology has significantly impacted many sectors of development. However, water resources sector in general and dam building in particular, have gained very little from these advancements. There is immense potential in leveraging from the current day technologies; and towards this intent, the theme covers:

- Integration of communication technologies for dam health monitoring, advance warning systems and emergency actions;
- Use of corrosion resistance material for gate structures, use of advanced technologies for operation of crest and sluice gates, integration with SCADA for remote operations;
- Integration of robotics, UAVs, and imaging technologies for aerial, surface, sub-surface and underwater investigation of dams and appurtenant structures; and
- Case studies of implementation of new technologies – Challenges and results achieved.

### TS 6: QC & QA in Dam Construction and Rehabilitation

Despite use of better design practices and construction technologies, the newer dams are often found to have suffered on account of nonconformance with design specifications; and this scenario is in no way better for dam rehabilitation works. Emphasizing the importance of quality control and quality assurance in dam works, the theme covers:

- Importance of quality plans right from the tender preparation stage;
- Supervisory controls at different levels towards QC & QA, and actions for bridging the gaps;
- Benefits of quality management systems at institutional level for improved dam safety;
- Drawbacks of prevalent practices oriented towards fault finding rather than fault prevention and the need for system oriented approach for QC & QA; and
- Needs of QC & QA training at operative levels for effective and transparent implementation



## REGISTRATION OF PARTICIPANTS

Dam owners, dam planners, dam operators and dam safety professionals as also contractors, suppliers and consultants involved in dam design, construction, instrumentation and inspection of dams are invited to participate in the National Conference. They may register online by visiting our website: [www.damsafety.in](http://www.damsafety.in).

There is no participation fee for attending the Conference. Participants are required to make their own arrangements for their stay, transportation and other incidentals; the organizers will be able to assist in finding suitable accommodation on specific requests. Efforts are being made to provide limited accommodation to official delegates of DRIP and State Agencies. The participation in the Conference is by invitation and all the registrations for participation may not get accepted; therefore, it is advised to await confirmation of acceptance of registration before making travel and other arrangements.

## PAPERS FOR PRESENTATION

The papers relating to the topics of the Technical Sessions are invited from professionals who are associated with design, construction, operation and maintenance of dams or suppliers of equipment and instrumentation for dams; interested participants may indicate their intention to present the paper while uploading the registration form. Guidelines for the authors presenting the papers are available on our website; technical papers not adhering to the Guidelines are likely to be rejected. Authors are requested to upload their papers on our website and not to submit the papers in any other form like CD ROMs, email communications, hardcopies, etc.

It is planned to publish the accepted technical papers as a compendium after the Conference, besides, CWC / CDSO reserves the right to publish the Papers in their websites or in any other media. Necessary editing of papers may be carried out to bring about consistency. Therefore consent in this regard, shall be given by the Principal Author while uploading the paper.

Timelines for submission of papers:

- Last date for submission of Full Paper: 30 November 2015;
- Communication of acceptance of the papers and papers selected for oral presentation: 15 December 2015.
- Submission of presentation slides (confined to 15-20) for papers accepted for oral presentation: 31 December 2015

## EXPOSITION

Space will be made available at the venue of the Conference for display / exposition of products, charts, banners, photographs showcasing the latest developments, technologies and solutions in the areas of dam safety. Select exhibitors may also be permitted to make a brief presentation of their products / technologies during the Technical Sessions. Those interested to participate in the exposition may inform their interest indicating the nature of display and the space required, latest by 30 November 2015; requests may be made through our website or by email to the Organizing Secretary. Depending on the availability, the space will be assigned and the details will be confirmed.

## CONFERENCE PROGRAMME

The tentative programme of the conference is as below:

12 January 2016		13 January 2016	
Date & Time	Programme Details	Date & Time	Programme Details
0900 – 0930 h	Registration	0900 – 1030 h	Technical Session 4
0930 – 1100 h	Inaugural Session	1030 – 1100 h	Tea Break
1100 – 1130 h	Tea Break	1100 – 1230 h	Technical Session 5
1130 – 1300 h	Technical Session 1	1230 – 1330 h	Lunch
1300 – 1400 h	Lunch	1330 – 1500 h	Technical Session 6
1400 – 1530 h	Technical Session 2	1500 – 1600 h	Concluding Session
1530 – 1600 h	Tea Break	1600 – 1630 h	High Tea
1600 – 1730 h	Technical Session 3		

Since the registration of the participants for the National Conference is starting at 0900h on 12 January 2016, for the benefit of the outstation participants arriving Bengaluru on the previous day, a sightseeing tour is planned on 11 January afternoon. Those interested to take part in the sightseeing tour are requested to intimate their desire while registering online at our website.

*For any information, please contact*

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### Second National Dam Safety Conference

12-13 January 2016 , Bengaluru

Organized by CWC, Karnataka WRD and IISc

Website: [www.damsafety.in](http://www.damsafety.in)



## Second National Dam Safety Conference

12-13 January 2016

Venue: JN Tata Auditorium, IISc, Bengaluru



Organized by:



Karnataka Water  
Resources Department



Central Water  
Commission



Indian Institute  
of Science