



ICID•CIID

CERTIFICATE COURSE ON DAM AND NETWORK SAFETY ASSURANCE



Presented by
Industry Stalwarts including

(in alphabetical order of first name)



Mr. Ashwin B Pandya
(Secretary General, ICID and Ex-CWC, Chairman)



Dr. B R K Pillai
(Member, Krishna River Management Board, GOI)



Mr. D K Sharma
(Former Chairman, BBMB)



Mr. Gulshan Raj
(CE, DSO, CWC)



Mr. Hari Dev
(Scientist E and Director, Grievance)



Mr. Manohar Singh
(Ex-CWC, CE)



Mr. Murari Ratnam
(Ex-Director, CSMRS)



Mr. N K Mathur
(Ex-CWC, Member)



Mr. N N Rai
(Director, CWC)



Mr. P Ramaraju
(Engineer-in-Chief, Retd., W.R.D., A.P.)



Mr. Rajesh Pandey
(Director, Dynasoure Concrete Treatment Pvt. Ltd.)



Mr. Ravi Sundaram
(Director, Cengrs Geotechnica Pvt. Ltd.)



Mr. Saibal Gosh
(Chief Engineer, CWC)



Dr. Sam Johnsson
(Member, ICOLD Committee of Dam Monitoring & Surveillance)



Dr. Sanjay Rana
(Chairman, Aqua Foundation)



Mr. S K G Pandit
(Ex-CWC, Member)



Mr. S. Masood Husain
(Ex-CWC, Chairman)



Mr. V Subramanian
(Chief Executive/Director, CARPI INDIA Waterproofing Specialists Pvt. Ltd.)



Mr. V V Arora
(Former Joint Director & Head, CCDR, NCB)



Dr. Yella Reddy
(Dean, Agriculture University & Ex-Director, WALAMTARI)



Mr. Y K Handa
(Ex-CWC, Chief Engineer)

Course Focus:

The course is meant for the professionals directly engaged in the works of maintaining and managing the irrigation and multipurpose projects having headworks in form of storage structures of various sizes and associated water distribution networks for providing water to the beneficiaries. The course aims at improving the skills of the professional entrusted with the responsibility in directly managing the facilities and ensuring their safety as well as reporting the status to the higher level of managements. The works of such nature requires exposure to the basics of the sciences and technologies that go into designing and operationalizing such facilities, deteriorations that can be expected over long years of usage, implications thereof towards continued safety of operators and hazard levels posed to the downstream communities, possible field and laboratory investigations techniques for identification of problems and reporting the observations to the expert personnel in a scientific and lucid manner so that the status at the field level is fully appreciated while planning the remedial measures by them.

The areas of safety assurance in general are very wide and comprise of high degree of expertise and skills extending to the cutting-edge level of technologies and involve a fair amount of in-depth experience in each discipline. However, such level of expertise and skill sets cannot be replicated easily with the growing level of asset base and increasing age of the existing assets. A middle layer is required who is generally aware of the issues that can get generated in such a scenario and how to deal with them as a first line of decision and defense. At the higher levels, such personnel will be the key to the setup to monitor and collate the status of the asset portfolio being managed by an organization or department.

Water management projects especially the irrigation projects are long lasting entities with practically indefinite life. Even if the beneficiary land area changes its character in terms of land use, the utility of the head conservation works and the distribution networks remain or improve as they are required to deliver the water for larger economic good in keeping with development in economy of the area. On the other hand, the tenure of a professional employed for managing the project may be limited in keeping with the shortage of personnel and also the aspirations of the individual towards career progression. Many of the developing countries are facing this problem due to a smaller pool of manpower resources not in keeping with the growth in population of the projects. At any point of time, a change of hands is inevitable with concomitant dangers of gaps in knowledge transfer. Presence of exposure to a course of this nature provides necessary awareness to the incoming professional about the scope and nature of the assignment at hand and also makes the charged professionals aware of standard protocols and procedures involved.

This is a first course in a set of courses of increasing levels of expertise and narrowing of focus for advanced exposure of relevant sub sets of professionals.

The professionals at ICID and Aqua Foundation have witnessed such situations first hand and realize that the skill sets are in need of a wider spread in view of growing importance of an assured delivery of water to the beneficiaries and also a continued assurance of performance worthiness of the components involved.

The Dam Safety Act 2021 has already come into force. The act categorically puts tremendous focus on qualifications, experience and **training of concerned personnel responsible for safety of specified dams**. There is an immediate need of trained dam safety professionals at the field level who are able to coordinate with various expert committees and panels who take up the formulation of remedial measures and also supervise implementation of the same. This course will enable the project authorities to create such a group for better progress in their dam safety related works. Similarly, in India, there is increasing emphasis on demand side management for water resources. In such cases, the status of network capacities for delivering the required volumes will also require assurance. Maintenance of networks will therefore receive increasing importance. In this context, the course will be able to fulfil this gap.

Course Content:

The course content has been designed for fresh and practicing engineers who are involved with the dam operations, surveillance and safety assurance works and dam portfolio managers responsible for setting up dam safety programmes.

Section 1

This section will expose the participants to the following areas:

- Overview of Dam Safety Aspects
- Legislative Provisions of Dam Safety- Existing and Future
- Overview of Basic Design Philosophy of Dam, Defence Measures and Features Provided for Safety
- Preparing and Maintaining Documentation for Dam and Network for Safety Assessment
 - Concrete and Masonry Dams and Canal Network Components
 - Earth and Rockfill Dams and Canal Embankments
 - Pipelines and Control Structures
- Overview of Basic Design Philosophy for Conveyance Networks and Associated Structures- Canals and Pipelines
- Overview of Flood Risks and Handling them in Real Time, Effect of Flood Operations on the Safety and Upkeep of Dams and Networks
- Overview of Seismic Risks and Protocols for Assessment of Safety and Performance Worthiness
- Instrumentation and Structural Behaviour Analysis
- Durability of Concrete Structures
- Behaviour and Performance Observation Programme
- Specialised Materials and Techniques for Repairs and Rehabilitation- Introduction
- Preparing and Carrying Out On-Site Inspection of a Concrete/ Masonry and Earth/ Rock fill Dams
- Hydromechanical Equipment and Dam Safety
- Evaluation of Different Types of Energy Dissipating Arrangements, and Remedial Measures
- Under Water Inspection Techniques
- Use of Hand-Held Mobiles, GPS and Remote Sensing Techniques for Network Status Assessments and Mapping
- Efficiency Measurement of Conveyance Network
- Network Status Assessment Using Mobile Technologies
- Assessment of Emergency Preparedness and Disaster Management Under Normal and Extreme Conditions, Information Communication, Processing and Decision Protocols, Standard Operating Procedures
- Dam Safety Instrumentation Monitoring in Dams and Allied Structures
- Rock Mechanics Investigations for Dams and Reservoir Slope Stability Problems
- Geomembranes for Seepage Control in Dams
- Latest Format being used for Writing Inspection Reports for Dams in India

Section 2

This section will expose participants to the latest investigation techniques in the following areas:

- Geotechnical Investigations of Existing Dams
- Concrete Investigations and Testing
- Geophysical Techniques for
 - Leak Path Detection
 - Internal Erosion
 - Identification of Zone of Water Accumulation
 - Cavity/ Sinkhole
 - Concrete/ Masonry Degradation (Weak Zones)
 - Residual Density Determination
 - Stilling Basin Inspection
- Use of Temperature and Strain Sensing for Dams
- Latest Developments including Optical Fibre Sensors
- Geophysical Investigation Techniques
 - Seismic/ Sonic Tomography
 - Electrical Resistivity Imaging/ Tomography
 - Multi-Channel Analysis of Surface Waves (MASW)

- o Seismic Refraction Tomography
- o Streaming Potential
- o Ground Penetrating Radar

Course Delivery Mechanism:

The course will be delivered through a Learning Management System (LMS), where pre-recorded lectures, videos, presentation, reading material etc. will be uploaded, so that participants can go through these at their own pace, within the time frame of 6 months. Live sessions also will be organized wherein participants can directly interact with experts and raise their queries. Preferred mode of receiving questions would remain through email, enabling development of a comprehensive Q&A.

Fee Structure:

Government Departments, Ministries:	INR 8,500	USD 170	per participant
Private, PSUs, Boards:	INR 14,500	USD 290	per participant
Students, Research Scholars (Full Time):	INR 5,500	USD 110	per participant

GST will be charged extra as applicable (present rate of GST is 18%)

Registration Process:

Registration can be done online using the link www.damsafety.co/register. In case of bulk registrations, please contact ICID/ AF Academy at details provided hereunder:

Online Bank Transfer Details:

Name of the Account holder: AQUA FOUNDATION

Name of the Bank: ICICI Bank Ltd

Address of the Bank: ICICI Bank, 9 A, Phelps Building, Connaught Place, New Delhi- 110001

A/C No.: 000701260885

IFSC Code: ICIC0000007

Swift code: ICICI NBB CTS

About ICID

The International Commission on Irrigation and Drainage (ICID), established in 1950 is a leading scientific, technical, international not-for-profit, non-governmental organization. ICID is a professional network of experts from across the world in the field of irrigation, drainage, and flood management. The main mission is to promote 'Sustainable agriculture water management' to achieve 'Water secure world free of poverty and hunger through sustainable rural development'. For more information visit www.icid-ciid.org

About AF Academy

AF Academy is an entity of Aqua Foundation, registered under Societies act in year 1998. AFA provides training & knowledge sharing platform to decision & policy makers, working professionals, operating level personnel and aspiring students willing to specialize in technical sector. Specialized trainings/ workshops and courses are offered by AFA on subjects like Water, Geophysics and Land Survey. For more information visit www.damsafety.co

Testimonials

Carlo C. Ablan, National Irrigation Administration

“Training helped improve performance management in our workplace. Training gives us framework of how our job duties and tasks should be completed, and, most importantly it centralizes knowledge in the workplace.”

Momir Vranes, Irrigation Australia Limited

“I liked the diversity of topics, course presenters being experienced engineers from the field (not just from Academia), lots of case studies and finally, contemporary techniques and examples. I find it effective and have no improvement suggestions. I find LMS effective. The course is extremely well organized, with experienced presenters. I was particularly thrilled with some contemporary techniques and field examples. I would recommend it to younger engineers as a very good knowledge source, but also to experienced colleagues as an excellent refreshment course with elements of modern and new techniques mixed in.”

Evelina Pabi Putong, National Irrigation Administration Region VII

“I appreciate all the speakers for they are very expert in their topic. Even though we are not present face to face but virtual lectures were also available in some topics. On the topic related to earthquake it was an eye opener for me since we can not predict when it will come but due to the lectures given we can help make lessen the damage of our dams and casualties of the properties and of the people. As we knew that dam provides food, energy and security the importance of dam increases overtime. Disruptions of water is painful to the society and hazard keeps on changing with time. This course really is an eye opener for those who just take for granted even the smallest details during feasibility study, the geophysical techniques for dam safety. For the existing dams preparing and maintaining documentation for dam and network for safety assessment. As Benjamin Franklin once said, “Tell me and I forget, teach me and I may remember, involve me and I learn”.”

Anugeetha B, Irrigation Department, Kerala

“The mentors had practical experience and sharing such information/ experience with photos made the course outstanding. A great course covering almost all aspects of dam and network safety assurance. Well experienced mentors and their practical knowledge sharing makes the course, a remarkable one.”

Ronnie B. Tabaosares, National Irrigation Administration

“For me introduction to the Learning Management System was additional learning about innovation and how the delivery of lectures can be so effectively carried out and we can learn so smoothly. Good job.... The Dam safety course gave me chance to enhance my knowledge about the hydro mechanical operation and maintenance and proper checking before using.”

Julia Qoto, Department of Irrigation Malawi

“The material covered is relevant to my work. The LMS is quite convenient and easy to use. This is a great course. It helped me acquire very relevant skills and advanced my knowledge about dams and their safety. It was timely because it came at a time when the department that I'm working under in my country Malawi is in the course of developing dam based irrigation systems under the IFAD funded Program for Rural Irrigation development. I happen to be the district Engineer in one of the districts involved in this project and the project is intending to construct a Rock fill dam that will aid in storing water to command a total irrigation area of 500 hectares through lined open channels. I believe that what I have learned from the course will be applicable to my work, not only to the project at hand but other projects as well. I highly recommend this course for water resources engineers, irrigation engineers, environmental engineers and scientists and all other relevant staff in this field.”

Jeric Codinera, San Roque Power Corporation

“I like all the course outline and it is very informative. LMS is a very good platform. The training course is well organized and provides wide range of information from new technologies, from their (faculty) experiences on dam safety management and lessons learned on the past. The course will improve the professional skills with the entrusted responsibilities in the inspection and monitoring of the dam, and appurtenant civil structures and ensuring their levels of safety.”

Joydweep Bor Deori, NEEPCO Ltd

“The way the lectures were explained and the sequence in which it was organised accordingly. I enjoyed the course and it was very convenient for me to learn through this system – LMS. The course is very beautifully designed. I got an opportunity to learn in depth about Dams. I strongly recommend every professional who are engaged in Dams, Canals, etc. to take up this course, as it can definitely enlighten us in this subject along with clarification of doubts. I enjoyed the course a lot.”

Maria Donesa Añora Autida, National Irrigation Administration Region 7

“It provided me a good background on what I should do or look into to support the Operation and Maintenance of Irrigation Systems in areas I am assigned. Certainly, these provided me a good knowledge and learning materials as well should specific concerns arise in the future. As of now, the knowledge I have gained from the course was very helpful in my study and initiative to improve our Emergency Action Planning and Dam Safety inspection. I am very grateful for the learnings I have gained. Another good thing also is that the course allowed us to do the study on our own convenient time. Thank you very much! I'm glad I had the chance to join in the DNSA course. The knowledge I have gained certainly supports my commitment for the continuous improvement of our Irrigation System's Operation and Maintenance. Time spent in the study was invaluable!”

Nishchal Chhatkuli, Department of Water Resources and Irrigation, Nepal

“What I liked about the course is Content, Coverage, Concept, Context, and Resource persons. The LMS approach is very good because we can attend the class at our convenience. This course is very useful for the professionals working on Dam and network construction as well as safety.”

Madtrismulyo, TA-CPIU DOISP2

“The results of the course can be implemented on the job. Yes I like the Learning Management System (LMS) being used to deliver the course, because not bound by strict time. This course is indispensable in providing more knowledge for dam and network safety.”

Beverly Joy Q Pocot, National Irrigation Administration

“Guided by the lecture notes and can be retrieve easily in our vacant time. Active facilitators in the group chat. The LMS is a very good idea. Easy and user friendly...It is a great training. It gives more knowledge, ideas, awareness and education especially to the younger generation. Great experience! So thankful to all!”

Jaising Hire, Water Resources Department Government of Maharashtra

“The course is perfectly designed for dam safety and network. It is very useful to working engineers and project Authority. The Lectures delivered by Dr. Rana sir is very nice and effective. LMS is a nice technique. I recommended to every field engineers, please do not miss the opportunities to complete this course.”

Srilakshmi V Shankar, Karnataka Power Corporation Limited

“The course covered most of the practical issues dealt in day-to-day field work. Also, the open house sessions gave an opportunity to meet experts of various fields and getting clarification for the queries. Dams are assets of the Nation. The health of these assets are of prime importance. The course has helped me in Understanding the asset and performing better as a Dam Owner.”

Aiza Belle D. Tibayan, San Roque Power Corporation

“Additional information acquired for the design, maintenance and operation of dams. It is indeed a fruitful learning experience, although it was held virtual, it has met the objectives for the course.”

Mona Liza Fortunado Delos Reyes, University of the Philippines Los Baños

“I like some of the lectures that are well organized, informative and with very good presentation /delivery. The course offers an excellent introductory learning on dam and network safety, with comprehensive coverage of the fundamentals.”

Raymund N. Mariano, SRPC

“ Learning Management System is very appropriate at these times when travelling is risky. The online course is very useful and the cost is affordable. ”

Rajah P. Corpuz, National Irrigation, Administration - Magat River Integrated Irrigation System - Dam and Reservoir Division (NIA-MARISS-DRD)

“ The Dam Safety course is very significant and related to our operations. The course is very good and I'm excited to apply it in our daily operation. ”

Dipanakr Das, NEEPCO Ltd.

“ What I liked about the DNSA course is that the practical exposure for better visualization of the problems encountered in Operation and Maintenance of Dam and subsequently solving them for safety of Dam. ”

Markandu Mauran, Irrigation Department Sri Lanka

“ The Learning Management System (LMS) is the best way to present the content. ”

Kaushil Mathiya , Central Water Commission

“ The knowledge shared by experienced seniors was quite helpful. ”

Maria Victoria Malenab, National Irrigation Administration

“ The lectures were all explained well. The training materials are very useful. ”

Leena V K, Kerala Irrigation Department

“ All aspects of Irrigation Engineering covered. Basics and advanced techniques well explained. Detailed study materials provided. Good platform. Very informative. ”

Contact Details :



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AF ACADEMY

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