

Training Program on
Dam Break Analysis, Emergency Action Plans & Hazard
Classification for Dams
(13 - 22 July 2026)

NOMINATION FORM

Name (in capitals):

Designation:

Organization:

Responsibilities (in
brief):

Full Postal Address

Tel Nos (with STD Code):

Email:

Mobile

Whether require accommodation? YES / NO

Date: (Signature of the Participant)

SPONSORING AUTHORITY

Full Postal Address

Tel Nos (with STD Code):

Email :

Mobile

Date (Signature and Seal)

Completed Registration Form may be sent by email:

nwa.pune@gmail.com / directordes-nwa@gov.in



Government of India
Ministry of Jal Shakti
Department of Water Resources,
River Development & Ganga Rejuvenation
Central Water Commission



Training Program on
Dam Break Analysis, Emergency Action Plans &
Hazard Classification for Dams
(13 - 22 July 2026)



Organized by National Water Academy, CWC,
Pune

INTRODUCTION AND OBJECTIVE

India ranks third globally in terms of total number of specified dams after USA and China. As per National Register of Specified Dams 2025, there are 6628 total number of specified dams in India out of which 83 specified dams are under construction. In addition, there are huge number of non-specified dams. These dams are vital for ensuring the water security of the Country. Apart from providing innumerable benefits to society, dams also pose risk of potential impact on downstream communities and ecosystems.

Ensuring the safety of dams is of paramount importance to prevent potential hazards and to protect this valuable infrastructure. The **Dam Safety Act 2021** mandates the monitoring, inspection, operation, and maintenance of dams to prevent dam failure-related disasters. The Dam Break Analysis is prerequisite for carrying out various dam safety activities as per various provisions of DSA-2021. Dam Break Analysis is essential for designing effective Emergency Action Plans, mitigating risks, Hazard Classification of dams and ensuring the safety of downstream communities. Chapter VIII of the Dam Safety Act provides for the obligation of the dam owner regarding preparation of Emergency Action Plan (EAP), within 5 years of enactment of the Act for existing dams & before initial filling of the reservoir for under construction dam. Chapter VI of the Dam Safety Act provides for the obligation of the dam owner regarding the vulnerability and hazard classification of specified dams. There is a huge need for capacity building of not only the officials of State, Central Government departments, PSUs but also of the various private institutions, consultants, academia, NGOs etc working in this very important areas of dam safety.

Dam Break Analysis is a critical aspect of hydraulic engineering and risk assessment, aiming to predict the consequences of a sudden release of water from a dam or levee breach. For assessing the flood damage due to dam break, it is necessary to predict not only the possibility and mode of a dam failure, but also the flood hydrograph of discharge from the dam break and the propagation of the flood waves. Sophisticated computer programs have been developed in recent years that can simulate the dam break flood, and route this flood downstream so that inundated areas, flow depths, flow velocities and travel time of flood waves can be estimated.

An Emergency Action Plan (EAP) for dams is a critical document designed to mitigate risks and manage potential emergencies associated with dam operations. A carefully conceived and implemented EAP is one positive step that can take to accomplish dam safety objectives, protect investment, and reduce potential hazard. It outlines specific procedures and protocols to be followed in various scenarios to ensure the safety of downstream communities, infrastructure, and the environment. **A hazard classification** is a rating (e.g., low, significant, or high hazard) that is representative of the probable loss of life and property damage downstream from a dam based on the best available information and visual observation of the dam, and/or an identification of the area downstream that would be inundated. The potential consequences associated with failure, considerable damage, or prolonged disruption of dam facilities could be quite severe and could reach various levels of significance.

The 9 days training course will provide detailed exposure on Dam Break Analysis with Mathematical simulation using computer programming, preparation of Emergency Action Plan & hazard classification of specified dams to equip dam owners, dam engineers, and other professionals with necessary insights of these subjects to fulfill the necessary obligations of DSA-2021 and helps in creating robust dam safety ecosystem in the Country.

PROGRAM CONTENTS

Flood Risk Associated with dams, Type of Failure mechanism, Introduction & Projection systems in GIS, Source of DEM, DEM Resolution, Estimation Manning n and calculation of

Breach Parameters and sensitivity analysis, Introduction to HEC RAS Software and its application, Dam Break Modelling using HEC RAS 2D, Processing of Data in ArcGIS for DBA, Model Setup, Hands on Dam Break Modelling using HEC RAS 2D, Visualization of DBA Results, Model calibration and validation, Generation of Inundation maps for water depth, velocity, arrival time and vulnerability in Arc GIS, Calculation for maximum water depth, Velocity and Arrival time at various locations downstream of dam.

Understanding dam safety and different types of emergencies, Introduction to EAP, its need and importance, Flood risk associated with dams, Flood hazard, vulnerability, and risk assessment, Design flood estimation and Inflow forecasting, Flood routing, Flood inundation mapping using HEC-RAS (Hands-on exercise), Remote sensing and GIS in flood mapping (Hands-on exercise), General procedure for developing an EAP, Components of EAP, Developing different components of EAP, The EAP Five-Step Response Process, Event Detection, Emergency Level Determination, Notification and Communication, Actions to be Taken, Termination and Follow-up, Emergency Detection, Evaluation, and Classification, Case study of EAP of a specific dam.

RESOURCE PERSONS The resource people for the program would be subject experts from NIH Roorkee.

PROGRAM FEE

There is no program **fee for participants from Central and State Government**

Departments. Charges for participants from various categories are as below:

Category	Description	Fee in Rs.(per participant)
A.	Central/State/Local Government Depts. including their autonomous bodies:	Nil
B.	'Not for Profit' Central and State PSUs	Nil
C.	Recognized academic institutions, NGOs	2700/-
D.	Central and State Public Sector Undertakings	18,000/-
E.	Private Companies, individuals	27,000/-

Discounts applicable: (a) 50% for PSUs of MoJS i.e. WAPCOS & NPCC (no group discount); (b) For others – 20% discount for 3-4 participants; 30% discount for 5 or more participants from the same organization.

Payment for the programme fee, if applicable, is to be deposited with NWA before the commencement of the program. Payment is accepted through **Online / Demand Draft without deducting any TDS. DD drawn in favour of PAO-Ministry of Water Resources payable at Pune** or through electronic transfer in the Account details given below:

Account holder name: PAO - Ministry of Water Resources, Account No: 11382328092; IFSC Code: SBIN0001904

DURATION

The 9-days duration program is scheduled for **13-22 July 2026**. The participants are expected to reach NWA by the evening of 12th July 2026 and should plan to leave only after 20:00 Hrs. 22nd July 2026.

VENUE: National Water Academy, CWC, Pune-Sinhagad Road, Khadakwasla, Pune – 411024

TARGET GROUP

This training course is intended to all the stakeholders including Private Organizations/ Research Institutions/ Academia/ Consultants/ NGOs as well as the officers of Central/State Govts/PSUs/ Dam owners involved in the activities of Dam Safety/Dam operation /Dam maintenance etc.

Participants are advised to bring their own laptops so that they can independently complete the hands-on with their data.

HOW TO APPLY

- The authorities of Central Govt./State Govt./PSUs/ Private Organizations /Consultants / Academia etc. are requested to send nominations of their officers/personnel in the Nomination form given in the brochure through email to nwa.pune@gmail.com / directordes-nwa@gov.in. The last date of sending nomination is **06.07.2026**.
- All nominated and interested participants shall register in the Google form given at: <https://forms.gle/qDKaPadYdGyoqnRM8>
- All participants whose nominations are accepted by the NWA, Pune will now be required to register on e-learning platform of NWA i.e. <https://elearning.nwapune.co.in>. After completing the registration & login to the e-learning website of NWA, they are also required to enroll themselves for the program "Dam Break Analysis, Emergency Action Plans & Hazard Classification for Dams" scheduled during 13-22 July 2026. The enrollment key will be shared with the participants after their nomination is confirmed by NWA. The links for various activities of the training program as well as the presentation material will be made available on this platform.
- The nomination of the officers fitting the target profile may be sent to the Program Coordinator latest by **06th July 2026** by email (nwa.pune@gmail.com ; directordes-nwa@gov.in). The nominated officers are requested to start the journey only after confirmation of their accepted nomination. The accepted nominations will be displayed on NWA's website on **07th July 2026** evening.

ACCOMODATION

The trainee officers would be accommodated in NWA hostel on applicable payment basis. Lodging & boarding charges as per government rates (about Rs.275/- per person per day) will have to be borne by the participants. Working Lunch during the training program will be provided by NWA (Participants from CWC will be provided free lodging & boarding facilities). Other participants will have to bear breakfast, evening snacks and dinner charges, as applicable. Airport/ Railway station pickup/drop will also have to be arranged by the trainee officers themselves.

WEATHER

In July, Pune experiences quite comfortable & pleasant weather. The average maximum temperature during the day ranges from 25 to 30 degree Celsius, while the average minimum temperature at night ranges from 16 to 22 degrees Celsius.

CONTACT

For sending nominations or for any information about this program, please contact:

Shri Vivek Kumar Verma, Director & Course Coordinator

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Mobile: # 9140706811

Email: nwa.pune@gmail.com ; directordes-nwa@gov.in