



सत्यमेव जयते

Dam Safety Act, 2021
National Committee
on Dam Safety

Minutes of the
8th Meeting

26th September 2024
10:00 – 11:30 hours
2nd Floor Conference Room
Central Water Commission, New Delhi

Minutes of Meeting

The 8th meeting of National Committee on Dam Safety (NCDS) was held on 26th September 2024, under the chairmanship of Shri Kushvinder Vohra, Chairman, CWC & NCDS. The meeting was held in hybrid mode. The list of participants is attached as **Annexure-I**.

At the outset of the meeting, Chairman, NCDS and CWC welcomed all the participants in the 8th meeting of NCDS. Chairman of the committee informed that the agenda for the meeting is to discuss changes proposed to the Dam Safety Act, 2021 by invoking the powers under the section 56(1) of the Act (Agenda points are appended as **Annexure-II**). Chairman of the committee asked Member Secretary, NCDS to take up the agenda. Accordingly, Shri Shiv Dutta Sharma, Member Secretary, NCDS presented the power-point presentation on the agenda stated above.

8.1 Deliberations & Decisions:

As per agenda item, the detailed deliberations were held on the following four (4) sections of the DSA Act:

i. Section 38 (1) and the provision under it relating to Comprehensive Dam Safety Evaluation.

Gujarat, Chhattisgarh, Madhya Pradesh, Rajasthan, Himachal Pradesh and Uttarakhand requested to increase the timeline for completion of Comprehensive Dam Safety Evaluation to 10 years. Further, Bihar and Andhra Pradesh were of the view that proposed extended period of 8 years is pertinent keeping in view the safety concerns of the dams. However, to address the concern of states with large number of dams, it was unanimously agreed to modify the **timeline of the Comprehensive Dam Safety Evaluation (CDSE) as –"as soon as possible but within 10 years"**.

ii. Section-4 (Definitions).

Proposed modifications were agreed by the committee.

iii. First provision under Section 24 (1) – Jurisdiction of SDSO.

Proposed modifications were agreed by the committee.

iv. Section 36 (1)(b) – Emergency Action Plan.

It was opined that since the EAP is directly related to public safety and is a one of the components of CDSE, an extended timeline of 8 years proposed in the draft modification should be preserved. The committee unanimously agreed to modify the **timeline of the Emergency Action Plan as –"as soon as possible but within 8 years"**.

Agreed modifications vis-à-vis original para of Dam Safety Act 2021 is appended as Annexure-III

8.2 Other items discussed in the meeting:

Keeping in view the recent dam incidents, the Chairman of the committee directed National Dam Safety Authority (NDSA) to fix the life span of different Hydro-Mechanical components of the specified dams and issue necessary directions.

Further, Shri DK Sharma, Chairman, HPERC suggested that the current codes and guidelines related to dam safety may be revisited keeping in view the increased frequency of extreme events and climate change.

The meeting ended with vote of thanks to the Chair.

.....

List of Participants

S.no.	Name	Designation
Chairman NCDS		
1.	Shri Kushvinder Vohra	Chairman CWC & Ex-Officio Secretary to the Govt. of India
Representative of Central Government		
2.	Shri Anil Jain	Chairman, NDSA
3.	Shri Sharvan Kumar	Chief Engineer, CEA, Ministry of Power
4.	Shri Manoj Kumar	SJC(PR), DoWR, RD & GR
5.	Ms. Neetu Chauhan	Director, Geological Survey of India
6.	Shri Swapan Kumar	Scientist D,IMD
7.	Dr. Sweta Baidya	Consultant, NDMA
8.	Shri Abdul Hakeem K	Scientist, NRSC
9.	Shri B.S.Rao	Scientist, NRSC
10.	Shri Vijaya Raghavan	Scientist, NGRI
11.	Ms. Neetu Chauhan	Director, Geological Survey of India
12.	Shri Yogendra Pal Singh,	MOEF&CC
Representative of State Government/agencies		
13.	Shri T. K. Prijith Rekh	Chief Engineer , Andaman PWD
14.	Shri T.A.R Kumar	Chief Engineer, SDSO & Hydrology, Andhra Pradesh
15.	Shri Jayanta Kumar Das	GM(Civil),SDSO, Assam
16.	Shri Saurav Saikya	CGM(H&C), APGCL
17.	Shri Nand Kumar Jha	Chairman, State committee on Dam Safety, Bihar
18.	Shri Arun Badiye	SDSO, Chhattisgarh
19.	Shri M. D. Patel	Chief Engineer, WRD, Gujarat
20.	Shri Vijay Shankar	SDSO, Jharkhand
21.	Er.L.D. Ghani Lemai, EE,	WRD, Manipur
22.	Ms Adelyne Sunn	Chairman, SDSO, Meghalaya
23.	Shri A K Bera	Director, DSO, West Bengal
24.	Shri.Sudarshan S.Pagar	SDSO, Maharashtra
25.	Shri Manish Parihar	Chairman, SDSO, Rajasthan
26.	Shri Jaipal Singh	Chief Engineer, SDSO, Uttarakhand
27.	Shri S K Saha	Superintending Engineer,IRI, Roorkee
Special Invitee		
28.	Shri Rakesh Kashyap	Member (Technical Wing), NDSA
29.	Shri S S Bakshi	Director, CWC
30.	Shri R K Gautam	Director, CWC
31.	Shri M S Verma	Director (R),NDSA
32.	Shri Amitabh Meena	Director (T),NDSA
Member Secretary		
33.	Shri Shiv Dutta Sharma	Member (Policy & Research Wing), NDSA

Agenda of the Meeting.

Annexure-II

S. No .	Section of the Dam safety Act	Issues/ Difficulties to be addressed	Proposed Revised Para of Act	Justification for proposed revision
1	Section 38 (1) and the proviso under it relating to Comprehensive Dam Safety Evaluation	As per the Act first Comprehensive Dam Safety Evaluation (CDSE) for each existing specified dam shall be conducted within five years from the date of commencement of the Act, and thereafter the comprehensive dam safety evaluation of each such dam shall be carried out at regular intervals as may be specified by the regulations.	As per the Act first Comprehensive Dam Safety Evaluation (CDSE) for each existing specified dam shall be conducted within Eight years from the date of commencement of the Act, and thereafter the comprehensive dam safety evaluation of each such dam shall be carried out at regular intervals as may be specified by the regulations.	<p>The Comprehensive Dam Safety Evaluation (CDSE) adopts a three-tier system within the framework of a Risk-Informed Dam Safety Management Programme, similar to practices in many developed countries. In tier-I (Qualitative approach), dams are screened by employing qualitative methods. The screened dams are subjected to tier-II (semi-quantitative risk analysis-SQRA). Based on the outcome of SQRA, dams are further subjected for the tier –III analysis (Detailed risk analysis).</p> <p>Tier-I (Qualitative approach) is already in progress and expected to be completed by December 2025. It includes evaluating Fragility Index and Potential Impacts. It also involves evaluating the population at risk (PAR) due to dam failure, which is time-intensive exercise.</p> <p>Tier-II (Semi-Quantitative Risk Analysis): Screened dams at tier-I exercise would qualify for SQRA. SQRA process involves failure mode identification and ground verification by experts, taking about 1.5 years to complete (500-600 dams per year) by July 2027.</p> <p>Tier-III (Detailed risk analysis): The most critical dams will undergo this detailed evaluation, and it is expected to be completed by 2028. Hence, time for completion of CDSE exercise would require eight years from the</p>

S. No.	Section of the Dam safety Act	Issues/ Difficulties to be addressed	Proposed Revised Para of Act	Justification for proposed revision
				<p>commencement of the Dam Safety Act</p> <p>In view of the above, it is proposed to extend the timeline for conducting first CDSE of all dams for a period of at eight years from the date of commencement of this Act.</p>
2.	Section-4 (Definitions)	Inclusion of some new definitions in the DSA, 2021,	<p>The following terms need to be defined in the Dam Safety Act, 2021:</p> <p>(i) Hazard Potential: Hazard Potential of a dam is the downstream damage that</p>	<p>During interactions with State Dam Safety Organizations (SDSOs) and dam owners, it was observed that there are significant gaps in understanding and frequent instances of confusion and misinterpretation regarding key terms such as Risk and Hazard Potential. These inconsistencies have led to challenges in the uniform application of dam safety</p>

S. No .	Section of the Dam safety Act	Issues/ Difficulties to be addressed	Proposed Revised Para of Act	Justification for proposed revision
			<p>would result if the dam were to fail.</p> <p>(ii) Risk: A measure of the likelihood and severity of adverse consequence. The risk is estimated by the mathematical expectations of the consequence of an adverse event occurring i.e. the product of the probability of occurrence and consequence</p>	<p>measures across states.</p> <p>On several occasions, states have requested clarifications on these terms during interactions. To address this, the inclusion of new, clear definitions has been proposed. These definitions align with the guidelines published under the Dam Rehabilitation and Improvement Project (DRIP), specifically designed for assessing and managing risks associated with dams.</p>
3.	Section-4 (e)	Minor modification in the definition of “Dam”	<p><u>Proposed Section 4 (e):</u></p> <p>“dam” means any artificial barrier and its appurtenant structure constructed across rivers or tributaries thereof with a view to impound or divert water which also include barrage, weir and similar water impounding structures but does not include—</p> <p>(a) canal, aqueduct, navigation channel and similar water conveyance structures;</p> <p>(b) <u>Coffer dam</u>, flood embankment, dike, guide bund and similar flow regulation</p>	<p>As per the act, “dam” means any artificial barrier and its appurtenant structure constructed across rivers or tributaries thereof with a view to impound or divert water which also include barrage, weir and similar water impounding structures but does not include—</p> <p>(a) canal, aqueduct, navigation channel and similar water conveyance structures;</p> <p>(b) flood embankment, dike, guide bund and similar flow regulation structures;</p> <p>A cofferdam is a temporary structure used during construction, designed to serve a specific purpose for a limited period.</p> <p>Currently, the Act does not explicitly exclude coffer dams from the definition of "dams". This has led to queries regarding coffer dam failures.</p>

S. No .	Section of the Dam safety Act	Issues/ Difficulties to be addressed	Proposed Revised Para of Act	Justification for proposed revision
			structures;	To avoid unnecessary queries, it is proposed to explicitly exclude coffer dams from the definition of dams, as done for other structures in points (a) and (b) of the Act. This will help clarify that coffer dams, which are temporary structures typically used during the construction or repair of dams, do not fall under the purview of the Dam Safety Act, thus preventing further misinterpretation.
4.	First proviso under Section 24 (1) – Jurisdiction of SDSO.	The specified dams owned by Central Government organizations like Military Engineering Services are presently not covered under the provisions of the Act.	Provided that where a specified dam is owned by a Central Public Sector undertaking <u>or institution or a body owned / controlled by the Central Government;</u> or where a specified dam is extended over two or more States, or where the specified dam in one State is owned by another State, then the Authority shall be construed as the State Dam Safety Organisation for the purposes of this Act.	Apart from CPSUs, some specified dams are owned by Central Government organizations like Military Engineering Services. Provisions of DSA, 2021 are required to be made applicable to these dams including CDSE for these dams. Hence, the proposed modification is required.
5.	Section 36 (1)(b) - Emergency	It is mentioned that those dam which is constructed and filled	In respect of the dam which is constructed and filled before the commencement of this Act,	It is proposed to extend the timeline for conducting first EAP of all dams for a period of at least 10 years from the date of commencement of this Act.

S. No .	Section of the Dam safety Act	Issues/ Difficulties to be addressed	Proposed Revised Para of Act	Justification for proposed revision
	Action Plan.	before the commencement of this Act have to prepare the EAP within 5 years from the date of commencement of this act,	prepare and emergency action plan within 8 years from the date of commencement of this Act and there after update such plans at regular intervals as may be specified by the regulations.	Five (5) years of time extension is considered essential since it is resources intensive exercise involving significant fund and technical expertise. Dam owners are still working out the modalities for these activities. It is expected that this activity would be completed within 8 years from the date of commencement of this Act.

Note: In column 4, the revised formulation of the relevant Section of the Act has been mentioned. The changes are given in bold letters.

Changes proposed to the Dam Safety Act, 2021 by invoking the powers under Section 56(1) of the Act.

S. No.	Section of the Dam safety Act	Issues/ Difficulties to be addressed	Agreed revised Para of Act	Justification for proposed revision
1	Section 38 (1) and the proviso under it relating to Comprehensive Dam Safety Evaluation	As per the Act first Comprehensive Dam Safety Evaluation (CDSE) for each existing specified dam shall be conducted within five years from the date of commencement of the Act, and thereafter the comprehensive dam safety evaluation of each such dam shall be carried out at regular intervals as may be specified by the regulations.	The owner of a specified dam..... Provided that the first Comprehensive Dam Safety Evaluation (CDSE) for each existing specified dam shall be conducted as soon as possible but within 10 years from the date of commencement of the Act, and thereafter the comprehensive dam safety evaluation of each such dam shall be carried out at regular intervals as may be specified by the	<p>1. The Comprehensive Dam Safety Evaluation (CDSE) involves multiple complex steps including forming of Independent Panel of Experts, site visits, reviewing project records, performing design studies, and conducting failure mode analysis. Total Strength of the Specified dams in the country is about 6591 dams and about 98% dams are with the states. Dam owners (mostly State Govts) have started prioritising the dams for the CDSE by rapid risk screening tool developed with the support of the world bank experts. So far about 500 dams have been screened out of 6591 specified dams.</p> <p>2. Dam owners (States) are still working out the modalities for CDSE activities as mentioned in para-1 above. States have requested to increase the timeline for completion of Comprehensive Dam Safety Evaluation to 10 years from the date of commencement of the act due to this.</p> <p>3. In view of the above, it is proposed to extend the timeline for conducting first CDSE of all dams for a period of ten years from the</p>

S. No .	Section of the Dam safety Act	Issues/ Difficulties to be addressed	Agreed revised Para of Act	Justification for proposed revision
			regulations.	date of commencement of this Act.
2.	Section-4 (Definitions)	Inclusion of some new definitions in the DSA, 2021,	The following terms need to be defined in the Dam Safety Act, 2021: (zb) “Hazard Potential” means Hazard Potential of a dam is the	In the Act two terms Hazard potential and Risk are existing but have not been defined. During interactions with State Dam Safety Organizations (SDSOs) and dam owners, it was observed that there are significant gaps in understanding and frequent instances of confusion and misinterpretation regarding key terms of Risk and Hazard Potential. These inconsistencies have led to challenges in the uniform application of dam safety measures

S. No .	Section of the Dam safety Act	Issues/ Difficulties to be addressed	Agreed revised Para of Act	Justification for proposed revision
			<p>downstream damage that would result if the dam were to fail.</p> <p>(zc) “Risk” means a measure of the likelihood and severity of adverse consequence. The risk is estimated by the mathematical expectations of the consequence of an adverse event occurring i.e. the product of the probability of occurrence and consequence</p>	<p>across states.</p> <p>On several occasions, states have requested clarifications on these terms during interactions. To address this, the inclusion of new, clear definitions has been proposed. These definitions align with the guidelines published under the Dam Rehabilitation and Improvement Project (DRIP), specifically designed for assessing and managing risks associated with dams.</p>
3.	Section-4 (e)	Minor modification in the definition of “Dam”	<p><u>Proposed Section 4 (e):</u></p> <p>“dam” means any artificial barrier and its appurtenant structure constructed across rivers or tributaries thereof with a view to impound or divert</p>	<p>As per the act, “dam” means any artificial barrier and its appurtenant structure constructed across rivers or tributaries thereof with a view to impound or divert water which also include barrage, weir and similar water impounding structures but does not include—</p> <p>(a) canal, aqueduct, navigation channel and similar water conveyance structures;</p> <p>(b) flood embankment, dike, guide bund and</p>

S. No .	Section of the Dam safety Act	Issues/ Difficulties to be addressed	Agreed revised Para of Act	Justification for proposed revision
			<p>water which also include barrage, weir and similar water impounding structures but does not include—</p> <p>(a) canal, aquaduct<u>aqueduct</u>, navigation channel and similar water conveyance structures;</p> <p>(b) <u>Coffer dam</u>, flood embankment, dike, guide bund and similar flow regulation structures;</p>	<p>similar flow regulation structures;</p> <p>A cofferdam is a temporary structure used during construction, designed to serve a specific purpose for a limited period.</p> <p>Currently, the Act does not explicitly exclude coffer dams from the definition of "dams". This has led to queries regarding coffer dam failures.</p> <p>To avoid unnecessary queries, it is proposed to explicitly exclude coffer dams from the definition of dams, as done for other structures in points (a) and (b) of the Act. This will help clarify that coffer dams, which are temporary structures typically used during the construction or repair of dams, do not fall under the purview of the Dam Safety Act, thus preventing further misinterpretation.</p>
4.	First proviso under Section 24 (1) – Jurisdiction of SDSO.	The specified dams owned by Central Government organizations like Military Engineering Services are presently not	<p>.....</p> <p>Provided that where a specified dam is owned by a Central Public Sector undertaking <u>or institution or a</u></p>	<p>Apart from CPSUs, some specified dams are owned by Central Government organizations like Military Engineering Services. Provisions of DSA, 2021 are required to be made applicable to these dams including CDSE for these dams. Hence, the proposed modification is required.</p>

S. No .	Section of the Dam safety Act	Issues/ Difficulties to be addressed	Agreed revised Para of Act	Justification for proposed revision
		covered under the provisions of the Act.	<u>body owned or controlled by the Central Government;</u> or where a specified dam is extended over two or more States, or where the specified dam in one State is owned by another State, then the Authority shall be construed as the State Dam Safety Organisation for the purposes of this Act.	
5.	Section 36 (1)(b) - Emergency Action Plan.	It is mentioned that those dam which is constructed and filled before the commencement of this Act have to prepare the EAP within 5 years from the date of	In respect of the dam which is constructed and filled before the commencement of this Act, prepare and emergency action plan as soon as possible but within 8	The preparation of a comprehensive EAP involves Dam Break analysis and it is one of the components of the Comprehensive Dam Safety Evaluation (CDSE). As the extension in the time line of CDSE is being sought as 10 years from the Act Implementation date, it is requested by the States (States are having about 98 % of dams in their jurisdiction) for extending the timeline to 8 years to provide the necessary time to prepare robust EAPs

S. No .	Section of the Dam safety Act	Issues/ Difficulties to be addressed	Agreed revised Para of Act	Justification for proposed revision
		commencement of this act,	years from the date of commencement of this Act and there after update such plans at regular intervals as may be specified by the regulations.	that meet safety standards, ensuring public safety. So far, under the DRIP programme where extensive support of the consultants was available to the states, only 454 EAP's could have been developed.

Note: In column 4, the revised formulation of the relevant Section of the Act has been mentioned. The changes are given in bold letters.