

# The Dam Safety Act, 2021

UNION OF INDIA

India

## The Dam Safety Act, 2021

### Act 41 of 2021

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An Act to provide for surveillance, inspection, operation and maintenance of the specified dam for prevention of dam failure related disasters and to provide for institutional mechanism to ensure their safe functioning and for matters connected therewith or incidental thereto. BE it enacted by Parliament in the Seventy-second Year of the Republic of India as follows:-

## Chapter I Preliminary

### 1. Short title, extent and commencement.-

(1) This Act may be called the Dam Safety Act, 2021. (2) It extends to the whole of India. (3) It shall come into force on such date as the Central Government may, by notification in the Official Gazette, appoint.

### 2. Declaration as to expediency of Union control.-

It is hereby declared that it is expedient in the public interest that the Union should take under its control the regulation of uniform dam safety procedure for specified dam to the extent hereinafter provided.

### 3. Application.-

Save as provided under this Act, it applies to the owner of every specified dam, -(a) being a public sector undertaking or institution or a body owned or controlled by the Central Government or a State Government or jointly by one or more Governments, as the case may be; and (b) being an undertaking or company or institution or a body other than those owned or controlled by the State Government or the Central Government, as the case may be.

## 4. Definitions.-

In this Act, unless the context otherwise requires, -

- (a) "alteration of dam" means alterations or repairs as may directly affect the safety of the dam or reservoir;
- (b) "annual report" means a report giving the activities of the Authority and the State Dam Safety Organisation and the safety status of the specified dams falling under their jurisdiction during each financial year;
- (c) "appurtenant structure" means the structure being-
  - (i) spillways, either in the dam or separate therefrom;
  - (ii) low level outlet structure and water conduits such as tunnels, pipelines or penstocks, either through the dam or its abutments or reservoir rim;
  - (iii) hydro-mechanical equipment including gate, valve, hoist, elevators;
  - (iv) energy dissipation and river training structure; and
  - (v) other associated structures acting integrally with the dam or its reservoir or reservoir rim;
- (d) "Authority" means the National Dam Safety Authority established under section 8;
- (e) "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-
  - (a) canal, aquaduct, navigation channel and similar water conveyance structures;
  - (b) flood embankment, dike, guide bund and similar flow regulation structures;
- (f) "dam failure" means any failure of the structure or operation of a dam which leads to uncontrolled flow of impounded water resulting in downstream flooding, affecting the life and property of the people and the environment including flora, fauna and riverine ecology.

**Explanation.-** For the purposes of this clause, failure in the operation shall mean such faulty operations of the dam which are inconsistent with the operation and maintenance manual;

- (g) "dam incident" means all such problems occurring to a dam that have not degraded into a dam failure, and includes-
  - (i) any structural damage to the dam and the appurtenant structure;
  - (ii) any unusual reading of any instrument in the dam;
  - (iii) any unusual seepage or leakage through the dam body;
  - (iv) any unusual change in the seepage or leakage regime;
  - (v) any boiling or artesian condition noticed below the dam;
  - (vi) any sudden stoppage or unusual reduction in seepage or leakage from the foundation or body of the dam or any of its galleries;
  - (vii) any malfunction or inappropriate operation of gates;
  - (viii) occurrence of flood, the peak of which exceeds the available flood discharge capacity of the dam or seventy per cent. of the approved design flood;
  - (ix) occurrence of flood, which resulted in encroachment on the available freeboard, or the approved design freeboard;
  - (x) any unusual erosion in the near vicinity up to five hundred metres downstream of the spillway or waste-weir; and
  - (xi) any other occurrence which a prudent dam engineer may relate to dam safety concerns;
- (h) "dam safety unit" means a dam safety unit of any specified dam referred to in section 30;
- (i) "distress condition" means the occurrence or potential development of such conditions in the dam or appurtenance structure or its reservoir or reservoir rim, which if left unattended to, may impede the safe operation of dam for its intended benefits or may pose serious risks to the life and property of people and the environment including flora, fauna and riverine ecology;
- (j) "documentation" means all permanent records including electronic records concerning investigation, design, construction, operation, performance, maintenance, major repair, alteration, enlargement and safety of dams and includes design memorandum, construction drawings, geological reports, reports of specialised studies simulating structural and hydraulic response of the dam, changes made in design and drawings, quality control records, emergency action plan, operation and maintenance manual, instrumentation readings, inspection and testing reports, operational reports, and dam safety review reports and other similar reports;
- (k) "enlargement of dam" means any change in the scope of an existing dam or reservoir,

which raises water storage elevation or increases the volume of water impounded by the dam;(l)"Government" means the Central Government or a State Government, as the case may be;(m)"inspection" means on-site examination of any component of a dam and its appurtenant structure;(n)"investigation" means collection of evidence, detailed examination, analysis or scrutiny of a specific problem pertaining to the dam and its appurtenant or a part thereof and includes laboratory testing, in-situ testing, geological exploration, model testing and mathematical simulation of the problem;(o)"National Committee" means the National Committee on Dam Safety constituted under section 5;(p)"notification" means a notification published in the Official Gazette and the term "notify" shall be construed accordingly;(q)"operation of dam" means elements of the use, control and functioning of the dam which may primarily affect the storage, release of water and the structural safety of the dam;(r)"operation and maintenance manual" means the written instructions that provide operation procedures, maintenance procedures, emergency procedures and any other features necessary for the safe operation of dam;(s)"owner of specified dam" means the Central Government or a State Government or jointly by one or more Governments or public sector undertaking or local authority or company and any or all of such persons or organisations, who own, control, operate, or maintain a specified dam;(t)"prescribed" means prescribed by rules made by the Central Government or, as the case may be, by the State Government;(u)"regulations" means the regulations made by the Authority under this Act;(v)"remedial measures" means such structural or non-structural measures, as may be required in relation to the specified dam or appurtenant structure or reservoir or reservoir rim or catchment area of reservoir for the purpose of removing or mitigating the distress condition of the specified dam;(w)"reservoir" in relation to a dam shall mean any spread of water impounded by a specified dam;(x)"specified dam" means a dam constructed before or after the commencement of this Act, which is, -(i)above fifteen metres in height, measured from the lowest portion of the general foundation area to the top of dam; or(A)the length of crest is not less than five hundred metres; or(B)the capacity of the reservoir formed by the dam is not less than one million cubic metres; or(C)the maximum flood discharge dealt with by the dam is not less than two thousand cubic metres per second; or(D)the dam has specially difficult foundation problems; or(E)the dam is of unusual design;(ii)between ten metres to fifteen metres in height and satisfies at least one of the following, namely: -(y)"State Committee" means the State Committee on Dam Safety constituted under sub-section(1)of section 11;(z)"State Dam Safety Organisation" means the State Dam Safety Organisation established under section 14; and(za)"vulnerability and hazard classification" means the system or systems of classifying dams on the basis of their condition, location, damage or hazard potential.

**1. 30th December, 2021, vide notification No. S.O.5422(E), dated 30th December, 2021, see Gazette of India, Extraordinary, Part II, sec. 3 (ii).**

## **Chapter II**

### **National Committee on Dam Safety**

## **5. Constitution of National Committee.-**

(1) With effect from such date as the Central Government may, by notification, appoint, there shall be constituted, for the purposes of this Act, a National Committee to be known as the National Committee on Dam Safety consisting of the following members, namely: - (a) the Chairman, Central Water Commission-Chairperson, ex officio; (b) not exceeding ten representatives of the Central Government not below the rank of Joint Secretary to that Government or equivalent dealing with matters relating to dam engineering or dam safety, nominated by the Central Government-Members, ex officio; (c) not exceeding seven representatives of the State Governments of the level of Engineer-in-Chief or equivalent by rotation, nominated by the Central Government-Members, ex officio; and (d) not exceeding three specialists in the field of dam safety and allied fields nominated by the Central Government-Members. (2) The National Committee shall be constituted within a period of sixty days from the date of commencement of this Act, and shall be reconstituted for every three years thereafter.

## **6. Functions of National Committee.-**

(1) The National Committee shall discharge such functions as specified in the First Schedule as may be necessary to prevent dam failure related disasters and to maintain standards of dam safety. (2) The National Committee may, in discharge of its functions, constitute such sub-committees as it may consider necessary to assist it and the secretarial assistance to the National Committee and the sub-committees shall be provided by the Authority. (3) The knowledge and information collected or generated by the National Committee shall be disseminated to all stakeholders by the Authority.

## **7. Meetings of National Committee.-**

(1) The National Committee shall meet at such times and places and shall observe such rules of procedure in regard to the transaction of business at its meetings in the manner as may be prescribed by the Central Government: Provided that the National Committee shall meet twice in a year and one meeting shall be held before the onset of the monsoon season. (2) The National Committee may invite the representative of the owner of any specified dam and such other experts in dam safety (including international experts) as it may consider appropriate for the discharge of its functions. (3) The expenditure incurred on the National Committee shall be in such manner as may be prescribed by the Central Government.

## **Chapter III**

## **National Dam Safety Authority**

## **8. Establishment of National Dam Safety Authority.-**

(1) With effect from such date as the Central Government may by notification, appoint, there shall be established for the purposes of this Act, a National Dam Safety Authority, within a period of sixty

days from the date of commencement of this Act.(2)The Authority shall be headed by an officer not below the rank of Additional Secretary to the Government of India or equivalent to be appointed by the Central Government who have knowledge of, and adequate qualification, experience and capacity in, dealing with problems relating to the dam engineering and dam safety management.(3)The headquarters of the Authority shall be at the National Capital territory of Delhi and the Authority may establish offices at other places in India.(4)The Authority shall comply with such directions as may, from time to time, be given to it by the Central Government.

## **9. Functions of Authority.-**

(1)The Authority shall discharge such functions as specified in the Second Schedule as may be necessary to implement the policy, guidelines and standards evolved by the National Committee for proper surveillance, inspection and maintenance of specified dams and for such purposes, it shall have the power to enforce the attendance of any person and call for any information as may be necessary.(2)Without prejudice to the provisions contained in sub-section (1), the Authority shall make all endeavours to resolve any issue between the State Dam Safety Organisations of States or between a State Dam Safety Organisation and any owner of a specified dam in that State.(3)Every decision of the Authority taken in respect of matters under this Act shall be final and binding upon all the parties to the issue.

## **10. Officers and Employees of Authority.-**

(1)The Central Government shall, for the purpose of enabling the Authority to perform functions under this Act, provide such number of officers and other employees as it may consider necessary:Provided that the officers and other employees shall have such qualifications and experience in the field of dam safety including dam-design, hydro-mechanical engineering, hydrology, geo-technical investigation, instrumentation, dam-rehabilitation or such other fields as may be prescribed by the Central Government.(2)The functions, powers, terms and conditions of service of the officers and other employees appointed under sub-section (1) shall be such as may be prescribed by the Central Government.

## **Chapter IV**

### **State Committee on Dam Safety**

## **11. Constitution of State Committee on Dam Safety.-**

(1)With effect from such date as the State Government may, by notification, appoint, there shall be constituted, for the purposes of this Act, a State Committee on Dam Safety consisting of the following members, namely:-(a)the Engineer-in-Chief or equivalent officer of the Department of the State responsible for Dam Safety-Chairperson, ex officio;(b)technical and scientific officers of the rank of Chief Engineer, not exceeding six persons, from such Departments as may be decided by the State Government or from such other organisations owing specified dams-Members;(c)the Chief Engineer or equivalent level officer of each such upstream States in cases where reservoir area of

any of the specified dam of the State extends to another State-Members;(d)the Chief Engineer or equivalent level officer of each such downstream State in cases where flood release of any of the specified dam of the State flows to a neighbouring State-Members;(e)one representative of the Central Water Commission not below the rank of Director to be nominated by the Chairman, Central Water Commission-Member;(f)experts in the field of hydrology or dam designs, not exceeding three, from engineering institutes--Members; and(g)one representative of the Central Electricity Authority not below the rank of Director to be nominated by the Chairman, Central Electricity Authority-Member.(2)The State Committee shall be constituted within a period of hundred and eighty days from the date of commencement of this Act, and reconstituted for every three years thereafter.

## **12. Functions of State Committee.-**

(1)The State Committee shall discharge such functions as specified in the Third Schedule as may be necessary to prevent dam failure related disasters under this Act as per guidelines, standards and other directions on dam safety issued by the Authority.(2)The State Committee, in discharge of its functions, shall be assisted by such sub-committees as it may consider necessary, and the secretarial assistance to the State Committee as well as its subcommittees shall be provided by the concerned State Dam Safety Organisation.

## **13. Meetings of State Committee.-**

(1)The State Committee shall meet at such times and places and shall observe such rules of procedure in regard to the transaction of business at its meetings as may be prescribed by the State Government:Provided that the State Committee shall meet twice in a year and one meeting shall be held before the onset of the monsoon season.(2)The State Committee may invite the representative of the owner of any specified dam and such other experts in Dam Safety as it may consider appropriate, for the discharge of its functions.(3)The expenditure incurred on the meetings of the State Committee shall be in the manner as may be prescribed by the State Government.(4)The specialist members and other expert invitees who attend the meetings of the State Committee or its sub-committees shall be paid such fees and allowances as may be prescribed by the State Government.

# **Chapter V**

## **State Dam Safety Organisation**

## **14. Establishment of State Dam Safety Organisation.-**

(1)The State Government shall, for the purposes of this Act, by notification, establish in the Department dealing with dam safety, a separate organisation, to be known as the State Dam Safety Organisation, within a period of hundred and eighty days from the date of commencement of this Act:Provided that in States having more than thirty specified dams, the State Dam Safety Organisation shall be headed by an officer not below the rank of Chief Engineer or equivalent, and

in all other cases, the State Dam Safety Organisation shall be headed by an officer not below the rank of Superintendent Engineer or equivalent.(2)The State Dam Safety Organisation shall be responsible to, and report to, the technical head of the Department dealing with Dam Safety.(3)The organisational structure and work procedures of the State Dam Safety Organisation shall be such as may be prescribed by the State Government.(4)The administrative and other expenses of the State Dam Safety Organisation shall be borne by the respective State Government.

## **15. Officers and employees of State Dam Safety Organisation.-**

(1)The State Government shall, having regard to the number of specified dams in that State, provide such number of officers and employees to the State Dam Safety Organisation as it may consider necessary for the efficient functioning of the said Organisation:Provided that the officers and employees shall have such qualifications and experience in the field of dam safety including dam-design, hydro-mechanical engineering, hydrology, geo-technical investigation, instrumentation, dam-rehabilitation or such other field as may be prescribed by the State Government.(2)The functions and powers of the officers and employees appointed under sub-section (1) shall be such as may be prescribed by the State Government.

## **Chapter VI**

## **Duties and Functioning in Relation to Dam Safety**

### **16. Surveillance and inspection.-**

(1)Every State Dam Safety Organisation shall, -(a)keep perpetual surveillance;(b)carry out inspections; and(c)monitor the operation and maintenance, of all specified dams falling under their jurisdiction to ensure continued safety of such specified dams and take such measures as may be necessary to address safety concerns that are noticed with a view to achieve satisfactory level of dam safety assurance as per such guidelines, standards and other directions on dam safety as may be specified by the regulations.(2)The State Dam Safety Organisation, for the purpose of enabling it to make decisions compatible with public safety, shall make or cause to be made such investigations and shall gather or cause to be gathered such data as may be required for proper review and study of the various features of the design, construction, repair and enlargement of dams, reservoirs and appurtenant structures under their jurisdiction.

### **17. Vulnerability and hazard classification of dams.-**

The State Dam Safety Organisation shall classify each dam under their jurisdiction as per such vulnerability and hazard classification criteria as may be specified by the regulations.

### **18. Maintenance of log books.-**

(1)Every State Dam Safety Organisation shall maintain a log book or database for each specified

dam under their jurisdiction recording therein all activities related to the surveillance and inspection and all important events related to dam safety and with such details and in such form as may be specified by the regulations.(2)Every State Dam Safety Organisation shall furnish all such information to the Authority as and when required by them.

## **19. Records of dam failures and dam incidents.-**

(1)Every State Dam Safety Organisation shall report the event of any dam failure under their jurisdiction to the Authority, and furnish any information as and when required by them.(2)Every State Dam Safety Organisation shall maintain the records of major dam incidents of each specified dams under their jurisdiction, and furnish all such information to the Authority as and when required by them.

## **20. Instructions on safety of specified dams.-**

(1)Every State Dam Safety Organisation shall render its instructions to the owner of a specified dam on the safety or the remedial measures required to be taken with respect to it.(2)Every owner of the specified dam shall comply with the instructions issued by the State Dam Safety Organisation with regard to safety or remedial measures in relation to any specified dam owned by it.

## **21. Funds for maintenance and repairs.-**

Every owner of the specified dam shall earmark sufficient and specific funds for maintenance and repairs of the specified dam and to implement the recommendations of the State Dam Safety Organisation.

## **22. Technical documentation.-**

(1)Every owner of the specified dam shall compile all technical documentations concerning hydrology, dam foundation, structural engineering of dam, watershed upstream of dam, and nature or use of land downstream of dam along with information on all resources or facilities of economic, logistic or environmental importance which are likely to be affected due to dam failure.(2)Every owner of the specified dam shall furnish all such information to the State Dam Safety Organisation and the Authority as and when required by them.(3)Every owner of the specified dam shall equip its organisation with the state-of-the-art information technology tools to store, retrieve, and distribute the data related to the dam safety and dam performance.

## **23. Qualifications and experience of individuals responsible for safety of specified dams.-**

Every individual responsible for safety of specified dams and all activities related thereto shall possess such qualifications and experience and shall undergo such training as may be specified by the regulations.



## **24. Jurisdiction of State Dam Safety Organisation and Authority.-**

(1) Without prejudice to the provisions of this Act, all specified dams, shall fall under the jurisdiction of the State Dam Safety Organisation of the State in which such dam is situated in matters relating to dam inspections, analysis of information, investigation reports or recommendations regarding safety status, and remedial measures to be undertaken to improve dam safety; and in all such matters, full co-operation shall be extended by the owner of the specified dam: Provided that where a specified dam is owned by a Central Public Sector Undertaking 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: Provided further that in all such dams where the Authority takes up the role of State Dam Safety Organisation, the Governments of the States within the jurisdiction of which such dams are located shall have access to all information relating to these specified dams as available with the Authority. (2) The authorised representative of the Authority or concerned State Dam Safety Organisation for the purposes of making any inspection or investigation necessary for the implementation of the provisions of this Act, may enter upon any part of the specified dam or its site as and when required and apply such investigation methods, as may be considered necessary. (3) After making inspection or investigation under sub-section (2), the representative referred to in that sub-section is of the opinion that certain remedial measures are required to be taken, he shall report such remedial measures to the officer-in-charge of such specified dam and to the concerned State Dam Safety Organisation. (4) The Authority and concerned State Dam Safety Organisation, in cases of specified dams being found to be distressed on account of their age, degeneration, degradation, structural or other impediments, shall suggest such remedial measures on such operational parameters (including maximum reservoir level, maximum spillway discharge and maximum discharges through other outlets) as it may consider necessary. (5) Nothing contained in sub-sections (1), (2), (3) and (4) shall absolve the owner of specified dam or any other authority or person from any of the responsibilities or obligations entrusted upon it under the provisions of this Act and the provisions of sub-sections (1), (2), (3) and (4) shall be in addition to, and not in derogation of, any other provision of this Act.

## **25. Cost of investigation.-**

All the costs to be incurred by the Authority or State Dam Safety Organisation on any form of investigation done including payment given to any consultant or expert, shall be borne by the owner of the specified dam.

## **26. Construction or alteration of dams.-**

(1) Any construction or alteration of a specified dam shall be undertaken subject to investigation, design and construction being done by such agencies as may be accredited by the Authority or the State Government, as the case may be: Provided that the Authority may disqualify any agency which violates any of the provisions of this Act or the rules or regulations made thereunder. (2) Every agency referred to in sub-section (1) shall, for the purpose of designing or evaluating the safety of the specified dam, make use of the relevant standard codes and guidelines of the Bureau of Indian

Standards, and furnish the reasons, if any departure is made in the design or dam safety evaluation.(3)Every agency referred to in sub-section (1) shall for the purpose of investigation, design and construction employ such qualified, experienced and competent engineers, as may be specified by the regulations.(4)Every agency referred to in sub-section (1) shall for the purpose of approval of dam design demonstrate the safety of the design, operational parameters and policies as per the provisions of relevant codes and guidelines to the Central Government or the State Government, as the case may be.(5)Every agency referred to in sub-section (1) shall, for the purpose of dam construction, undertake such quality control measures, as may be specified by the regulations.(6)The construction of any specified dam or the alteration or enlargement of any existing specified dam shall be undertaken with the approval of such competent authority, as may be specified by notification by the Central Government or the State Government, as the case may be.

## **27. Initial filling of reservoirs.-**

(1)Before initial filling of any reservoir of a specified dam, the agency responsible for its design shall draw the filling criteria and prepare an initial filling plan, with adequate time for monitoring and evaluating the performance of the dam and its appurtenant structures.(2)Before initial filling of the reservoir is taken up, the State Dam Safety Organisation shall inspect or cause to be inspected the specified dam either through its own engineers or by an independent panel of experts, who shall also examine the initial filling programme and prepare a detailed report thereof duly certifying the fitness of dam for filling.

## **28. Operation and maintenance.-**

(1)Every owner of the specified dam shall provide operation and maintenance establishment for the specified dam, and shall ensure that sufficient number of trained operation and maintenance engineers or technical persons are posted at each such dam.(2)Every owner of the specified dam shall ensure that a well-documented operation and maintenance manual is kept at each of the specified dams and are followed at all times.

## **29. Responsibility of owner of specified dam.-**

Nothing contained in this Act shall be construed to absolve an owner of a specified dam of the duties, obligations or liabilities incidental to the construction, operation, maintenance and supervision of the dam or reservoir.

# **Chapter VII**

## **Safety, Inspection and Data Collection**

## **30. Dam safety unit.-**

For each specified dam, the owner shall, within the operation and maintenance establishment,

provide a dam safety unit consisting of such competent levels of engineers as may be specified by the regulations.

### **31. Inspection.-**

(1) Every owner of a specified dam shall undertake every year, through their dam safety unit, a pre-monsoon and post-monsoon inspections in respect of each such dam. (2) Without prejudice to sub-section (1), every owner of a specified dam shall inspect or cause to be inspected every specified dam by the dam safety unit, during and after every flood, earthquake or any other natural or man-made calamities, or if any sign of distress or unusual behaviour is noticed in the dam. (3) Every owner of a specified dam shall, - (a) carry out all inspections referred to in sub-section (1) and sub-section (2) in accordance with the guidelines and check-lists as may be specified by the regulations; (b) station, at each of the specified dam site throughout the monsoon period, such engineers and other technical personnel, as may be decided, in consultation with the State Dam Safety Organisation: Provided that the engineers and other technical personnel shall be required to be stationed at their respective dam sites during entire period of emergency following any other natural or man-made calamity that may create distress conditions in the dam; and (c) forward the inspection report by the dam safety unit to the State Dam Safety Organisation, which shall analyse the report and submit comments on the deficiency and remedial measures, if any, to the owner of the specified dam.

### **32. Instrumentations to be installed in every specified dam.-**

(1) Every owner of a specified dam shall have a minimum number of such instrumentations at each specified dam, and installed in such manner as may be specified by the regulations for monitoring the performance of such dam. (2) Every owner of the specified dam shall maintain a record of readings of the instrumentations referred to in sub-section (1) and forward the analysis of such readings to the State Dam Safety Organisation, in the form, manner and at such interval as may be specified by the regulations.

### **33. Establishment of hydro-meteorological station.-**

(1) Every owner of a specified dam shall establish a hydro-meteorological station in the vicinity of each specified dam capable of recording such data as may be specified by the regulations. (2) Every owner of the specified dam shall collect, compile, process and store data referred to in subsection (1) at a suitable location.

### **34. Installations of seismological station.-**

(1) In the case of every specified dam, having a height of thirty metres or above or falling under such seismic zone, as may be specified by the regulations, the owner of the specified dam shall establish a seismological station in the vicinity of each such dam for recording micro and strong motion earthquakes and such other data as may be specified by the regulations. (2) Every owner of a

specified dam shall collect, compile, process and store data referred to in subsection (1) at such suitable location and in such manner as may be specified by the regulations.

## **Chapter VIII**

### **Emergency Action Plan and Disaster Management**

#### **35. Obligation of owner of specified dam.-**

(1) Every owner of a specified dam, in respect of each specified dam, shall, -(a) establish well designed hydro-meteorological network and an inflow forecasting system; (b) establish an emergency flood warning system for the probable flood affected areas downstream of the dam; (c) test or cause to be tested periodically the functioning of systems referred to in clauses (a) and (b); (d) install such scientific and technical instruments which are invented or adopted from time to time for the purpose of ensuring the dam safety and the life and property of people downstream; (e) make available the information relating to maximum anticipated inflows and outflows including flood warning and an adverse impact of the same, if any, on persons and property towards the upstream or downstream of the dam, to the concerned district authorities and also make available the information in public domain; and (f) render necessary assistance to the Authority in establishment and running of the early warning system for the exchange of real time hydrological and meteorological data and information related to the operation of reservoirs. (2) Every owner of a specified dam, for each of its dam shall, carry out risk assessment studies at such interval as may be specified by the regulations and the first such study shall be made within five years from the date of commencement of this Act.

#### **36. Emergency action plan.-**

(1) Every owner of a specified dam, in respect of each of specified dam, shall, -(a) prepare emergency action plan before allowing the initial filling of the reservoir and thereafter update such plans at regular intervals; (b) in respect of the dam which is constructed and filled before the commencement of this Act, prepare emergency action plan within five years from the date of commencement of this Act and thereafter update such plans at regular intervals as may be specified by the regulations. (2) The emergency action plan referred to in sub-section (1) shall, -(a) set out the procedures to be followed for the protection of persons and property upstream or downstream of the specified dam in the event of an actual or imminent dam failure or to mitigate the effects of the disaster; (b) include therein, -(i) the type of emergencies which are likely to occur in the operation of any reservoir; (ii) identification of the likely catastrophic flood in the event of any dam failure, along with probable areas, population, structures and installations likely to be adversely affected due to flood water released from the reservoir; (iii) warning procedures, inundation maps and advance preparations for handling efficiently and in the best possible manner the likely adverse situations especially to avoid loss of human life; (iv) such other matters which may have regard to the geographical conditions, size of the dam and other relevant factors as may be necessary. (3) The emergency action plan under this section shall be put into action as and when conditions arise which are hazardous or likely to be hazardous to a specified dam or potentially hazardous to public

safety, infrastructure, other property or to the environment.(4)Every owner of the specified dam shall, while preparing and updating the emergency action plan, undertake a consultation process with all disaster management agencies and other Departments of the State entrusted with disaster management and relief in the area likely to be affected and owners of otherdams in the immediate vicinity likely to be affected, so as to bring coordination and transparency and allay any unwarranted fear on dam safety issues.

### **37. Assistance to other disaster management authorities.-**

Without prejudice to the provisions of this Act or liability of the owner of the specified dam and other organisations and authorities under this Act, every owner, organisation and authority shall render necessary assistance, if so required by any authority under any law for the time being in force to meet or mitigate any disaster or emergency arising out of the specified dams.

## **Chapter IX**

## **Comprehensive Dam Safety Evaluation**

### **38. Comprehensive dam safety evaluation.-**

(1)The owner of a specified dam shall make or cause to be made comprehensive dam safety evaluation of each specified dam through an independent panel of experts constituted as per regulations for the purpose of determining the conditions of the specified dam and its reservoir: Provided that the first comprehensive dam safety evaluation for each existing specified dam shall be conducted within five years from the date of commencement of this 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.(2)The comprehensive dam safety evaluation shall consist of, but not be limited to, -(a)review and analysis of available data on the design, construction, operation, maintenance and performance of the structure;(b)general assessment of hydrologic and hydraulic conditions with mandatory review of design floods as specified by the regulations;(c)general assessment of seismic safety of specified dam with mandatory site specific seismic parameters study in certain cases as specified by the regulations;(d)evaluation of the operation, maintenance and inspection procedures; and(e)evaluation of any other conditions which constitute a hazard to the integrity of the structure.

### **39. Compulsory evaluation in certain cases.-**

The comprehensive dam safety evaluation referred to in section 38 shall be compulsory in the case of, -(a)major modification to the original structure or design criteria;(b)discovery of an unusual condition at the dam or reservoir rim; and(c)an extreme hydrological or seismic event.

## **40. Reports of comprehensive evaluation.-**

(1)The owner of a specified dam shall report the results of the dam safety evaluation undertaken under section 38 or section 39 to the State Dam Safety Organisation.(2)The reports referred to in sub-section (1) shall include, but not be limited to, -(a)assessment of the condition of the structure based on the visual observations and available data on the design, hydrology, construction, operation, maintenance and performance of the structure;(b)recommendations for any emergency measures or actions, if required, to assure the immediate safety of the structure;(c)recommendations for remedial measures and actions related to design, construction, operation, maintenance and inspection of the structure, if required;(d)recommendations for additional detailed studies, investigations and analysis, if required; and(e)recommendations for improvements in routine maintenance and inspection of dam, if required.(3)Where the safety evaluations undertaken under section 38 or section 39, results in recommendations for a remedial action, the State Dam Safety Organisation shall pursue with the owner of the specified dam to ensure that remedial measures are carried out in time, for which the owner shall provide adequate funds.(4)Where there is any unresolved matter emerging between an independent panel of experts referred to in sub section (1) of section 38 and the owner of the specified dam, the matter shall be referred to the State Dam Safety Organisation, and, in case no agreement is arrived at, the matter shall be referred to the Authority which shall render its advice and send recommendations to the State Government concerned for implementation.

## **Chapter X Offences and Penalties**

### **41. Punishment for obstruction, etc.-**

Whoever, without reasonable cause, -(a)obstructs any officer or employee of the Central Government or the State Government, or a person authorised by the National Committee or the Authority or the State Committee or the State Dam Safety Organisation in the discharge of his functions under this Act; or(b)refuses to comply with any direction given by or on behalf of the Central Government or the State Government or the National Committee or the Authority or the State Committee or the State Dam Safety Organisation under this Act, shall be punishable with imprisonment for a term which may extend to one year or with fine, or with both, and if such obstruction or refusal to comply with directions results in loss of lives or imminent danger thereof, shall be punishable with imprisonment for a term which may extend to two years.

### **42. Offences by Departments of Government.-**

(1)Where an offence under this Act has been committed by a Department of the Government, the head of the Department shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accordingly unless he proves that the offence was committed without his knowledge or that he exercised all due diligence to prevent the commission of such offence.(2)Notwithstanding anything contained in sub-section (1), where an offence under this Act

has been committed by a Department of the Government and it is proved that the offence has been committed with the consent or connivance of, or is attributable to any neglect on the part of, any officer, other than the head of the Department, such officer shall be deemed to be guilty of that offence and shall be liable to be proceeded against and punished accordingly.

### **43. Offence by companies.-**

(1)Where an offence under this Act has been committed by a company or body corporate, every person who at the time the offence was committed, was in charge of, and was responsible to, the company, for the conduct of the business of the company, as well as the company, shall be deemed to be guilty of the contravention and shall be liable to be proceeded against and punished accordingly: Provided that nothing in this sub-section shall render any such person liable to any punishment provided in this Act, if he proves that the offence was committed without his knowledge or that he exercised due diligence to prevent the commission of such offence. (2)Notwithstanding anything contained in sub-section (1), where an offence under this Act has been committed by a company, and it is proved that the offence was committed with the consent or connivance of, or is attributable to any neglect on the part of any director, manager, secretary or other officer of the company, such director, manager, secretary or other officer shall also, be deemed to be guilty of that offence and shall be liable to be proceeded against and punished accordingly. Explanation. - For the purpose of this section-(a)"company" means any body corporate and includes a firm or other association of individuals; and (b)"director", in relation to a firm, means a partner in the firm.

### **44. Cognizance of offences.-**

(1)No court shall take cognizance of any offence punishable under this Act, except on a complaint made by the Central Government or the State Government or a person authorised in this behalf by the National Committee or the Authority or the State Committee or the State Dam Safety Organisation, as the case may be. (2)No court inferior to that of a Metropolitan Magistrate or a Judicial Magistrate of the first class shall try any offence punishable under this Act.

## **Chapter XI**

### **Miscellaneous**

### **45. Annual report of safety status of specified dam.-**

(1)Every State Dam Safety Organisation shall prepare annual report, within three months of the expiry of the preceding financial year, of its activities and safety status of specified dams in the State and such report shall be forwarded to the Authority and State Government and that Government shall cause the same to be laid before each House of the State Legislature, where it consists of two Houses or where such Legislature consists of one House, before that House. (2)Every State Dam Safety Organisation and every owner of a specified dam shall provide to the Authority, documentation of the projects, report of enquiries into failure and any other data, as and when required in such format and in such manner as may be decided by the Authority. (3)The Authority,

shall prepare a consolidated annual report of the dam safety activities in the country and submit the same to the Central Government within six months of the expiry of the preceding financial year and that Government shall cause the same to be laid before each House of Parliament.(4)The Authority shall forward its annual report on the safety status of specified dams to the National Disaster Management Authority and also make available such report in public domain.(5)The State Dam Safety Organisation of each State shall forward their annual report to the concerned State Disaster Management Authority and also make available such report in public domain.

#### **46. Safety measures in respect of dams other than specified dams.-**

Every owner of the dam other than specified dams shall undertake such measures as may be necessary to ensure dam safety and shall comply with such measures as may be specified by the regulations.

#### **47. Safety measures in respect of dams located outside territory of India.-**

Where a dam, including a dam created due to landslides or glacial moraine, is located outside the territory of India and the Authority suo motu or on receipt of information from any person or organisation or authority or source prima facie is of the opinion that measures are required to be taken to ensure safety of such dams and failure of which may endanger the life and property of people located in India, it shall in writing submit an intimation thereof to the Central Government indicating therein the likely damages which may arise due to failure of such dams and the safety measures required to be taken in respect of such dam and the Central Government shall take all suitable measures to mitigate any possible threat.

#### **48. Act to have overriding effect.-**

The provisions of this Act shall have effect notwithstanding anything inconsistent therewith contained in any other law for the time being in force.

#### **49. Power to amend Schedules-**

(1)If the Central Government is satisfied that it is necessary or expedient so to do, it may, by notification, amend the First Schedule, the Second Schedule or the Third Schedule and thereupon the Schedules, shall be deemed to have been amended accordingly.(2)A copy of every notification made under sub-section (1) shall be laid before each House of Parliament as soon as may be after it is made.

#### **50. Power of Central Government to give directions.-**

The Central Government may give such directions, as it may consider necessary, to the State Government where that Government is the owner of the specified dam and to the owner of a specified dam in any other case for the effective implementation of the provisions of this Act.



## **51. Vacancies, etc., not to invalidate proceedings of National Committee on Dam Safety Authority and State Committee on Dam Safety.-**

No act or proceedings of the National Committee, the Authority and the State Committee shall be invalid merely by reason of-(a)any vacancy in, or any defect in the constitution of, the Authority; or(b)any defect in the appointment of a person acting as a member of the Authority; or(c)any irregularity in the procedure of the Authority not affecting the merits of the case.

## **52. Power of Central Government to make rules.-**

(1)The Central Government may, by notification, make rules to carry out the provisions of this Act.(2)In particular, and without prejudice to the foregoing power, such rules may provide for all or any of the following matters, namely: -(a)the time and place of the meetings of the National Committee and the procedure to be followed at such meetings under sub-section (1) of section 7 and the expenditure incurred on the meetings of the National Committee under sub-section (3) of section 7;(b)the qualifications and experience of the officers and other employee of the Authority in the field of dam safety or such other field under sub-section (1) of section 10;(c)the functions, powers, and terms and conditions of service of other officers and other employees of the Authority under sub-section (2) of section 10;(d)any other matter which is to be, or may be, prescribed or in respect of which provision is to be made by the Central Government by rules.

## **53. Power of State Government to make rules.-**

(1)The State Government may, by notification, make rules to carry out the provisions of this Act.(2)In particular, and without prejudice to the foregoing power, such rules may provide for all or any of the following matters, namely: -(a)the times and places of the meetings of the State Committee and the procedure to be followed at such meetings under sub-section (1) of section 13;(b)the expenditure incurred on the meetings of the State Committee under sub-section (3) of section 13;(c)the fee and allowances paid to the specialist members or expert invitees of the State Committee or its sub-committees under sub-section (4) of section 13;(d)the organisational structure and work procedure of State Dam Safety Organisation under sub-section (3) of section 14;(e)the qualifications and experience of the officers and other employees of the State Dam Safety Organisation in the field of dam safety or such other field under sub-section (1) of section 15;(f)the functions, powers, and terms and conditions of service of the employees of the State Dam Safety Organisation under sub-section (2) of section 15;(g)the dam safety measures in respect of dams other than specified dams under section 46;(h)any other matter which is to be, or may be, prescribed or in respect of which provision is to be made by the State Government by rules.(3)Every rule made by a State Government under this Act shall be laid, as soon as may be after it is made, before the State Legislature, where it consists of two Houses, or where such legislature consists of one House, before that House.

## **54. Power to make regulations by Authority.-**

(1)The Authority on the recommendations of the National Committee may make regulations consistent with this Act and the rules made thereunder to carry out the provisions of this Act.(2)In particular, and without prejudice to the generality of the foregoing power, such regulations may provide for all or any of the following matters, namely: -(a)the guidelines, standards and other directions for achieving the satisfactory level of dam safety assurance under sub-section (1) of section 16;(b)the vulnerability and hazard classification criteria of specified dams under section 17;(c)the details and form pertaining to the maintenance of log books or database under subsection (1) of section 18;(d)the qualifications, experience and training of the individuals responsible for safety of specified dams under section 23;(e)the employment of competent engineers and their qualifications and experience for the purpose of investigation, design and construction of specified dams under sub-section (3) of section 26;(f)the quality control measures for the purpose of dam construction under sub-section (5) of section 26;(g)the level of competent engineers for the dam safety units under section 30;(h)the guidelines and check-lists for inspection of specified dams under clause (a) of subsection (3) of section 31;(i)the minimum number of set of instrumentations in the specified dams and the manner of their installation under sub-section (1) of section 32;(j)the form, manner and time interval for forwarding the analysis of readings to the State Dam Safety Organisation under sub-section (2) of section 32;(k)the data requirements of hydro-meteorological stations in the vicinity of specified dams under sub-section (1) of section 33;(l)the data requirements of seismological stations in the vicinity of specified dams under subsection (1) of section 34;(m)the suitable location and manner of collection, compliance, process and storage of data under sub-section (2) of section 34;(n)the time interval of risk assessment studies to be carried out under sub-section (2) of section 35;(o)time interval for updating the emergency action plan under clause (b) of sub-section (1) of section 36;(p)the time interval for the comprehensive safety evaluation of specified dams under subsection (1) of section 38;(q)the mandatory review of design flood of existing specified dams under clause (b) of subsection (2) of section 38;(r)the mandatory site specific seismic parameter studies of existing specified dams under clause (c) of sub-section (2) of section 38;(s)the measures necessary to ensure dam safety by every owner of dam other than specified dams under section 46;(t)any other matter which is to be specified or in respect of which provision is to be made by the Authority.

## **55. Rules and regulations to be laid before Parliament.-**

Every rule and every regulation made by the Central Government under this Act shall be laid, as soon as may be after it is made, before each House of Parliament, while it is in session, for a total period of thirty days which may be comprised in one session or in two or more successive sessions, and if, before the expiry of the session immediately following the session or the successive sessions aforesaid, both Houses agree in making any modification in the rule or regulation or both Houses agree that the rule or regulation should not be made, the rule or regulation shall thereafter have effect only in such modified form or be of no effect, as the case may be; so, however, that any such modification or annulment shall be without prejudice to the validity of anything previously done under that rule or regulation.

## **56. Power to remove difficulties.-**

(1) If any difficulty arises in giving effect to the provisions of this Act, the Central Government may, by order, published in the Official Gazette, make such provisions not inconsistent with the provisions of this Act, as may appear it to be necessary or expedient for removing the difficulty: Provided that no order shall be made under this section after the expiry of three years from the date of commencement of this Act. (2) Every order made under this section shall, as soon as may be after it is made, be laid before each House of Parliament. The First Schedule [See Section 6(1)] Functions of National Committee on Dam Safety

**1. For the purposes of maintaining standards of dam safety and prevention of dam failure related disasters, evolve dam safety policies and recommend necessary regulations as may be required;**

**2. act as a forum for exchange of views on techniques to be adopted for remedial measures to relieve distress conditions in specified dams and appurtenant structures;**

**3. analyse the causes of major dam incidents and dam failures and suggest changes in the planning, specifications, construction, operation and maintenance practices in order to avoid recurrence of such incidents and failures;**

**4. evolve comprehensive dam safety management approach as an integration of dam safety evaluation, risk assessment and risk management for the desired level of safety assurance; and also explore compensations, by means of insurance coverage for the people affected by dam failures;**

**5. render advice on any specific matter relating to dam safety which may be referred to it by the Central Government or the State Government, as the case may be;**

**6. make recommendations on a request by the Central Government on safety measures in respect of dams located outside the territory of India;**

**7. make recommendations on the rehabilitation requirements of ageing dams;**

- 8. provide strategic supervision for such dam rehabilitation programmes that are executed in States through central or externally aided funding;**
- 9. identify areas of research and development for dam safety and recommend for provision of funds;**
- 10. make recommendations on the coordinated reservoir operations of cascading dams; and**
- 11. any other specific matter relating to dam safety which may be referred to it by the Central Government.**

The Second Schedule[See Section 9(1)]Functions of National Dam Safety Authority

- 1. For the purpose of maintaining standards of dam safety and prevention of dam failure related disasters, discharge such functions as related to implementation of the policies made by the National Committee including making regulations on the recommendations of the National Committee;**
- 2. resolve any issue between the State Dam Safety Organisations of States or between a State Dam Safety Organisation and any owner of a specified dam in that State;**
- 3. provide the state-of-the-art technical and managerial assistance to the State Dam Safety Organisations;**
- 4. maintain a national level database of all specified dams in the country, including serious distress conditions, if any, noticed therein;**
- 5. maintain liaison with the State Dam Safety Organisations and the owners of the specified dams for standardisation of dam safety related data and practices, and related technical or managerial assistance;**
- 6. lay down guidelines and check-lists for the routine inspection and detailed investigation of the specified dams and appurtenant structures;**

- 7. maintain the records of major dam failures in the country;**
- 8. examine, as and when necessary, either through its own engineers or through a panel of experts, the cause of any major dam failure, and submit its report to the National Committee;**
- 9. examine whenever required, either through its own engineers or through a panel of experts, the cause of any major public safety concern in respect of any specified dam, and issue appropriate instructions relating to further investigations, operational parameters or remedial measures;**
- 10. lay down the uniform criteria for vulnerability and hazard classification of the specified dams in the country, and review such criteria as and when necessary;**
- 11. give directions regarding maintenance of log books or database;**
- 12. give directions regarding qualifications and experience requirements of individuals responsible for safety of the specified dams;**
- 13. accord accreditations to the agencies that may be entrusted with the investigation, design, construction and alteration of the specified dams;**
- 14. disqualify any agency for taking up investigation, design, construction or alteration of the specified dams, if it violates any of the regulations made under this Act;**
- 15. give directions regarding qualification and experience requirements of individuals responsible for investigation, design and construction of the specified dams;**
- 16. give directions regarding quality control measures to be undertaken during construction of the specified dams;**
- 17. lay down guidelines for preventive measures in the areas vulnerable to landslides in the vicinity of a specified dam under construction;**

- 18. give directions regarding competent levels of engineers in the dam safety units of the specified dams on the basis of vulnerability and hazard classification of such dams;**
- 19. give directions regarding instrumentation requirements and manner of their installation for monitoring the performance of the specified dams;**
- 20. give directions regarding data requirements of hydro-meteorological stations in the vicinity of the specified dams;**
- 21. give directions regarding data requirements of seismological stations in the vicinity of the specified dams;**
- 22. give directions regarding time interval for the risk assessment studies of the specified dams on the basis of vulnerability and hazard classification of such dams;**
- 23. give directions regarding time interval for updating the emergency action plans of the specified dams on the basis of vulnerability and hazard classification of such dams;**
- 24. give directions regarding constitution of independent panel of experts for comprehensive dam safety evaluation of the specified dams;**
- 25. give directions regarding time interval for the comprehensive safety evaluation of the specified dams on the basis of vulnerability and hazard classification of such dams;**
- 26. lay down guidelines for review of design floods of existing the specified dams;**
- 27. lay down guidelines for review of site specific seismic parameter studies of the specified dams;**
- 28. establishment of an early warning system incorporating appropriate framework for the exchange of real time hydrological and meteorological data and information related to operation of reservoirs by the owner of a dam;**

- 29. promote general education and awareness in relation to dam safety;**
- 30. provide secretarial assistance to the National Committee and its sub-committees;**
- 31. provide coordination and overall supervision of dam rehabilitation programmes that are executed in States through central or externally aided funding; and**
- 32. any other specific matter relating to dam safety which may be referred to it by the Central Government.**

The Third Schedule[See Section 12(1)]Functions of State Committee on Dam Safety

- 1. For the purpose of maintaining standards of dam safety and prevention of dam failure related disasters, discharge such functions as may be necessary as per the guidelines, standards and other directions issued by the Authority;**
- 2. review the work done by the State Dam Safety Organisation;**
- 3. establish priorities for investigations in case of specified dams under distress condition;**
- 4. in cases where investigations with respect to safety of any specified dam in the State had already been undertaken, to order further investigations in relation to safety of such specified dam and assign responsibilities for execution including the use of non-departmental resources, and association of independent experts where necessary;**
- 5. recommend the appropriate measures to be taken in relation to the safety of the specified dam which is under distress condition;**
- 6. establish priorities among projects requiring remedial safety works;**
- 7. review the progress on measures recommended in relation to dam safety;**

- 8. assess potential implication of reservoir filling of a specified dam in the State on any upstream State, and coordinate mitigation measures with such upstream States;**
- 9. assess potential implication of failure of a specified dam in the State on any downstream State, and coordinate mitigation measures with such downstream States;**
- 10. assess probability of cascading dam failure, and coordinate mitigation measures with all concerned, including bordering States;**
- 11. recommend provision of funds for the purpose of planned and appropriately phased rehabilitation of ageing dams in the State;**
- 12. provide strategic supervision for such dam improvement and rehabilitation programmes that are executed through State funding; and**
- 13. any other specific matter relating to dam safety which may be referred to it by the State Government.**