BUREAU OF INDIAN STANDARDS
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भारतीय मानक मसौदा

बांध के बाहर की सुविधाओं के प्रावधान की सिफारिशें

(IS 13144 *का पहला पुनरीक्षण*)

Draft Indian Standard

PROVISION OF FACILITIES OUTSIDE THE DAMS — RECOMMENDATIONS

(*First Revision* of IS 13144)

Dams and Spillways
Sectional Committee, WRD 09

Last date for Comments:
14 April 2025

FOREWORD
(*Formal clauses of the foreword will be added later*)

When a dam is constructed, the area around it is required to be developed by providing certain amenities and facilities. The required facilities depend upon the importance and size of dam and potential of the lake formed, being used as a tourist place. The facilities like lighting, water supply and sanitary arrangements, tourist spot, gardens, transport system, medical facilities and safety agent outside army attack are covered in this standard.

Provisions regarding lighting and facilities inside dams have been covered in IS 9297 'Recommendations for lighting, ventilation and other facilities inside dams'. Provisions regarding drainage system for dams have been covered in IS 9429 'Code of practice for drainage system for earth and rockfill dams' and IS 10135 'Code of practice for drainage system for gravity dams, their foundations and abutments (*first revision*).

Provision of check-posts and watchmen's cabins, kiosks etc., on roads leading to dam approaches, adit entrances and other vulnerable points be also made in addition to the above facilities.

This standard was first published in 1991. This revision of the standard has been brought out based on wide field experience and international practices, also updating the references. In this revision, the following major changes have been made:

a) Provision of tourism facilities like a museum revealing the traditional methods of agriculture and irrigation before the construction dam to the present-day water availability, promotion of local/state culture, etc. have been added; and

b) Provision of herbal plants, plant species of national and state importance and

native plants have been added.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS 2 : 2022. Rules for rounding off numerical values (*second revision*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

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1 SCOPE

This standard covers the recommendations for provision of facilities outside the major and medium dams.

2 REFERENCES

The standards given below contain provisions, which through reference in this text constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

IS No.	*Title*
IS 9297 : 2024	Lighting, ventilation and other facilities inside Dams — recommendations (*first revision*)
IS 9429 : 1999	Drainage system for earth and rockfill dams - code of practice (*first revision*)
IS 10135 : 1985	Code of practice for drainage system for gravity dams, their foundations and abutments (*first revision*)

3 LIGHTING

3.1 Sufficient and proper lighting is a necessity outside the dam. Lighting installations should provide satisfactory illumination, for proper vigilance, and monitoring of the dam and appurtenant works.

3.2 Lighting System

3.2.1 The lighting system on approach and service roads, top of dam and surrounding areas should generally consist of fluorescent light tubes or high pressure mercury vapour lamps. In areas where dense fog is expected, sodium vapour lamps should be provided in operation areas. The spillway, irrigation sluice, power outlets, downstream face of dams, abutments etc. should be flood lit by properly located flood lighting units. The spacing of poles for tube- lights may be about 30 m c/c.

3.2.2 Special lighting arrangements for earth dam for vigilance at night, after gorge filling would be necessary.

3.2.3 All wiring joints should be made in the junction boxes provided for the purpose through porcelain connectors. Precaution to prevent entry of rainwater, flood water, leakage water, etc., in the electrical installation should be taken. Additional plug points of adequate capacity may be provided at suitable locations. The design and layout of generator, transformer, electrical circuits, conduits and cables, switches, etc., should be properly coordinated with the layout and design of the main components of the dam.

3.2.4 Since, in the project areas, heavy mist is likely to hamper visibility, a series of sodium vapour lamps may also be installed at vulnerable points. This will additionally add to the beauty of the area when such locations become popular tourist spots.

4 WATER SUPPLY AND SANITARY ARRANGEMENTS

4.1 Water supply is required for drinking purposes, sanitary blocks, firefighting, gardens, etc. In some projects provision of water supply to nearby towns is also made. The location and diameter of the water supply pipe should be selected to meet the individual requirements of the project. Suitable control valves, if required outside the dam, should be properly installed for the safe and convenient operation of the system.

4.2 Raw Water Supply

Suitable pumps with stand-by capacity according to actual requirements should be installed for supply and distribution of raw water for firefighting, gardens, sanitary blocks etc. Raw water supply should also be provided near the entrance of the grouting and drainage galleries so that necessary maintenance operations can be carried out. Arrangements should also cover other areas in the abutments where drainage holes or grouting and other protection works are needed. The pipeline should provide for required valves and suitable hose connections spaced at required intervals based on overall planning.

4.3 Drinking Water Supply

To cater to the requirements of drinking water, suitable raw water tanks, treatment plant, and pure water sumps or elevated service reservoir, with valves and distribution system should be provided. Drinking water facilities should be made around the dam complex at suitable locations including the approach road.

4.4 Sanitary Arrangements

Toilet facilities including wash basins and urinals should be provided at suitable locations to serve project staff and tourists. At least one toilet on each bank is recommended. Sewage and wastewater should be disposed of through drainage system and septic tanks.

5 TOURIST SPOT

5.1 Irrigation projects have aroused public interest resulting in increasing seasonal visitors both during and after construction. Large lakes created by the project are

points of interest and potential tourist areas, Various facilities as under may be considered and provided where required for tourists and visitors to the project:

a) Tourist bungalows and dormitories;

b) Parking areas;

c) Viewpoints;

d) State tourism information centre;

e) Telephone;

f) Model room;

g) Fishing, Boating, Water Sports such as skiing;

h) Gardens;

j) Canteen;

k) Bus Stop, Post Office, Dispensary, Police Station, etc.;

m) Toilets - at least one on each bank;

n) Notice Board and Sign Boards;

p) A museum revealing the traditional methods of agriculture and irrigation (usage of water) before the construction dam to the present-day water availability. This will help educate the visitors to use the water judiciously; and

q) As far as possible, the buildings (tourist infrastructures) should be based on the themes of local area and the state in which the dam is located.

5.2 The extent and type of facilities to be provided for tourists will depend on potential of the project for development as a tourist centre.

5.3 The areas under submergence may have uneven topography, rocks, trees and areas vulnerable to land sides, etc., which may endanger the lives of tourists when boating and fishing. These areas should be properly demarcated and unauthorized persons should not be allowed in these areas. Lifeboats and other lifesaving arrangements may be made in the vicinity.

6 GARDEN

Well-planned gardens, orchards, tree plantation and landscaping on the downstream side of the dam are essential features of irrigation projects. The garden may also have special features like a herbal garden, important trees of the respective state and the nation, etc. As far as possible, non-native plants should be avoided. Suitable fountains, water courses, etc., will add to the attractiveness of the garden.

7 TRANSPORT

A public transport system for the visitors should be provided from the nearest township. Transport facilities be provided to students going to schools or colleges from the township to nearby towns.

8 MEDICAL FACILITIES

Necessary health care facilities should also be provided which should also include the provision of ambulance van and other requisite equipment to meet any contingencies.

9 PROVISION OF LIGHTNING CONDUCTORS

Lightning conductors should be provided at suitable locations on concrete and masonry structures.

10 SAFETY AGAINST OUTSIDE ARMY ATTACK

From a strategic point of view dam proper, other structures, buildings near dam, light poles, etc., should be provided with camouflage colours as these are protected structures.