

BUREAU OF INDIAN STANDARDS

Draft Indian Standard (WC Draft)

(For Comments Only)

(Not to be reproduced without the permission of BIS or used as an Indian Standard)

टिकाऊ समुद्रतट प्रचालन हेतु अपेक्षाएं

SUSTAINABLE BEACHES OPERATION — REQUIREMENTS

ICS 03.200.01

Travel, Tourism, and Hospitality Related Services Sectional Committee, SSD 02

FOREWORD

(Formal Clauses be added later)

Beaches are valuable natural assets that offer recreation, support tourism, and sustain the livelihoods to coastal communities. Beaches also play a vital role in protecting marine ecosystems and biodiversity.

With growing tourism and increasing awareness about environmental protection, it is essential to manage beaches in a way that is environmentally friendly, socially inclusive, and economically beneficial. This standard provides the requirements to the sustainable operation and management of beaches.

This standard provides operational requirements of the sustainable beaches including provisions for accessibility to persons with special needs, and conservation of coastal habitats. It also emphasizes the role of local communities and visitors in protecting beach environments.

This standard has been developed in alignment with national policies, environmental laws such as the Environmental Protection Act, Environmental Protection Rules, SWM rules and Coastal Regulation Zone (CRZ) notifications, and insights from experts and practitioners in beach management and sustainable tourism.

The composition of the committee responsible for the formulation of this standard is given in Annex G *(will be added later)*.

Draft Indian Standard (*WC Draft*)**SUSTAINABLE BEACHES OPERATION — REQUIREMENTS**

ICS 03.200.01

1 SCOPE

This standard specifies the requirements for the sustainable operation, and maintenance of beaches focusing on key aspects essential to effective and responsible beach management. It addresses the following key aspects:

- a) Environmental Information
- b) Stakeholder Education and Awareness
- c) Water Quality Assessment and Management
- d) Beach Environment, Management, and Sustainable Practices
- e) Safety and Security
- f) Ecological Conservation
- g) Beach Infrastructure and Services

2 REFERENCES

The following standards contains provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the edition indicated was 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:

<i>IS No.</i>	<i>Title</i>
IS/ISO 13009: 2015	Tourism and related services – Requirements and recommendations for beach operation
IS 13115 :1991	Portable First — Aid Kit for General Use –Specification
ISO 9308 (Part 2)	Water quality — Enumeration of <i>Escherichia coli</i> and coliform bacteria Part 2: Most probable number method
IS 5887 (Part 2)	Methods for detection of bacteria responsible for food poisoning: Part 2 Isolation, identification and enumeration of <i>staphylococcus aureus</i> and faecal streptococci (First Revision)
IS 3025 (Part 11)	Methods of Sampling and Test (Physical and Chemical) for Water and Waste Water Part 11 pH value (Second Revision)
IS 3025 (Part 38)	Water and Wastewater - Methods of Sampling and Test (Physical and Chemical): Part 38 Dissolved Oxygen (First Revision)
IS 3025 (Part 44)	Methods of Sampling and Test (Physical and Chemical) for Water and Wastewater Part 44 Biochemical Oxygen Demand (BOD) (Second Revision)

3 TERMINOLOGY

For the purpose of this standard, the following terms and definitions shall apply.

3.1 Accessible Beach — A beach that fulfils a set of requirements to make it safe and have a defined length and breath for the use of people.

3.2 Bathing Season — The period in which beach services are operational and a significant presence of bathers is foreseen taking into account local factors including environment conditions and risk factor.

3.3 Bathing Zone — The designated area where swimming and other recreational water activities are permitted and considered safe for public use due to the absence of hazards (like rip currents or rocks), and proximity to lifeguard surveillance.

3.4 Beach — A natural area by coastal processes with sand, gravel, pebble, rock or another material, that facilitates access to the water and the bathing area where leisure activities are carried out and services are provided by the beach operator.

3.5 Beach Recreation — Is a leisure, sport, and tourism activities conducted on or near a beach and include both active pursuits such as swimming, surfing, beach volleyball and passive activities like sunbathing, picnicking.

3.6 Beach Stakeholder — Individuals, organizations, and entities who have a direct or indirect interest in the beach's management, sustainability, and its operations.

NOTE — The stakeholders include local government authorities, Beach Management Committees (BMC), local communities, beachside industries, local NGOs, community representatives, Coastal and Marine Protected Area representatives, law enforcement, agencies, beach users, visitors, etc.

3.7 Beach User — Person(s) who visits the beach for leisure or for work.

NOTE — Beach users can be visitors, tourists, workers and local residents.

3.8 Carrying Capacity — Maximum number of users who can access and be accommodated on an accessible beach or in the water, within a given period of time without compromising the risk, safety and environmental concerns.

NOTE — Number of persons allowed during a particular time in the accessible beach area.

3.9 Environment — Includes water, air and land and the inter- relationship which exists among and between water, air and land, and human beings, other living creatures, plants, micro- organism and property.

3.10 First Aid — Emergency procedures aimed at maintaining vital functions whilst ensuring that the condition of a person who is wounded, unconscious or whose life is in danger is not aggravated, until he or she receives more qualified assistance.

3.11 Lifeguards — Trained personnel from an authorized agency on respective domain of safety, first aid etc.

3.12 Procedure — The specified way to carry-out an activity or process.

3.13 Regulatory Requirements — Obligatory requirements specified by an authority.

3.14 Risk — Effect of uncertainty.

3.15 Risk Assessment — Overall process comprising a risk analysis and a risk evaluation.

3.16 Statutory Requirements — Obligatory requirements specified by the legislative body.

3.17 Stakeholder — A person or a group or a society or an organization having an interest and concerns directly or indirectly and involved in the beach services.

3.18 Sustainable Beach — The coastal areas that are managed and used in a way that protects the natural coastal ecosystem, provides sustainable supports local communities and tourism, and ensures benefits for future generations.

3.19 Watch Tower — The facility on or near the beach at locations that allow trained personnel to have good observation, and quick access to the beach and water in order to perform a rescue or to inform the users of hazards.

4 STATUTORY AND REGULATORY REQUIREMENTS

4.1 Beach Management Committee (BMC) shall be constituted by appropriate authority for the purpose of sustainable beach operations with tenure and term of references.

4.2 BMC should comprise relevant stakeholders, as appropriate, to ensure effective planning, implementation, and monitoring of beach-related activities in line with the principles of sustainability beach operations, safety, and community participation. The composition of the BMC is given in Annex A. The Committee should be re-constituted by the authority at defined period.

4.3 BMC Responsibilities

BMC shall be responsible for overall operations, safety and compliance with the requirements of the standard, but are not limited to the following:

- a) Ensuring compliance with all applicable statutory and regulatory requirements;
- b) Securing necessary permissions from concern authorities, as well as adhering to any government regulations issued from time to time;
- c) Approving guidelines for the operation, monitoring, and management of the beach;
- d) Disseminating all relevant information regarding the beach to stakeholders, including legal and other applicable requirements;
- e) Developing and implementing code of conduct for beach use;
- f) Establishing and implementing an evacuation plan;
- g) Formulating and implementing guidelines for disaster management and beach restoration;
- h) Establishing, maintaining and implementing Traffic Management Plan to operate eco-friendly shuttle services;
- j) Establishing, maintaining and implementing Environment Management Plan (EMP) to ensure the protection, conservation, and sustainable use of coastal and marine ecosystems;
- k) Conducting at least one meeting each quarter for review of beach operations with a minimum quorum of five members; and

- m) Conducting the Beach Suitability Assessment Study (BSAS) prior to development of a sustainable beach as detailed in 6.9.

5. CLASSIFICATION OF BEACHES

Beaches shall be classified according on their level of compliance with the requirements outline in this standard. The classification shall be done under the following categories as listed in Table 1:

Table 1 Classification of Beaches
(Clause 5)

S No. (1)	Class of Beach (2)	Functional Requirements (3)	Requirement Referenced in Clause (4)	Operation Flag Colour (5)
i)	Class I	Compliance to all the requirements specified in the standard.	All requirements specified in the standard.	Yellow
ii)	Class II	Compliance with the basic and essential requirements including provisions of restroom, security and safety, educational awareness program and environmental aspects, water quality, soil erosion measures, ecological conservation,	Refer to the following clauses of this standard: 6.2 Beach Layout map 6.4 Code of conduct 6.5 Safety provisions 6.6 Education and awareness activities 6.7 Use of Eco-Friendly Transport 6.11 Beach cleaning 6.12 Solid waste disposal 6.13 Solid waste management facilities 6.17 Marine debris management 6.18 Conservation of native coastal habitat 6.19 Monitoring measures for Ecological of Sensitive Area 6.20 Deployment of lifeguards 6.21 Watch tower 6.22 Emergency preparedness 6.25 Emergency alarm/Beach alarm 6.26 Risk assessment for beach operations 6.27 Drinking water 6.28 Electricity arrangements 6.29 Lightning	Orange

			6.31 CCTV Camera	
			6.33 Waste disposal bills	
			6.34 Fencing of beach area	
			6.37 Changing rooms/shower area	
			6.38 Beach flags	
			6.39 Signage board and Placards	
iii)	Class III	Compliance with the basic operational requirement of the beach such as basic amenities including restroom, security and safety, educational awareness program and environmental aspects.	Refer to the following clauses of this standard: 6.5 Safety provisions 6.6 Education and awareness activities 6.11 Beach cleaning 6.17 Marine debris management 6.18 Conservation of native coastal habitat 6.20 Deployment of lifeguards 6.22 Emergency preparedness 6.27 Drinking water 6.33 Waste disposal bills 6.34 Fencing of beach area 6.38 Beach flags	Indigo

6. BEACH OPERATIONAL REQUIREMENTS

SECTION I – BEACH INFORMATION

The information shall be displayed in a minimum of three languages, preferably English, Hindi & Local language. The information being displayed shall be legible and visible from the naked eye. All structural material used in display board shall be corrosion/rust free, appropriately secured and of adequate strength.

BMC shall ensure that the following information is available at site to the stakeholders using different communication mediums, such as digital displays, board, signage, mobile applications or any other innovative means:

6.1 About Beach

BMC shall display the following information about the beach at prominent and accessible locations throughout the beach area:

- Physical – Dimensions of the beach as defined as “Accessible Beach”.
- Historical – Any historical importance associated with the beach or nearby area.
- Ecological – Ecological importance associated critical information.
- Economical – Any economical services and its sensitivity to the beach users.

- e) Metrological – Seasonal variations.
- f) Carrying capacity of the beach.

6.2 Beach Layout Map

6.2.1 BMC shall display accessible beach layout map displayed at prominent location, particularly at the beach entrance to guide visitors and ensure efficient use of the facilities. The structural material for beach layout map shall be corrosion and rust-free with adequate strength and durability to withstand extreme weather conditions, including high winds, heavy rainfall, intense sunlight and saline air.

6.2.2 BMC shall monitor and ensure that maintenance of beach including periodic updates to layout map and associated information boards or hoardings, particularly when there are changes in facilities, operating zones, or other relevant elements. The beach layout map shall clearly indicate the following designated zones, landmarks, and facilities, including but not limited to:

- a) Marked locations of beach information boards;
- b) Lifeguard stations with hours of operation;
- c) First aid station/ Beach officer's posts;
- d) Emergency contact details;
- e) Drinking water stations;
- f) Demarcated bathing area and safe swimming zones;
- g) Changing rooms and shower panels;
- h) Watch tower(s);
- j) Water sampling location;
- k) Designated parking zones (such as bicycles, motorcycles, cars including electric charging stations);
- m) Restroom areas;
- n) Food and Beverage (F&B) areas;
- p) Waste bins with clear signage on segregation (in multiple languages);
- q) Accessible and demarcated shaded seating/benches;
- r) Solid waste management plant;
- s) Solar Power plant (*if available on site*);
- t) Grey Water Treatment Plant;
- u) Local emergency assembly points;
- v) Entry/Exit Points;
- w) Dead Coral Reef rocks sites and its ecological significance (*wherever applicable*);
- y) Turtle nesting site (*wherever applicable*);
- z) Jelly Fish bloom season information (*wherever applicable*); and
- aa) Archaeological sites, reserve forest, and other protected areas (*wherever applicable*).

NOTE — BMC may significantly enhance the accessibility information dissemination by providing the following:

- a) Provide downloadable digital maps for visitors.
- b) Offering Braille, audio assistance to visually impaired visitors.
- c) Developing a centralized mobile application with live updates on tides, weather, and visitor levels.
- d) Ensuring regular Maintenance and updates.

6.3 Environment and Ecology

BMC shall display the following information but not limited to, using various communication methods:

- a) **Ecotourism activities** — Information about sustainable tourism activities at or near beach such as guided nature walk, birdwatching tours, educational programs focused on the local ecosystem.
- b) **Bathing water quality** — Display the information of bathing water quality at marked locations, along with the date of the most recent testing. This information shall be updated regularly, ideally daily or as frequently as testing occurs. Use a clear and easily understandable rating system (e.g., excellent, good, fair, poor) and provide the parameters tested. On basis of water quality indicates whether bathing is recommended or not.
- c) **Tidal information** — Display accurate and up-to-date tidal information, including high and low tide timings for the current day and the next few days.
- d) **Local biodiversity** — Provide information about the biodiversity of the beach and surrounding areas, highlighting key plant and animal species, including any endangered or protected species
- e) **Daily solid waste collection report** — Display a daily report (or a summary of the previous day's collection) on the amount of solid waste collected from the beach.
- f) **Sand dunes and its management** — Provides the information about their ecological importance (e.g., coastal protection, habitat for specialized species).
- g) **Water Conservation efforts** — Display information about water conservation measures implemented at the beach facilities and provide suggestions for visitors on how they can conserve water.
- h) **Coastal/Soil erosion information** — Information about the causes of erosion, its impact on the environment and infrastructure, and any measures being taken to mitigate it, if the beach is susceptible to coastal erosion; and
- j) Accessible beach area with a buffer zone declared as “No Plastic Zone.”

6.4 Code of Conduct for Beach Use

6.4.1 BMC shall develop, implement and maintain a comprehensive code of conduct and maintain record to promote sustainable, safe, and responsible use of the beach while ensuring environmental protection. The documents of the code of conduct and its revisions shall be maintained.

6.4.2 The code of conduct shall be prominently displayed at key locations across the beach, including entrances, information boards, and key facilities, and shall be effectively communicated to all visitors. The code of conduct shall include, but not be limited to, the following key provisions:

- a) Beach operational timing;
- b) Prohibited activities such as consumption/possession of alcoholic or drug, smoking, littering, dumping of waste, fishing, camping, cooking, use of fireworks, use of single-use plastics, excessive noise etc.;
- c) Parking of vehicles only at designed parking zone;
- d) Restrictions on recreational activities, as defined by BMC;
- e) Prohibition of motorized vehicles on the beach area;
- f) Ban on spitting within the beach premises;
- g) Mandatory compliance with instructions issued by BMC-authorized security and safety personnel, and with announcements made by the control room or authorized persons;
- h) Prohibition on causing damage to environmentally sensitive areas and ecosystems;
- j) Protection of public infrastructure developed on the beach;
- k) Compliances to all the notices issued or displayed at the beach area; and
- m) Mechanisms for submitting feedback or grievances to the BMC.

The code of conduct shall align with applicable legal and regulatory frameworks governing beach use, conservation, and further reinforcing the importance of lawful and responsible behaviour.

6.5 Safety Provisions

6.5.1 To ensure the safety and well-being of all beach visitors, the BMC shall establish the following safety measures:

- a) Install lifeguard stations and watchtowers at strategic locations to ensure effective surveillance and prompt emergency response;
- b) Set up and clearly mark the location of first aid station;
- c) Ensure the availability of remote-controlled water rescue devices at designated rescue points;
- d) Develop activity specific guidelines for all permitted beach activities to promote geomorphological, ecological, environmental sustainability of the beach. These guidelines shall clearly highlight the DO and DON'T;
- e) Formulate and implement guidelines for disaster management and beach restoration in response to extreme weather events and natural hazards; and
- f) Establish a pre-defined evacuation plan supported trained personnel.

6.5.2 In addition, BMC shall disseminate the following safety related information to all the beach user:

- a) Lifeguard patrolling schedule and coverage area under surveillance;
- b) Warnings regarding marine biological threats such as stingrays, obnoxious bloom of algae, jelly fish etc.;
- c) Details of the official bathing season and permissible timings for safe swimming;
- d) Advance notification (minimum 15 days) of any community functions, seasonal festivals, or similar events. All such events shall comply with BMC-approved guidelines and prior approval; and
- e) Prohibition of any events on accessible beach areas that have not received prior permission and for which event-specific guidelines have not been prepared and approved by the BMC.

SECTION II - STAKEHOLDER EDUCATION AND AWARENESS

6.6 Education and Awareness Activities

6.6.1 BMC shall organize environmental education and awareness programmes to promote the sustainable operations and maintenance of the beach. The minimum number of programmes to be conducted during peak seasons shall be as follows:

- a) Class – I Beach: At least 5 programmes.
- b) Class – II Beach: At least 3 programmes.
- c) Class – III Beach: At least 1 programme.

6.6.2 These programmes shall engage the diverse group of stakeholders, including but not limited to:

- a) Individuals and visitor groups;
- b) Schools, colleges, and other educational institutions;
- c) Local authority and their representative;
- d) Hotel manager and tour operators,
- e) Beach management officials/staff (manager, lifeguard);
- f) NGOs and local community groups; and
- g) Representatives of special user groups and marine/coastal protected areas.

6.6.3 The focus of these programmes shall be to raise awareness:

- a) avoiding the use of single-use plastics;
- b) participating in beach clean-up drives;
- c) conserving beach and marine ecosystems; and
- d) promoting sustainable practices such as waste reduction, segregation, and safe disposal.

6.6.4 BMC shall organize awareness activities, which may be presented in passive forms such as exhibitions, films, presentations, pamphlets, and brochures. The activities involving active participation may include guided tours, educational games, theatrical performances, and community beach cleaning campaigns. The BMC shall undertake awareness, education, and training activities as specified in Annex B.

6.7 Use of Eco-Friendly Transport

To promote sustainable mobility and minimize the environmental impact of transportation, the BMC shall implement the following measures:

- a) include environmental advantages of adopting eco-friendly transportation modes in awareness programs to educate all stakeholders, including visitors, vendors, and transport operators;
- b) information regarding availability of public transport services, designated bicycle routes, pedestrian-friendly pathways, and electric vehicle (EV) charging stations;
- c) designated parking areas shall be developed with dedicated EV charging facilities, situated at strategic and convenient locations, preferably within or adjacent to the parking zones, to encourage the use of electric vehicles;

- d) in coordination with the State Transport Department, the BMC shall prepare a comprehensive Traffic Management Plan, outlining movement control, drop-off/pick-up points, and emergency vehicle access. The plan shall be enforced by the Beach Manager in collaboration with the local traffic police, and supported by proper directional signage and visitor guidance systems; and
- e) coordinate with state transport authorities and private transport operators to operate eco-friendly shuttle services, such as battery-operated vehicles.

SECTION III - WATER QUALITY ASSESSMENT AND MANAGEMENT

6.8 Bathing Water Quality

6.8.1 BMC shall undertake the following measures to ensure the safe and hygienic bathing water quality:

- a) Identify and include critical or vulnerable sites for water quality monitoring;
- b) Define the sampling locations for water quality assessment;
- c) Declare the number of locations to have true representation for assessment of water quality, in consultation with local Pollution Control Boards/ Public Health Department;
- d) Establish a regular water quality sampling frequency at least 10 samples per bathing season or minimum 2 samples per 30 days, whichever is greater. The reporting metric shall follow 95th percentile approach. The 95th percentile calculation method is given in Annex C;
- e) Water samples of 100 ml be collected 30 cm below the water surface;
- f) Water sample shall be free from oil, odour, oil film visible on the surface of water, floatables such as tarry residues, wood, plastic articles/bottles, containers, glass or any other debris;
- g) Assign only trained personnel only to collect the water samples and the testing Laboratories shall be conducted in nationally or internationally accredited laboratories;
- h) Water sample collection, preservation, transportation, analysis and reporting be done as per the guidance of the local Pollution Control Board or any internationally accepted / peer reviewed methodology;
- j) Microbiology samples not to be stored at 0°C, as freezing can damage microbial cells and alter their viability, leading to inaccurate analysis results;
- k) Publicly report bathing water quality status on a regular basis;
- m) Ensure no industrial, wastewater, or sewage discharges occur near the beach that could compromise water quality;
- n) If water quality test results fail to comply the requirements of bathing water, the BMC shall temporarily increase the sampling frequency to monitor the incident. In the event of short-term pollution, additional samples shall be taken; and
- p) The BMC shall take immediate action to ensure safe bathing water quality and temporarily remove certification flags till the issue is resolved.

NOTE — Temperatures above 4°C may promote the growth of certain microorganisms, leading to an overestimation of microbial populations.

6.8.2 The bathing water shall be tested for water quality parameters as referred in Annex D and records shall be maintained.

SECTION IV - BEACH ENVIRONMENT, MANAGEMENT, AND SUSTAINABLE PRACTICES

6.9 Beach Suitability Assessment Study (BSAS)

6.9.1 In order to minimize erosion-related risks, safeguarding infrastructure, and promoting ecologically responsible development, the Beach Suitability Assessment Survey (BSAS) shall be conducted to ensure the long-term sustainability of beach infrastructure by comprehensively evaluating the physical, environmental, and socio-economic parameters of a coastal area.

6.9.2 BSAS shall include the following:

- a) Assess land suitability for infrastructure development without encroaching upon ecologically sensitive areas, and ensure compliance with applicable of the Coastal Regulation Zone (CRZ) norms and related national or regional regulations;
- b) Scientific analysis of shoreline dynamics, erosion trends, pollution levels, disaster vulnerability, and ecosystem integrity; and
- c) Structured consultations with local stakeholders, recognizing their essential role in sustainable development, conflict mitigation, and the long-term stewardship of coastal resources.

The information to be collected prior to development of the sustainable beach as per BSAS is provided at Annex E. The detailed findings and data collected through the BSAS shall be documented.

6.10 Environment Management Plan

BMC shall prepare an Environment Management Plan (EMP) to ensure the protection, conservation, and sustainable use of coastal and marine ecosystems in and around the designated beach area. The EMP shall serve as a guiding framework for integrating environmental safeguards into all operational activities at the beach. The detailed framework and components of the Environment Management Plan are provided in Annex F.

6.11 Beach Cleaning

BMC shall maintain the cleanliness and environmental hygiene across the beach and its surrounding areas, including access routes, parking lots, and walkways. The following measures shall be undertaken to ensure beach cleaning:

- a) Prepare and implement a regular cleaning schedule for all designated beach areas, with regular monitoring to ensure effective implementation;
- b) Availability of well-maintained and well secured waste disposal colour coded bins (for general waste, recyclables, and organic waste) strategically located at key locations such as entrances, exits, restrooms/toilets, and high traffic areas;
- c) Take special consideration for protection of local flora and fauna, particularly in ecologically sensitive zones, such as nesting areas where turtles may have buried eggs;
- d) Obtain necessary prior permission/approvals from relevant authorities before initiating cleaning operations in protected areas, such as sand dunes or conservation zones;

- e) Prohibit the use of insecticides or chemical agents for cleaning beach sand or the surrounding environment; instead, promote the use of eco-friendly and biodegradable cleaning products;
- f) Regularly clean storm water outlets and their surrounding areas, especially during periods of heavy rainfall, to prevent accumulation of waste and pollutants;
- g) Encourage the removal of invasive plant species and prioritize the protection and restoration of native vegetation to enhance the local coastal ecosystem;
- h) Establish protocols/procedure for the effective management and disposal of waste generated during public events, community gatherings, or natural disasters;
- j) Organize regular beach clean-up campaigns in collaboration with local communities, schools, non-governmental organizations (NGOs), and other relevant stakeholders;
- k) Keep the beach area remains free from solid waste, including pebbles, garbage, marine litter, discarded plastics, fishing gear, and other solid waste. Maintain records of all cleaning activities and the collection of such materials; and
- m) Dispose of all collected waste using scientifically sound and environmentally sustainable waste management practices, in compliance with local and national regulations.

6.12 Solid Waste Disposal

BMC shall establish and implement regular schedule for daily collection, segregation and disposal of solid waste through the designated agency (e.g. municipal corporation/PHED, Gram Panchayat etc.). The Beach Manager shall ensure that solid waste disposal is being done as per the established schedule and follows *SWM Rules* 2016.

6.13 Solid Waste Management Facilities

BMC shall be responsible for establishing and maintaining solid waste management facilities through the following measures:

- a) If municipal waste collection systems are not available or accessible near the beach area, the BMC shall establish Solid Waste Treatment Plants (SWTPs) in close proximity to the beach. These facilities shall be used to process and treat solid waste generated from beach activities, thereby reducing dependence on landfills and supporting environmentally responsible waste disposal; and
- b) Ensure the provision of facilities for segregation of recyclable waste at source. This includes separate collection system for materials such as glass, plastic, paper, metals (e.g. cans), and other recyclable materials, enabling effective recycling, reduce environmental pollution, and promote circular economy principles.

6.14 Restroom Facilities

6.14.1 BMC shall determine and ensure availability of number of toilets/restrooms (with well-maintained waste bins) for both males and females, and strategically placed based on peak season footfall, the total beach, the number and location of major access points.

6.14.2 It shall be ensured that toilet/restroom facilities are easy to locate through signage and information shall be marked on the beach map. Restrooms/toilets for visitors with special needs shall also be available.

6.14.3 Under no circumstances, the sewage or the water untreated or effluent from toilets shall be allowed to enter the ground. Where a conventional sewage system is unavailable, a sufficient number of bio-toilets shall be provided. The Fiberglass Reinforced Plastic (FRP) bio-digester tank installed with bio-toilet should be outside the periphery of the toilet block and not underneath it.

NOTE — Refer IS 18150: 2023 for installation of bio-digesters

6.14.4 Restroom facilities shall be cleaned regularly to maintain high level of hygiene, with increased cleaning frequency during public holidays, weekends, or large public gatherings. The beach manager shall prepare and monitor a cleaning schedule for restroom/toilets. These facilities shall be strategically located, including food and beverages area or other establishments open to the general public.

6.15 Access to Pet/Domestic Animals

6.15.1 BMC shall prohibit pet and domestic animals on the beach. However, if the BMC has the policy to permit the access to pet and domestic animals, it shall only be allowed in the parking areas, walkways and promenades in the inland beach area. The Beach Manager shall be responsible to prevent the entry of pet and domestic animals as well as stray animals in beach area.

6.15.2 BMC shall ensure regular patrolling and inspections to ensure compliance with beach policy regarding the access to pet/domestic animals. The public shall be made aware through signage or posters about the rules concerning pet and domestic animals.

6.16 Access to Vehicles

The vehicles other than for the purpose of cleaning and safety including moving lifeguard equipment, emergency vehicles etc. shall not be allowed on beach. In cases, where vehicles cannot be entirely prohibited, it shall be adequately justified, and a documented guideline shall be prepared to properly manage vehicles use.

SECTION V - ECOLOGICAL CONSERVATION

6.17 Marine Debris Management

6.17.1 BMC shall monitor beach debris growth of seaweed, driftwood, and organic debris on regular basis and inform the relevant environmental authority for proper management and removal in case of risk to public health is anticipated.

6.17.2 BMC shall ensure that the removal of marine debris does not interfere with essential ecosystem functions, such as providing nutrients to beach vegetation or habitat for marine organisms. A balance shall be maintained between cleanliness and preserving ecological health to support the overall well-being of the beach environment.

6.18 Conservation of Native Coastal Habitats

BMC shall implement appropriate measures to safeguard native coastal habitats, including dunes, sea turtle nesting sites, habitat of burrowing fauna like crabs, sand dwellers and bird breeding areas

to maintain biodiversity and ensuring the long-term stability of coastal ecosystems. Buffer zones shall be established with clear signage to restrict access to the visitors to these sensitive habitats. The beach manager shall ensure limited and only essential use of mechanical cleaning methods to avoid unintentional damage to sensitive habitats.

6.19 Monitoring Measures for Ecological of Sensitive Area (ESA)

BMC shall take appropriate measures to protect and preserve coastal ecosystems in and around the beach area, as outlined below:

- a) Protect existing sand dunes using appropriate dune vegetation and fencing, recognizing their role in preventing beach erosion, replenishing sand on eroded beaches, and supporting groundwater recharge;
- b) Provide billboards on or near sand dunes to disseminate information and highlight their ecological significance;
- c) Ensure sea turtle conservation by maintaining suitable nesting habitats, regulating artificial lighting, and promoting awareness among beach users regarding the presence of incubating eggs;
- d) Protect estuaries connected to the sea that host mangrove ecosystems land-based pollution sources;
- e) Identify coral reef zones located in the vicinity of the beach and at shallow depths (5–20 meters);
- f) Conduct baseline monitoring of coral reefs within 500 meters of the beach and carry out coral reef health checks at least once annually;
- g) Ensure that coastal archaeological sites, especially those of tourism importance and vulnerable to erosion and weathering, are regularly maintained, restored, and renovated; and
- h) Monitor and report activities related to illegal beach sand mining, mineral extraction (such as quartz and silicate), and marine shell mining, and ensure bans and restrictions on such activities.

SECTION F - SAFETY AND SECURITY

6.20 Deployment of Lifeguards

6.20.1 BMC shall ensure deployment of trained and certified lifeguards during operational hours of the beach. A minimum ratio of one lifeguard per 100 meters shall be maintained. A station with designated coordinator shall be established at clearly strategical locations and equipped with standard lifesaving gear/equipment and communication tools.

6.20.2 BMC in coordination with beach manager shall conduct regular emergency drills to ensure that lifeguards and beach staff are well-prepared to handle incidents such as drownings, injuries, or hazardous situations. The BMC shall develop and implement a comprehensive emergency response plan, including protocols for coordination with local authorities during emergencies.

6.20.3 BMC shall prepare and maintain training schedule for all the lifeguard, ensuring that each undergoes skill enhancement training at least once annually. These training shall be conducted by a certified lifeguard trainer to ensure the continuous development of lifesaving competencies.

6.21 Watch Tower

BMC shall establish the watch towers at strategically selected locations across beach premises to ensure effective surveillance and prompt emergency response. The compliance of following requirements relevant to watch tower shall be ensured:

- a) Watch towers shall be positioned to provide a clear, unobstructed 360-degree view of the beach and surrounding waters, enabling timely and continuous monitoring of visitor activities and early detection of potential hazards;
- b) Each watch tower shall be manned by designated and adequately trained personnel, such as lifeguards or safety officers, who are responsible for continuous surveillance and coordination during beach operational hours;
- c) Towers shall be equipped with reliable communication systems, including mobile phones, wireless radios, or other equivalent electronic devices, to facilitate real-time communication with rescue teams, medical support staff, and other lifeguards;
- d) The design of the towers shall ensure safety, stability, and resilience to weather resistance, using durable and sustainable materials. The access to watch tower shall only be allowed to authorized personnel; and
- e) Signage indicating the location and function of watch towers should be clearly displayed for public awareness; and
- f) Periodic drills shall be conducted to assess readiness and communication efficiency. The records of the drill shall be maintained.

6.22 Emergency Preparedness

6.22.1 BMC shall establish and implement an emergency response plan in consultation with relevant stakeholders, such as local administration NDRF, police, hospitals, fire department, State Pollution Control Board, State Environment Ministry. This plan shall address to mitigate range of potential incidents, including medical emergencies, extreme weather events, natural disaster oil spills, hazardous/toxic waste spills, fires, pollution, and other critical situations.

6.22.2 The emergency plan shall cover clearly identified procedures including public warning and information systems to facilitate prompt and effective action in the case of an emergency. The emergency plan shall be documented and reviewed at regular intervals for its revision, if needed. The records of review of emergency plan shall be maintained.

6.22.3 BMC shall conduct regular joint emergency drills, at least once in a year, involving all relevant agencies and stakeholders to ensure that all are parties are well-aware of their role and action to handle various emergency situation. Dedicated training shall also be provided on a regular basis, focusing on coordination with stakeholders, operation of rescue equipment, administration of first aid, and execution of evacuation protocols. The training records shall be maintained.

6.23 User Conflict Management

6.23.1 BMC shall establish and maintain clearly demarcated zones for various beach activities to minimize user conflicts. These zones shall include designated areas, with signage, for swimming, surfing, water sports, fishing, and any other activity, ensuring safe and uninterrupted enjoyment for all visitors.

6.23.2 Prominent display boards shall provide information on activity restrictions, safety guidelines, and designated areas to ensure visitors are aware of permitted activities, behavioural expectations, and designated boundaries.

6.23.3 BMC shall regularly monitor beach activities, particularly in areas prone to user conflict, to avoid any unwanted situation. The visitor feedback, observations, and reported conflicts shall be used to make necessary adjustments and improvements to the management strategy.

6.24 First Aid Stations

6.24.1 BMC shall establish well-equipped first aid stations to ensure timely medical assistance for visitors in case of emergencies. Each station shall be staffed by trained personnel. The first aid box shall also be available with lifeguard. An adequate number of staff members and lifeguards shall be trained to provide First Aid and certified in CPR/AED from institute recognized or accredited by the government/healthcare sector skill council.

6.24.2 The first aid stations shall be equipped with the following equipment:

- a) Adequate first aid (e.g. basic first aid supplies such as bandages, gloves, disinfectant, plasters, etc.);
- b) Cold water and, preferably, hot water;
- c) First aid bed;
- d) Oxygen cylinder and mask;
- e) Immobilizing equipment such as trauma boards, immobilizing blocks or spider harness; and
- f) Other specialized equipment such as shark attack pack.

6.24.3 All first-aid stations and the location of first-aid equipment shall be clearly sign-posted to ensure easy identification and access by beach visitor.

6.25 Emergency Alarm/Beach Alarm

6.25.1 BMC shall install emergency alarm systems at key locations on across the beach, including high-risk zones, lifeguard stations, and main entry points. These alarms shall be easily accessible and capable of alerting visitors in case of emergencies.

6.25.2 BMC shall develop and implement clear protocols for activating beach alarms systems and for communicating instructions to visitors during emergencies. This shall include coordination between lifeguards, beach officials, and local authorities to ensure a swift, safe and organized response. Regular check-up of alarm systems shall be done to ensure functionality and records shall be maintained by the beach manager.

6.25.3 All emergency alarm systems shall be equipped with backup power sources to ensure continuous operation during power outages or adverse weather conditions. The BMC shall conduct periodic awareness campaigns through digital platforms, on-site signage, and live demonstrations, to educate beach users how to respond when an alarm is triggered in case of emergency.

6.26 Risk Assessment for Beach Operations

6.26.1 BMC shall identify and validate safe bathing zones based on comprehensive assessments of natural coastal factors. These assessments shall primarily govern by the bathymetry (underwater topography) of the coastal waters, hydrodynamics, coastal currents, rip currents, wave parameters, and tidal variations.

6.26.2 BMC shall evaluate wave patterns to ensure that waves break parallel to the shoreline are designated safe for bathing. Zones with mild, parallel currents shall be identified, as they aid in dispersing pollutants and reducing water stagnation. The zones prone to rip currents shall be closely monitored and clearly demarcated as restricted for any bathing or water sports activities to ensure public safety.

SECTION G – BEACH INFRASTRUCTURE AND SERVICES

6.27 Drinking Water

BMC shall ensure the provision of safe and clean drinking water within accessible areas of the beach. The following measures shall be undertaken:

- a) Drinking water facilities shall be conveniently located and easily accessible to all visitors;
- b) Water purifiers or filtration systems shall be installed at all designated points; and
- c) Water quality testing shall be conducted in accordance with IS 10500, preferably at intervals not exceeding six months.

6.28 Electricity Arrangements

BMC shall ensure the safe and reliable provision of electricity at the beach premises by implementing the following measures:

- a) Install concealed and insulated electrical wiring;
- b) Regularly inspection and maintenance electrical appliances and installations;
- c) Installation of an electricity backup system;
- d) Ensure proper earthing of all electrical systems, equipment and appliances for human safety;
- e) Securing and restricting access to areas housing electrical infrastructure to prevent unauthorized handling; and
- f) Install renewable energy solutions, such as solar power systems, where feasible and applicable.

6.29 Lighting

BMC shall ensure the following with regard to lighting across the beach area:

- a) Provisions of an adequate and well distributed lighting in the beach area to ensure safety and visibility during low-light conditions; and
- b) Promotion and utilization of renewable energy-powered lighting systems.

6.30 Administrative Facilities

BMC shall provide and maintain appropriate administrative infrastructure to support effective beach management, including the following:

- a) Provide administrative offices to efficiently support staff operations and coordination;
- b) Provide dedicated space and staff for reception areas to assist and address visitors queries;
- c) Establish and implement adequate security measures, including access control systems in administrative areas;
- d) Establish procedures for visitor registration, access management and maintaining record; and
- e) Displaying emergency contact numbers such as beach emergency number, police, nearest hospital, and fire services at prominent locations across beach facilities.

6.31 CCTV Camera

BMC shall ensure the installation and operation of CCTV surveillance systems to enhance safety and security across the beach premises. The following provisions shall be implemented:

- a) Install CCTV cameras at strategic locations and ensure a clear view of potential risk zones without compromising visitor privacy.
- b) All camera feeds shall be monitored in real-time by trained personnel to enable prompt response to any incidents;
- c) Ensure prompt action to any incident including theft, vandalism, or emergencies.
- d) CCTV footage shall be securely stored for a duration in accordance with applicable local laws, regulations, or government orders/guidelines. Measures shall be in place to prevent unauthorized access to CCTV footages and stored data; and
- e) display the information at prominent places regarding presence and placement of CCTV cameras to maintain transparency and address privacy concerns.

6.32 Communication

BMC shall:

- a) Install communication facilities such as telephone lines for internal and external communication at appropriate locations;
- b) Determine and provide additional communication infrastructure including computers, internet, teleconferencing, walkie-talkie sets, PA system as required;
- c) Ensure that mobile phones are provided to key personnel, particularly those responsible for security and emergency coordination within the premises; and
- d) Display phone numbers of key officials and essential services prominently across the beach premises for public awareness and quick access during emergencies.

6.33 Waste Disposal Bins/Containers

To maintain hygiene, beach environment cleanliness, and efficient solid waste management, the BMC shall ensure the provision of adequately placed, secure, and regularly maintained waste disposal bins/containers across the beach premises. The following provisions shall be followed:

6.33.1 *Waste Segregation*

Color-coded bins shall be provided for segregation of waste into at least three categories:

- a) General Waste;
- b) Recyclables; and
- c) Organic Waste.

All bins shall be clearly labelled, securely lidded, and designed to be tamper-proof and animal resistant where needed.

6.33.2 *Strategic Placement*

Waste bins shall be installed at strategic and high-footfall locations, including but not limited to the following:

- a) Entrances and exits;
- b) Restrooms and toilet facilities;
- c) Parking and recreational areas; and
- d) Food courts, seating zones, and other congregation points.

6.33.3 *Material*

The bins shall be made of eco-friendly, weather-resistant, and durable materials, and should align with the overall aesthetic and environmental principles of sustainable beach management.

6.33.4 *Capacity and Collection Frequency*

The capacity, number and placement of each bin, as well as the frequency of waste collection, shall be determined based on the expected visitor volume, especially during peak tourist seasons to prevent overflow and littering.

6.33.5 *Maintenance and Monitoring*

BMC shall ensure routine inspection, cleaning, and timely emptying of all bins. Overflowing or damaged bins shall be immediately addressed. Maintenance activities shall be documented and monitored to ensure compliance.

NOTE — Solid waste shall include, but is not limited to, solid or semi-solid domestic waste, sanitary waste, commercial and institutional waste, market and catering waste, street sweepings, drain silt, horticulture and agricultural waste, and other such non-residential or treated wastes as defined under the *Solid Waste Management Rules*, 2016.

6.34 *Fencing of Beach Area*

To ensure safety, environmental protection, and regulated access to the beach, the BMC shall provide fencing and implement access control measures with the following provisions:

- a) Design and position fencing to clearly demarcate restricted, various designated zones, ecologically sensitive, and hazardous areas such as turtle nesting zones, sand dunes, or vegetation belts while ensuring public access to permissible zones;
- b) Ensure that the design and installation of fencing preserves the natural movement of native fauna and avoids disturbance to ecologically sensitive areas;
- c) Ensure that all fencing infrastructure complies with accessibility requirements, providing safe and inclusive access for persons with disabilities and special needs; and
- d) Conduct regular inspection, maintenance, cleaning and repair of all fencing infrastructure to ensure its continued functionality, cleanliness, aesthetic quality, and continued effectiveness for its intended purpose.

6.35 Children's Park

To promote family-friendly infrastructure and promote child safety and recreation, BMC shall develop a dedicated children's park within the beach premises with the following provisions:

- a) Park shall be located in a clearly demarcated area, away from potential hazards such as strong currents, rocky zones, and high-traffic bathing areas, ensuring a secure environment for children;
- b) Park shall be equipped with age-appropriate, safe, and weather-resistant play equipment, including swings, slides, and climbing structures, with adequate shading and soft, impact-absorbing ground surfaces;
- c) Easy access shall be ensured through well-defined pathways, including barrier-free access for children with disabilities; and
- d) Adequate seating arrangements for guardians and visibility for supervision shall be ensured. The park shall fall under the general oversight of beach security or lifeguards, and emergency contact information shall be displayed.

6.36 Dedicated Pathways

To ensure inclusive and accessible infrastructure, the BMC shall develop dedicated pathways that enable safe and convenient movement throughout the beach premises, including for individuals with disabilities. The BMC shall ensure the following provisions:

- a) Designed to accommodate all users, including persons with mobility challenges, and shall feature barrier-free, and stable surfaces to facilitate ease of movement;
- b) Provide direct and seamless access to key facilities such as entry/exit points, restrooms, changing rooms, seating areas, eco huts, and children's parks, with special consideration given to accessibility for individuals with disabilities;
- c) Appropriate accessible signage and wayfinding aids, including tactile indicators and high-contrast visuals;
- d) Ensure that all pathways remain safe, clean, and fully functional, especially for those using assistive mobility devices such as wheelchairs, crutches, or walkers; and
- e) Lighting arrangements shall be available in entire pathways.

6.37 Changing Rooms/Shower Area

BMC shall establish well-designed changing rooms and shower areas within the beach premises. BMC shall be developed with the following provisions to ensure universal accessibility, including for individuals with disabilities. These facilities shall incorporate the following provisions:

- a) Changing rooms and shower areas shall be barrier-free, spacious, and fitted with non-slip flooring, grab bars and low-height fixtures to accommodate users with mobility aids;
- b) Facilities shall prioritize the use of eco-friendly, durable, and sustainable materials such as recycled wood composites, bamboo, low-flow water fixtures, and solar lighting to minimize the environmental footprint;
- c) Separate changing areas shall be provided for men and women. Wherever feasible, gender-neutral or family changing rooms shall be included to support diverse user needs, including parents with young children and caregivers;
- d) All facilities shall be kept maintain clean, dry, and well-ventilated, with provisions for efficient drainage systems, regular sanitation schedules, and proper waste disposal mechanisms;
- e) Changing rooms and shower facilities shall be well-connected through dedicated accessible pathways, clearly marked with inclusive signage, and located in proximity to eco huts or rest areas for convenience; and
- f) Adequate measures shall be taken to ensure user privacy and safety, including proper lighting, secure locks, and privacy partitions in all units.

NOTE — the development of sustainable and accessible beach infrastructure reflects a commitment to environmental responsibility and social inclusion, ensuring equal dignity, safety, and comfort for all visitors, including persons with disabilities.

6.38 Beach Flags

6.38.1 The Beach Flag shall indicate the operational classification of the beach (Class I, II, or III) based on the level of compliance to the requirements of this standard relevant to a category of beach. This flag shall serve as a visual representation of the beach's adherence to the requirements.

6.38.2 In the event of non-compliance with any of the requirements corresponding to the declared operational class of the beach, the beach manager shall immediately remove or lower the beach flag until full compliance is restored.

6.38.3 To ensure visitor awareness, beach classification and operational control, the BMC shall ensure the display of designated flags in designated beach area. BMC shall display the following three flags at a designated beach area preferably at the entrance:

- a) National Flag;
- b) State Flag; and
- c) Beach Flag.

6.39 Signage Boards and Placards

To ensure safety, accessibility, awareness, and effective guidance for all beach visitors, the BMC shall install adequate and appropriately placed signage boards and placards across the beach premises. These signage boards shall adhere to the following provisions:

- a) Signage boards and placards shall be installed at all critical points, including entrances, parking areas, changing rooms, shower areas, restrooms, eco huts, children's parks, watch towers, accessible pathways, and high-risk zones. All signage shall be clearly visible, durable, and positioned at accessible height for all users, including those with disabilities.
- b) Each board shall provide clear, concise, and multilingual information, where applicable, covering key details such as:
 - 1) Safety instructions and emergency contact information;
 - 2) Bathing and swimming zones;
 - 3) Prohibited activities;
 - 4) Environmental conservation messages;
 - 5) Locations of key amenities and services and
 - 6) Accessibility features and guidelines.
- c) The BMC shall install placards declaring the beach as a Plastic-Free Zone at prominent locations. The placards shall adhere to the following provisions
 - 1) Placards shall be installed at entry/exit points, parking areas, food and beverages facilities, and other high-footfall locations to ensure maximum visibility to all beach visitors;
 - 2) The messaging on the placards shall be clear, concise, and multilingual, encouraging visitors to avoid single-use plastics, dispose of waste responsibly, and carry reusable alternatives (e.g., cloth bags, bottles, containers); and
 - 3) Where feasible, the placards should include QR codes or links directing users to more information on marine conservation, and sustainable tourism practices.
- d) Signage boards and placards shall be developed using sustainable and weather-resistant materials, and designed to complement the natural aesthetics of the beach environment.
- e) BMC shall ensure that all signage boards and placards are routinely inspected, updated, and maintained to remain legible, clean, and secure at all times.

6.40 Information and Technological Infrastructure

To facilitate efficient operations, coordination, and information access at the beach site, BMC shall ensure the provision of necessary IT infrastructure, including desktops/laptops and internet connectivity, with the following provisions:

- a) BMC shall assess and determine the operational requirements for laptops/desktops, Wi-Fi, and LAN connectivity based on the scale of operations, staff requirements, and digital service needs.
- b) BMC shall ensure that the Wi-Fi and LAN infrastructure provides sufficient bandwidth to support essential digital functions, such as emergency communications, monitoring systems, visitor information services, and coordination with external agencies.
- c) The internet network shall be reliable and secured, with adequate coverage across operational zones, including control rooms, administrative offices, and other designated areas.

6.41 Cloakroom

To enhance visitor convenience and ensure the secure storage of personal belongings, the BMC shall provide a well-maintained cloakroom facility within the beach premises, with the following provisions:

- a) The cloakroom shall be strategically located near entry/exit points or centralized amenities for easy access and ensuring use by individuals with disabilities.
- b) The facility shall be equipped with secure lockers or storage units of varying sizes, constructed from durable and weather-resistant materials, and fitted with locking mechanisms to ensure the safety of deposited items.

6.42 Food and Beverage Services

BMC shall ensure that all food and beverage service providers operating within the beach premises strictly adhere to the hygiene, safety, and regulatory standards, in accordance with the following provisions:

- a) All food and beverage vendor operators shall possess valid licenses or permits issued by the competent authorities. Unauthorized or unlicensed vendors shall not be permitted to operate within the beach area;
- b) Service providers shall maintain high levels of hygiene and cleanliness across all areas related to food preparation, storage, handling, and **serving**.
- c) BMC or designated officials shall conduct regular inspections, at a frequency of at least once per day, to ensure continuous compliance with food safety norms, waste disposal practices, and cleanliness standards;
- d) Food vendors shall ensure proper segregation and disposal of food waste, aligning with the beach's overall waste management system; and
- e) Service providers shall use eco-friendly packaging, avoid single-use plastics, and adopt energy and water-efficient practices to support the beach sustainability goals.

ANNEX A
(Clause 4.2)
(Normative Reference)

Composition of Beach Management Committee

A-1 Beach Management Committee (BMC) shall comprise the following members:

- a) Chairperson – The District Collector shall serve as the Chairperson or an officer nominated by the District Collector, not below the rank of Additional District Magistrate or Sub – Divisional Officer;
- b) Secretary;
- c) Treasurer;
- d) Representative from the District Coastal Zone Management Committee DCZMC; and
- e) Six additional members.

A-2 The six additional members should be included in the BMC from representatives of the following organizations/departments:

- a) Municipal Corporation/ PHED;
- b) Beach manager;
- c) Forest department;
- d) State Tourism Department;
- e) Central/State Pollution Control Board/Committee;
- f) State/National Disaster Response Force;
- g) State Fishery Department;
- h) Local NGO;
- j) State transport department;
- k) Gram Panchayat/ Community representatives;
- m) Hotelier/Restaurant Association;
- n) Local vender association;
- p) Lifeguard;
- q) Consumer Organization;
- r) Police/Marine police;
- s) Gram Panchayat; and
- t) Local fishers;

ANNEX B
(Clause 6.6.4)

Beach Educational Activities

B-1 BMC shall undertake the following activities related to awareness, education, and training:

- a) Organize educational and awareness activities on the beach involving all the beach stakeholders including local communities, visitors, school groups, and tourism operators to promote sustainable tourism and responsible beach use;
- b) Conduct active awareness initiatives including guided tours, educational games, theatre or plays, and beach cleaning campaigns;
- c) Conduct passive awareness imitative including exhibitions, films, brochures, pamphlets, presentations, leaflets, posters, interpretive signage, newsletters, postcards, stickers, books, T-shirts, bags, and radio broadcasts;
- d) Organize and conduct targeted training programmes for key personnel including teachers, beach staff, individuals in charge of children's groups, lifeguards, cleaners, and law enforcement officials;
- e) Implement community awareness and environmental education initiatives through a designated Beach Environmental Information Centre, where informative materials, exhibitions, and interactive sessions can be hosted for diverse groups; and
- f) Design and deliver specific awareness programmes, such as children's awareness programmes on the importance of a safe and clean beach environment (minimum duration: 2 hours) and seminars covering key environmental issues and mitigation measures (recommended duration: half-day sessions).

ANNEX C
(Clause 6.8.2)

Water Quality Parameters

C - 1 The Beach Management Committee (BMC) shall ensure that water quality meets the required physical, chemical and microbiological standards to protect health and safety of beach users.

C - 2 Primary Water Quality Criteria for Bathing Water is given below: *(Ref- CPCB Water Quality Criteria for Bathing Water)*

S. No.	Parameter	Requirement	Method of Test, Ref to
i)	Fecal Coliform, MPN/100 ml, max	2500, <i>Max</i>	ISO 9308 (Part 2)
ii)	Fecal Streptococci, MPN/100 ml:	500, <i>Max</i>	IS 5887 (Part 2)
iii)	pH	6.5 - 8.5	IS 3025 (Part 11)
iv)	Dissolved Oxygen (mg/l)	5, <i>Min</i>	IS 3025 (Part 38)
v)	Biochemical Oxygen demand 3 day, 27°C (mg/l)	3, <i>Max</i>	IS 3025 (Part 44)

NOTE — Refer Table 1 of 'The Environment (Protection) Rules'

ANNEX D
(Clause 6.8.2)

Calculation of the 95th percentile

D-1 The microbiological monitoring data shall be evaluated using a log10-normal probability density function to derive upper percentile values (used for classification and risk assessment). The following procedure shall be used:

- a) Convert each microbial count to its \log_{10} value. For zero values, use the \log_{10} of the detection limit of the test method.
- b) Calculate the arithmetic mean of the \log_{10} values (μ).
- c) Calculate the standard deviation of the \log_{10} values (σ).

The upper percentiles shall be calculated as:

- a) upper 90-percentile = $\text{antilog}(\mu + 1,282 \sigma)$.
- b) upper 95-percentile = $\text{antilog}(\mu + 1,65 \sigma)$.

ANNEX E
(Clause 6.9.2)

Beach Suitability Assessment Study (BSAS)

E-1 BMC shall conduct the BSAS and collect the information prior to development of the sustainable beach including but not limited to the following:

Sl No.	Required Information
1	Name of beaches
2	Distance of beaches from any International airport
3	Geomorphological/Geological parameters
4	Name of district
5	Jurisdiction authority (Municipality/Panchayat)
6	Land Owning Authority (Public/Private)
7	Village available nearby and its population
8	Access road for beach & type (Bitumen/Earthen)
9	Approx. length of beach in meters
10	Approx. width of beach sand area after the High Tide Line (HTL) for setting up Infrastructure in meters
11	Width of the Inter-Tidal Area (ITA) - in meters
12	Beach lithology- Stony/Gravelly/Sandy coarse/Sandy fine
13	Stability of the shoreline (last 10 years)
14	Presence of any river mouth/inland channel, backwaters near the beach
15	Colour of Sand
16	Condition of Sea (Rough/ Calm)
17	Rip currents status
18	Approximate gradient from HTL to Low Tide Line (LTL)
19	Approximate distance into the sea at knee height depth
20	Area near beach (Flat/Hilly/Mountainous)
21	Beach Surroundings (Eco System) Parameters
22	Existing plantations/vegetation cover type on the beach
23	Type of local eco-systems/ESAs/CVCAs
24	Any sand dune near beach?
25	Any sea weed beds in the proximity of beach?
26	Any rocky out crop?
27	Any turtle nesting sites?
28	Any reserved/protected forest?
29	Any coral reef nearby beach within 500 meters from HTL?
30	If Yes, then any monitoring mechanism in place?
31	Any present mechanism to deal with algal vegetation on the beach

32	Any National Park/Natural Reserve nearby beach
33	State of pollution parameters
34	Degree of cleanliness at present
35	Segregation of solid waste at present
36	Recycling of solid waste (organic)
37	Any solid waste disposal mechanism initiated by local authority & informed
38	Physical condition of water quality at present
39	Presence of open defecation
40	Any existing Sewage Treatment Plant (STP) plant nearby
41	Any sewage outlay
42	Any industry nearby
43	Presence of stray animals
44	Presence of regulated animals for recreation
45	Any camping site on beach
46	Type of vendors/shacks on the beach area
47	Waste collection and disposal method used by vendors / shacks
48	Any cleanliness drive by Local authority
49	Any initiative by the local authority for pollution control of sea
50	Methodology adopted for cleaning of beach presently
51	Existing beach facilities & management measures
52	Availability of municipal water supply on the beach
53	Purified drinking water facility available
54	Any toilet facility available
55	Any changing rooms available
56	Any shower panels available
57	Any parking facility already existing
58	Any colour coded garbage bins provided at the beach presently
59	Any existing waste management system - collection, disposal and treatment
60	Any provision of grid electricity / transformer on the beach
61	Any information board displayed on local eco-systems presently
62	Any first aid equipment available at the beach presently
63	Any patrolling vehicle available at the beach presently
64	Any lifeguards deployed at present
65	Any pedestrian access/walkways/jogging track available presently
66	Any fencing done near beaches to prevent ingress of stray animals
67	Beach Management/Development Committee formed or not?
68	Name of nodal officer-if nominated the name of officer
69	Any beach operator for maintenance of beach
70	Any Initiatives taken by beach operator?

71	Is beach completely vehicle free zone (no two wheeler, three wheeler or four wheeler motor is allowed in the beach area other than for cleaning equipment, emergency ambulance or moving lifeguard/patrolling vehicle)
72	Is the toilet sewage treated before going into ground? i.e. Is sewage discharge of toilets, shower panels being treated at beach presently?
73	Availability of dedicated manpower for cleaning of toilets and other facilities at beach?
74	Any systematic measures taken by state authority for monitoring physical contamination of sea water such as floatable (debris) or oil films on the surface of sea water
75	Any systematic measures adopted by local authority for monitoring the water quality for biological contamination (e-coli etc.)
76	Any existing code of conduct relating to local laws governing the use of beach available at present?
77	Any detailed map identifying key facilities & services available at beach at present?
78	Any information relating to local eco-systems & environmental phenomena displayed?
79	Any periodic initiative/s by local authority for environment education programmes/events for tourists?
80	Any water sports activities to promote tourism at present?
81	Has the beach been assessed for under water safety risk?
82	Has the water quality been tested for P,C & B parameters?
83	If yes, then how clean is the bathing water from biological parameters point of view?
84	Period of Tourist Season
85	Peak Season Footfall/month
86	Average monthly footfall at present
87	Any encroachment of nearby land, approach road/parking area
88	Number of vendors/shacks on the beach area
89	Number of registered vendors
90	Type of available transport facilities
91	Type of available accommodation facilities
92	Any fishing activity around the beach area is present
92	Land revenue information for the development of infrastructure (Land availability)
93	Type disaster risk identified for the area

ANNEX F
(Clause 6.10)

Environmental Management Plan (EMP)

F-1 The Environmental Management Plan shall be prepared to include, but not limited to the following criteria:

- a) Conservation initiatives to be undertaken to safeguard existing flora and fauna;
- b) Conservation and protection measures to be taken to safeguard turtle nesting and fish spawning areas;
- c) Conservation plan for migratory species and critically endangered species or other protected species;
- d) Conservation plan for habitats like mangroves, sand dunes, rocky or marshy habitats etc. to ensure that such habitats are not disturbed or cleared;
- e) If beaches are near a marine protected area or a wildlife sanctuary, deployment of the wildlife warden and the EMP shall be developed in consultation with the wildlife warden of the protected area; and
- f) Where areas that are sensitive and require special management such as areas identified as Ecologically Sensitive Areas (ESAs), the EMP will be prepared after consultation with an appropriate expert.