COASTLINE OF GUJARAT
A Study on Ecology and Development Potential of Beaches
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Gujarat Ecology Commission
Government of Gujarat
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Message

Gujarat's coast extending from its northern edge in Kutch to Valsad in south supports a variety of life. There are numerous beaches along the state’s coastline, each with something unique. Some are special because of the flora and fauna that they support around estuaries, mud flats, creeks, lagoons and mangroves. Others are dotted with temples and recreational facilities and lure tourists from different parts of the state and country. Many industries and companies too have established themselves along the coast due to the strategic advantages and natural conditions it offers and the coasts have been a gateway for trade and economic activities since long.

The ecosystems around the state's coast are precious and sometimes threatened. Much of the marine life in these regions depends on the delicate balance between nature and man. The growing environmental stress along Gujarat’s coasts has created a strong need to conserve the coastal and marine flora and fauna that are threatened due to issues such as pollution and shrinking habitats.

Gujarat has taken special initiative for the socioeconomic development of the coastal communities through the Sagarkhedu Yojana. Coastal tourism with ecological conservation on the beaches of Gujarat would provide further opportunities for their wellbeing and may evolve as a model of eco-friendly inclusive development of coastal communities.

The book, 'Coastline of Gujarat' by Gujarat Ecology Commission is an innovative attempt to highlight how Gujarat's coastal tourism can be further promoted while simultaneously safeguarding its fragile and special ecology.

I congratulate the team for bringing out this valuable publication.

Date: July 6, 2012

(Narendra Modi)
Among all the states in the country, Gujarat has the longest coastline, at nearly 1,600 km. This is about 30% of India's total coastline along the mainland. Starting from Kutch with its sandy beaches and clear blue waters, moving down towards Saurashtra and continuing all the way upto Maharashtra, Gujarat's coast is rich with marine biodiversity as well as opportunities for economic development.

Gujarat's seaside bustles with marine life. Dolphins can be spotted leaping in the distant waters, coral reefs and mangroves flourish here, migratory birds from the northern hemisphere feed and rest along the state's periphery, and those like the endangered Green Sea Turtle traverse great distances to use the state's tranquil shores as a safe haven to lay their eggs.

Tourists throng to the beaches for fun, relaxation and worship. Some of Gujarat's best known temples like those at Dwarka and Somnath lie by the sea. Festivals and holidays see tourists and locals gathering by the beach in thousands.

The state has over 20 beaches, many of which are already very popular. These need to be conserved as well as developed further. Nature lovers and holiday makers alike will cherish the experiences at these picturesque seaside destinations. However, caution also needs to be taken for the improvement of environmental conditions around these beaches and the vast aquatic and terrestrial life dependent on them.

The present study on the beaches of Gujarat is a commendable effort to outline for every beach the major thrust areas that call for more attention. It not only seeks to conserve the beaches, but also seeks to tap into their tourist potential so that ecological conservation takes place alongside economic development of the region. The book 'Coastline of Gujarat' by Gujarat Ecology Commission is recommended for anyone who loves the seaside.

Date: July 6, 2012

(Mangubhai Patel)
Message

Gujarat's beaches have attracted people from all walks of life. The coasts around Dwarka and Somnath are famous because of their magnificent temples. Porbandar and Dandi draw tourists in great numbers because of their connection with Mahatma Gandhi. The vast sandy beach with its pristine waters at Mandvi holds allure for local as well as global tourists. There are some lesser known beaches, which are no less beautiful, such as the one at Shivrajpur, near Dwarka.

People, young and old, come here to soak in the sunset and the cool breeze, to go on a leisurely stroll or for fitness walk and to spend time with families.

Many of these beaches are touched by exotic natural beauty. Dolphins, Corals, Crabs, Sea Turtles and a variety of birds like Gulls and Pelicans abound near the shore. The sea and the shore are special for them for different reasons. The trees, the sand, the rocks and other crevices and niches are where they turn to for their food and shelter. The water is home to a vast array of marine creatures, big and small.

This publication on the beaches of Gujarat by Gujarat Ecology Commission, introduces the reader to what is special about each beach in Gujarat. Importantly, it also indicates the major concerns and challenges faced by these beaches and the road map to overcome them. This may pave way for an inclusive beach management model. My special compliments go to the Gujarat Ecology Commission for coming out with this book.

Date: July 6, 2012

(Kiritsinh Rana)
Message

Gujarat's long coastline of an estimated 1,600 kilometres is special, both for the ecological and the development opportunities it represents. Thousands of tourists and locals come to the beach, whether it is for holiday or worship. Fisher folk, vendors and industries have direct stakes in the beaches for their economic value.

Coastal regions across the globe support a huge diversity of marine-based ecosystems. From ocean floors to the skies above, the marine ecosystems are among the most productive on the planet. However, they are also fragile and highly vulnerable to human impact.

Wastes in large amounts routinely get dumped on the shores and in the sea. Untreated sewage, clay idols, religious offerings, litter and toxic substances find their way into the water. These put marine flora and fauna, some of which are already endangered, at risk. Pollution of the sea threatens their existence and damages their habitats. The beaches too are littered by non-degradable and other waste like plastic packets and straws, coconuts, eatables and other tourist litter. Much of the waste accumulation and pollution that happens is due to the lack of awareness among locals and visitors about the consequences of their actions.

The study on the beaches along the coastline of Gujarat draws attention to the diversity in the state's coastal areas and the issues that need attention. It highlights the need for developing tourist friendly beaches with adequate infrastructure and amenities, while at the same time keeping an eye on the need to strike an ecological balance in the process. It underlines the need for coordinated efforts of all stakeholders such as locals and tourists, government agencies, temple trusts and the industry for bringing about the harmonious and sustainable development of Gujarat's beaches.

I appreciate the importance of the study for the management of the beaches and congratulate the Gujarat Ecology Commission's efforts in coming out with this publication.

Date: July 6, 2012

(Dr. S. K. Nanda, IAS)
Message

Gujarat Ecology Commission undertook a study of Gujarat’s beaches for the ecological and socio-economic development of the state’s coastal areas. The study was done by its own team of experts along with interns from Mudra Institute of Communications, Ahmedabad. The two joint teams visited over 20 beaches in Kutch, Saurashtra and South Gujarat. The focus of the study was to protect the rich but fragile coastal areas while simultaneously developing the tourism potential of the beaches. It also looked for stakeholder inclusion, particularly local people and those who are directly dependent on activities around.

The study teams examined the ecological, economic and social issues of each beach as well as the existing systems and infrastructure available for maintaining it. They interacted with locals, tourists, government personnel, citizens’ groups, vendors and local leaders to gain insights into the prevailing issues that affected the status and cleanliness of the beaches.

The present study identifies the significance of each beach from the ecological and socio-cultural perspective, the challenges faced in conserving the beach, and the steps that could be taken for the sustainable development of the beach. The need for beach cleaning has emerged as common issue to all beaches without exception. The study has thus recommended the need for creating greater public awareness for keeping the beaches clean, and has also called for a more proactive role to be played by civic bodies and government agencies for ensuring cleanliness.

Some of the issues and opportunities are unique to individual beaches and the study has attempted to highlight them as well. In several beaches, like those in Dandi and Narara, conservation and tourism-related projects are already being planned or implemented, and therefore the study has tried to further build on such initiatives.

This study by GEC will be useful for anyone interested in developing or enjoying the state’s beaches in an environmentally sustainable and responsible manner. I congratulate the teams from GEC and MICA for conducting the study in a very short period.

Date: July 6, 2012

(A. K. Verma, IFS)
Acknowledgements

Gujarat Ecology Commission gratefully acknowledges the support of the following agencies, organisations, institutes and groups in conducting the study of Gujarat’s beaches:

**Government Departments**
- Forest Division- Kachchh, Porbandar, Valsad, Navsari
- Marine National Park & Sanctuary, Jamanagar
- District Educational Office, Navsari
- District Collectors Office, Bhavnagar

**Institutes**
- M. D. Science College, Porbandar
- Fisheries Research Centre, Okha
- Khimji Ramdas School, Mandvi
- Shri Vivekanand Research and Training Institute, Mandvi

**Local Authorities**
- Patan Veraval Municipal Council
- Porbandar Municipal Council
- Umergaon Municipal Council
- Mandvi Nagar Palika
- Dwarka Nagar Palika
- Naliya Mandvi Gram Panchayat
- Madhavpur Gram Panchayat
- Gandhvi Gram Panchayat
- Ubharat Gram Panchayat
- Danti Gram Panchayat
- Dandi Gram Panchayat
- Tithal Gram Panchayat
- Nargol Gram Panchayat
- Mahuva & Kuda Gram Panchayat

**Local Associations & NGOs**
- Dwarkadish Temple Trust, Dwarka
- Somnath Temple Trust
- Vendors associations of Somnath, Tithal, Porbandar, Ubharat, Dandi, Mandvi
- Eco-clubs District Co-ordinators
- Sriram Swimming Club, Porbandar
- Utthan, Bhavnagar
- Gopnath Temple Trust

**Industries**
- Tata Chemicals Ltd.
- Umergaon Industrial Association
India has a coastline of about 7,500 km, with nearly 250 million people living within 50 km of the coast. The coastal area accounts for 130 cities and a very significant share of India’s economic infrastructure. Maritime facilities, petroleum industries, and import-based industries are located in the coastal zone, in addition to a large number of poor villages that depend on fishing for livelihood. The coastal areas are also subject to recurrent natural disasters such as cyclones and floods, and the 2005 tsunami devastated large areas especially along the eastern coastal states. India’s coastal zone is endowed with a wide range of mangroves, coral reefs, sea grasses, salt marshes, sand dunes, estuaries, lagoons, and unique marine and terrestrial flora and fauna. Due to increasing human population, urbanization and accelerated developmental activities, including industrial and maritime development, the coastal areas have been assuming greater importance in recent years.

INTRODUCTION
India is home to numerous beaches as a result of its extensive coastline. Whether it is a secluded beach in Andamans or a party beach of Goa, beaches in India attract thousands of tourists every year. Kerala, Goa, Andhra Pradesh, Andaman & Nicobar, Gujarat, Karnataka, Lakshwadeep, Maharashtra, Orissa and Tamil Nadu offer spectacular beaches. The most popular ones in India are Anjuna, Dona Paula, Baga and Calangute Beaches in Goa; Juju Beach in Maharashtra; Marari and Kovalam Beaches in Kerala and Marina Beach in Chennai.

Gujarat in particular has great potential for developing beach tourism. At about 1600 km, Gujarat on the west coast has the longest coastline amongst the Indian states and is bestowed with several good beaches. In addition to supporting tourism, these beaches are also important for the coastal communities dependent on fisheries and ports for their livelihood.
The Coastal Regulation Zone Notification of 2011 seeks to protect India’s coastal natural resources, including beaches, thereby also preserving the livelihood sources of coastal communities. Several measures for regulating usage of beaches have been enacted to prevent construction on sand dunes, release of untreated waste, protection through plantation of coastal vegetation and protection of ecologically important beaches showing presence of turtle nesting sites, corals, mangroves and mudflats.

**Study of Gujarat’s Beaches**

Gujarat Ecology Commission (GEC) identified 20 potential beaches in Gujarat where it seeks to highlight their ecological significance and tourism potential. Its study seeks to address the issues faced by the various stakeholders in coordinating maintenance activities of the beach. The study has attempted to identify gaps in policy and its implementation regarding conservation of beach front.

The relationship between tourism and conservation is a symbiotic one. The benefits that a well-managed coastal area can accrue to the industry are immense. If tourism is properly controlled, it can create the conditions necessary to support the process of conservation through productive planning and comprehensive management. It will also help in the socio-economic development of the coastal communities by providing them with alternative sources of livelihood.
Objectives of the Study

- Create public awareness on the importance of having clean, healthy and well-managed beaches
- Conserve coastal ecosystems
- Develop beach and coast-based tourism
- Engage in activities related to promoting beach cleanliness
- Promote recycling and reuse of the waste marine material

Methodology

1. **Field Visits:** These were conducted to understand the ecological status of beaches and their socio-cultural background of the local people. The visits included interactions with peer leaders, community leaders, sarpanches and residents of the nearby villages. Additionally, group discussions were conducted amongst various stakeholders on the beach like vendors, policemen, hawkers, etc.

2. **Primary Data Collection**
   - Rapid ecological survey of floral and faunal diversity in and around the beaches
   - Recording of mass behavior
   - Questionnaires for field surveys for locals, tourists, members of civic bodies, NGOs and other regional officials

3. **Secondary Research**
   - Discussions with colleagues and experts about the problem of cleanliness at beaches and exploring possible solutions
   - Examination of data and records if available, to study trends, peculiarities and other clues
   - Review of relevant studies conducted in the area
   - Exploratory personal investigation involving original field interviews on a limited scale with interested parties and individuals with a view to secure greater insight into the practical aspects of the problem

4. **Reporting of results and designing of communication campaign**
Literature survey

Identification of important beaches

Identification of issues & important stakeholders

Primary data collection

Field visits

Interviews & surveys

Spot campaigns

Ecological status of beaches - Report

Beach-specific communication campaign for cleaner beaches
Getting there

**By Air:** The nearest airport is Keshod around 145 km away, and is connected to Mumbai with regular flights.

**By Rail:** Delwada railway station is situated around 9 km from Ahmedpur-Mandvi and is connected to the Ahmedabad-Veraval line.

**By Road:** State transport buses and private luxury coaches connect Ahmedpur-Mandvi with various centres of Gujarat.

AHMEDPUR-MANDVI  Una Taluka, Junagadh district

The Ahmedpur-Mandvi beach is sandy with clear water that stretches across 6 km through Naliya Mandvi and Vasol villages along the Saurashtra coastline. In fact, there is no clear demarcation between the Union Territory of Diu and Ahmedpur-Mandvi beaches.

Currently, the beach is still unexplored and has a lot of scope for development. It is only during holidays and festivals that it is visited by tourists and locals. The daily footfall on the beach is around 1,000 to 2,000 people while during vacations and festivals the number crosses the 10,000 mark.

Economic activities on the Ahmedpur-Mandvi beach are sparse. Presently, there is just one vendor for water sporting. During holidays, a few moving hawkers can be spotted. The main occupation in the villages is agriculture and additionally, many drive auto rickshaws.
**Ecological Significance**

Two dominant species in flora have been recorded viz. Prosopis juliflora and Acacia Spp. This vegetative area along the coast is declared as Reserve Forest. Movement of Asiatic lion is also seen in this area. Moreover, this coastal area is a habitat for the *Hyphane indica* which locally known as Ravan tad or Diu tad. During the visit, only two trees of *Hyphane indica* was noted along the coastal.

*Hyphane indica* or “Ravan Tad” is branched palm, which belongs to coastal areas of Saurashtra and South Gujarat. IUCN has assessed it as Vulnerable in 1998.

**Tourism Potential**

Ahmedpur-Mandvi is one of Gujarat's lesser-known gems and finest pieces of coastline. From lazing on a hammock with a book to bathing in its pristine waters, this beach also offers many water sport adventures like water scooters, skiing, surfing, para-sailing and speed boating. The sea water is white and ideal for swimming. Situated where Gujarat and Diu come together, Ahmedpur-Mandvi provides a rich blend of cultures from Saurashtra and the Portuguese influence from Diu. The area on one side of the beach is covered with forests and is under the Forest Department. The coastal region here is rich in biodiversity. It is visited by lions and migratory birds flock to nearby lagoons. Dolphins too can be frequently seen in the mornings. The serene beauty of the beach adds to its charm.
Challenges and Concerns

- **Cleanliness:** The beach rarely sees a huge crowd at a time so there is not much pollution or litter created. However, during holidays and festivals, tourists and local people from nearby villages, Nalia Mandvi and Vansol, do visit the beach. The waste during such times is mostly plastic water pouches and wafer packets. No other type of waste is found on the beach as there are no food stalls or other vendors. Since Diu and Ahmedpur-Mandvi share the same beach, tourists often dump the alcohol bottles on Ahmedpur-Mandvi. The beach does not have dustbins and a workforce for maintaining cleanliness on a regular basis.

- **Tourist amenities:** There is no provision for drinking water, changing rooms and toilets. Presently, there is only one guest house at the beach, belonging to the Tourism Department and leased out to a private party.

- **Tree cover:** Local accounts indicate that there used to be a thick forest cover that has shrunk as the trees were felled for fuel and livelihood activities.

Local Initiatives for Beach Cleanliness

The gram panchayat does not have sufficient funds or manpower to take up consistent measures for beach cleanliness and monitoring. However, it has conducted occasional cleanliness campaigns and drives in the past. The daily waste by the water sports vendor is collected by himself at the end of the day and then either dumped outside the beach or burnt.
Recommendations for Beach Development

- **Tourist infrastructure**: The beach should have drinking water and food stalls to attract tourists and generate income for the villagers. Huts should be placed on the beach to provide shade to tourists and life guards should also be deployed to prevent fatal incidents. Changing room facility for swimmers should also be developed as the sea water is clean and safe. Dustbins should be installed at regular intervals to prevent litter. Parking facility could be created to avoid chaos and rush near the beach.

- **Promotion as a hot tourist spot for marine life and adventure sports**: The beach is known for its dolphins, lions and migratory birds. These points should be highlighted in the communication strategy formulated by the Tourism Department for promotion of this beach. Additionally, since this site is perfect for swimming and adventure water sports, these aspects could also be highlighted for attracting tourists.

- **Beach Action Force**: A committee should be developed to look after the beach. There was a suggestion from locals to hand over the entire cleaning activity to the women's self help group to conserve the beach as well as help the locals to earn income. Various NGOs can also be included in such a maintenance programme.

- **Creating public awareness for cleanliness**: Notice boards should be placed on the beach and near the entrance to create awareness among the people regarding the Do’s and Don'ts at the beach. If required, a penalty system may be developed to levy fines from those who create litter on the beach.

- **Tree plantation and conservation**: Since there is rich biodiversity on the beach, measures can be taken to conserve it through the plantation of specific plants suited to the area.
**Getting there**

**By Air:** The nearest airport is Surat which is at a distance of around 56 km from Dandi beach.

**By Rail:** The nearest railway stations are those of Navsari and Surat.

**By Road:** Dandi Road and Aat Road connect the beach to the main city of Navsari. One can reach Dandi via Navsari or Surat using state transport or private luxury bus facility.

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**DANDI** Jalalpore taluka, Navsari district

Dandi is a small village on the coast of Gulf of Kambhat in Southern Gujarat. The village holds an important place in Indian history. The Salt Satyagraha, also known as the Dandi March (March 12, 1930), led by Mahatma Gandhi, ended in Dandi and was one of the milestones in the Indian Independence Movement. The famous Saifee Villa Museum dedicated to Mahatma Gandhi and the Dandi March lies close to the beach.

The beach at Dandi is just 19 km away from Navsari and extends for about 7 km. It is managed by the Gram Panchayat of Dandi and Forest Division of Valsad (Range Chikhli). The shoreline is muddy with black sand and the water is somewhat turbid due to high sediment content. There is considerable forest cover behind the beach, dominated by *Prosopis* and *Casuarina* trees. Dandi is very popular among the locals of Navsari and Surat for holidaying over weekends.
**GANDHI Project**

Dandi is an ecologically sensitive region consisting of vast mudflats, mangroves and wetlands. Declaring Dandi as an eco-sensitive zone, the central government along with MoEF has launched the Green Action for National Dandi Heritage Initiative (GANDHI) project for Dandi and five other villages.

The World Bank funded Integrated Coastal Zone Management (ICZM) project and the GANDHI Project are being implemented in Dandi, and seeks to develop an ICZM Plan based on Gandhian principles. The Gujarat Ecology Commission is working on socio-economic development and conservation of natural resources in the region. It has done solarization of the beach front and plantation of mangroves in the estuaries alongside the beach. Gujarat Vidyapith, Ahmedabad is an important centre for Gandhian learning in India and is also assisting in this project. The GANDHI project also aims to promote ecotourism and “environment-positive” branding of Dandi. Considerable development has happened in Dandi and on its beach since the launch of this project.

**Ecological Significance**

Most dominant species in the area are *Prosopis juliflora* and *Casuarina equisetifolia* and *Ipomoea biloba*. *Bougainvillea glabra* and *Lantana camara* are planted by the Forest Division of Valsad range at the entrance of beach. Moreover, *Acacia spp.*, is also found in association with *Prosopis*. 
Tourism Potential

The historical heritage along with a beautiful sea shore makes Dandi a great spot for ecotourism. Owing to its connection with Mahatma Gandhi and the number of NRIs visiting Dandi, it attracts domestic and global tourists. Currently, several agencies of the government including the Forest Department, Tourism Department and Gujarat Ecology Commision are working towards the development of Dandi.

Tourist-friendly Infrastructure

Both the Panchayat of Dandi and the Forest Department have worked towards establishing state-of-art infrastructure facilities at the beach. Gujarat Ecology Commission has installed solar lights at the beach for conserving energy.

- **Dedicated vendor corridor:** Selling of food items at the beach is the major economic activity at Dandi. A separate vendor corridor situated near the entrance and away from the shore has been constructed for the vendors. Cleanliness is managed by individual vendors who ensure that their own area remains clean. Creation of this corridor has multiple advantages – it adds to the aesthetics of the beach; it organizes all vendor activities; and waste gets collected at one place and that too away from the shore.

- **Provision of tourist amenities:** The beach is protected with a gated entrance to prevent the entry of stray animals. There are display boards at specific intervals to promote best practices on the beach. Van Kutirs, benches, shades etc. have also been installed.

- **Adequate sanitation facilities:** The beach is equipped with clean toilets, bathrooms and dressing rooms for changing. Drinking water facility is also present at the beach.

- **Beach management:** Forest Division-Chikhli Range and gram panchayats with active support of co-operative societies have been playing an important role in carrying out various welfare activities in Dandi and its beach.
Challenges and Concerns

- **Cleanliness:** Though the vendor corridor is away from the shore, many of the tourists carry food items along with them to the beach and spread litter around. Many of them even bring food from home which also results in creation of waste. Besides, during Ganpati Visarjan ceremony, crowds from Navsari visit the Dandi shore for immersing idols of Ganesh which are often made of Plaster of Paris. This is one of the major causes of pollution as these half-dissolved idols are washed back to the shore.

- **Threat of gas leaks and oil spills:** There is a gas pipeline of ONGC (Oil and Natural Gas Corporation) starting from Surat and ending near Dandi beach. A leakage in the past had happened near the *Casuarina* plantations at the beach. There were no causalties and the pipe was repaired immediately by the ONGC team. However, there still remains a threat of similar leakage in the future. Incidences of oil spills along the southern coast of Gujarat have been observed in the past where in the marine life of Dandi had been affected.

- **Lack of awareness:** Currently, Dandi is seen as just another spot for week-end relaxing by visitors. Most of them are completely unaware about the historical significance of Dandi. There is a need to increase awareness regarding the Dandi March and the role of Dandi in the Independence Movement.

Natural Pressures

- **Erosion:** This can be observed with the steep sand dunes being transformed into an almost flat beach front.

- **Severe salinity:** The village of Dandi is facing severe salinity problems due to high tidal influence, the impact of which can be seen in the transformation of fertile agricultural land into high salinity areas.

- **Natural disaster prone zone:** Dandi is prone to natural disasters in the form of cyclones and storms.

- **Dead jellyfish washed ashore:** Several dead jellyfish were spotted on the beach during the field visit (May-June) which raised a lot of curiosity among the locals. A similar pattern was observed on almost all the beaches of Southern Gujarat (Tithal, Nargol). According to Gujarat Pollution Control Board (GPCB) officials, this is a first of its kind incident.
Recommendations for Beach Maintenance

- **Declaration of 'No-Plastic' Zone:** Preventing the tourists or vendors from using plastic or charging a fine for its use will mitigate the problem of plastic disposal to a certain extent.

- **Involvement of NRIs:** Most of the locals of Dandi have NRI relatives. The government should prepare a communication strategy to convince these NRIs to not only invest financially in Dandi welfare projects but also promote Dandi on an international platform.

- **Land protection:** Since Dandi is facing the problem of excessive salinity and natural disasters, there is a need to conserve the fertility of its land by adopting eco-friendly methods of preservation and bio-shielding. The ongoing GANDHI project is working on these issues.

- **Tourism:** Measures are currently being taken in Dandi to revamp its image as a tourist spot of historical and ecological importance. Additionally, other promotional activities should also be carried out.
Getting there

**By Air:** The closest domestic airport to Dwarka is located at Jamnagar, which is about 137 km away. There are regular flights from Jamnagar to Mumbai. Taxis are available from Jamnagar airport to Dwarka.

**By Rail:** Dwarka railway station on the Ahmedabad - Okha rail route is connected to other major railway stations.

**By Road:** The state’s GSRTC buses connect Dwarka with all major cities in the state. Luxury coaches are also available from nearby cities to Dwarka.

Dwarka

**Dwarka** Okhamandal taluka, Jamnagar district

Dwarka is an ancient coastal town that lies on the bank of the Gomati creek. It is situated to the extreme west of the Saurashtra peninsula on the Arabian Sea. It is a prominent tourist destination and has the third highest footfall in terms of tourists in Gujarat. The place receives around 10 lakh visitors on an annual basis.

The town, known as the 'City of Gold, is an important destination on the Hindu pilgrim's map due to the famous Dwarkadhish Temple, also known as the Jagat Temple. Legend goes that Lord Krishna, along with several others of the Yadav clan came to Dwarka from Mathura and established an empire of gold. The word “Dwarka’ comes from ‘Dwar’, which is a door, and 'Ka' which refers to liberation. Dwarka is thus considered as the gateway to liberation and is inextricably linked with Lord Krishna. It is one of India’s four principle holy places or 'Chardham', known as Mokshapuri. The town has several stretches of beaches which can also attract tourists in their own right. In ancient times, this coastal town was a flourishing port as it connected the sea with the main land.
**Beaches of Dwarka**

The coast at Dwarka is of rocky nature, spread over an area of 10,000 sq m. It is a narrow intertidal strip of about 1 km width, with a white, sandy shore and crystal clear water. There are multiple stretches along this coast that have been developed as tourist beach spots and wharves for fishermen communities. The maintenance and cleanliness of these stretches is the responsibility of Dwarka municipality.

**Stretch near Gomati Ghat**

One stretch of beach is tucked away behind Gomati Ghat, where River Gomati meets the sea. The beach can be reached either by crossing the river on foot during the low tide or by hiring a boat. The other end of the Gomati Ghat is frequently visited for the Panchanada Tirtha which consists of five sweet-water wells. Though the stretch over here is a beautiful sandy area with clean, sky blue water, it is hardly visited by any one as either the tourists are completely unaware of its hidden beauty or they fear crossing the river.
Stretch near Bhadkeshwar Temple

A beautiful temple of Bhadkeshwar Mahadev is built on the rocky shore. A small bridge, partially submerged in sea, connects the temple, that is perched on a huge rock that half protrudes into sea, with the mainland. During the high tide, the entire bridge gets fully submerged in water. Tourists can sit on the rocks near the temple and enjoy the cool sea breeze. Apart from this, a sunset point has also been developed in the same area.

Beyt-Dwarka

The Beyt Dwarka Beach gets its name due to its location in the Bet Island, about 30 km from Dwarka and 148 kms away from Jamnagar. The rich marine life and the presence of some important temples are responsible for making the Beyt Dwarka Beach immensely popular. A variety of water birds crowd along the shores of the Arabian Sea and impart a charming feel to the surroundings. During the low tides one can often view dolphins leaping out in the distant sea. In fact, the entire region around the Bet Island is rich in marine diversity. The other specialities of Beyt Dwarka Beach include the white sandy beach and the coral reef alongside it. Ferries to Beyt Dwarka are available from Okha, which lies to the north of Dwarka. Thus, although Dwarka is a popular pilgrimage destination, beaches like Beyt Dwarka beach often come as a surprise addition for tourists, who after visiting the temples, head towards the silent shores.
**Stretch near Dwarka light house**

This stretch has been developed as a major tourist spot and enjoys maximum crowd. There are several vendors for selling food items as well as water rides. Maximum maintenance activities are required over here.

**Fishing communities at Rupen Bandar and Arambhada**

Apart from the tourist spots, few coastal stretches in Dwarka are inhabited by fishing communities. Rupen Bandar is a small fishing village situated across Rukmini Temple. The village vicinity is extremely dirty as the municipality uses the ground opposite Rupen Bandar as a dumping area, making the whole place unhygienic. Arambhada is a fishing harbour where ship building and breaking activities are carried out.

**Ecological Significance**

A large number of birds and marine creatures can be seen on Dwarka's coast. Dolphins, green sea turtles, and crabs are common visitors. Some species of other fauna like *Dasychalina cyathina*, *Heteractis crispa*, *Nereis versicolor*, *Hyperia medusarum*, *Balanus*, *Amphitrite*, *Clibanarius clibanarius*, *Portunus pelagicus*, *Aplysia dactylonela*, *Octopus vulgaris*, *Modilus metacalfa*, *Chiton tuberculatus*, *Chicoreus adustas*, *Conus figulinus* and *Cyprea* have also been reported in the inter tidal area of Dwarka coast. Moreover, there are also some temporary hatcheries on islands near Dwarka which are maintained by the Marine National Park, Jamnagar. A few species of marine algae have been reported here.
Tourism Potential

Dwarka is already famous for its religious tourism. Lakhs of tourists, both domestic and foreign, visit Dwarka every year. The temple is open intermittently in the mornings and evenings. Hence, the tourists have lot of free time during the day and beach-based tourism can be promoted to tap into the huge influx of tourists that already visit the town. The coast of Dwarka has several beautiful beaches and a rich diversity of marine flora and fauna. It is one of the few places in Gujarat where dolphins can be spotted. The place has also been identified by the Government of Gujarat for a major oceanarium project.

Current Initiatives in Dwarka

Municipality of Dwarka: It is responsible for maintaining cleanliness at the beaches and ensuring conservation of marine flora and fauna. It has done commendable construction work near Bhadkeshwar temple. All the beach stretches were quite clean during the field survey.

Integrated Coastal Zone Management Project: After doing a feasibility-check across five different locations in Gujarat, Dwarka has been chosen as an ideal site for the Oceanarium Project to be implemented jointly by several government bodies and the World Bank under the larger Integrated Coastal Zone Management Project.

Reliance Industries Ltd. (RIL): RIL has identified Dwarka as one of important places in Gujarat for heritage conservation and has undertaken construction and beautification projects.
Challenges and Concerns

- **Cleanliness:** Religious waste like flowers, coconut shells and cloth is dumped directly at the confluence of River Gomati and the sea. Plastic waste is also being generated out eatables sold by vendors. These are dumped in to the sea at various locations. Waste collectors too often find the coastal areas convenient to dump the city waste.

- **Bathing and cleaning activities:** Local public and several tourists do their religious ablutions in the Gomati River. Apart from this, washermen wash their clothes at the Gomati Ghat.

- **Waste generated by fisheries:** Fishing communities in Rupen Bandar and Arambhada generate waste such as stale fishes and household waste from their day-to-day activities and this is either directly disposed of in the sea or dumped near the sea shore. Torn and unusable fishing nets are also discarded into the sea.

Recommendations for Beach Maintenance

- **Waste management:** The municipality should employ more manpower and bring about stricter surveillance of the vendors for beach maintenance. It should also train the waste collectors for proper disposal of waste.

- **Future development:** The municipality of Dwarka has provided several facilities such as cement roads along the shore, open air theatre, sunset point, parking and resting facilities etc. However, in order to give tourism a further push, it needs to go beyond that. Activities like scuba diving, sea rafting and water sports can be encouraged. Information display boards, dustbins, proper sanitation and resting facilities must be established at all major tourist spots in Dwarka, including the beach. A feasibility check should be done for the development of a special dolphin aquarium along the coast of Dwarka.

- **Private participation:** The government should encourage private participation for setting up high class motels, cottages and hotels in Dwarka. It could offer land at concessional rates.

- **Processing of fish waste:** Options should be checked for processing fish waste to manufacture compost which can be further used for soil enhancement. Further research is needed in this direction to augment the incomes of the fishing communities.
Getting there

Koliyak and Kuda are about 20 km from Bhavnagar.

By Air: Various domestic airlines connect Bhavnagar with Mumbai and Ahmedabad.

By Rail: Bhavnagar is on the Western Railway Line, about 777 km from Mumbai via Ahmedabad.

By Road: State transport buses and private luxury coaches are well connected to Bhavnagar.

Ghogha is situated on the mid-western bank of the Gulf of Khambhat and about 15 km south of the present port town of Bhavnagar. It was known as the port of Gundigar by the Vallabhi rulers (AD 480-720). The Imperial Gazetteer of India (1908:301) mentions that “the natives of this town are reckoned the best sailors in India. The ships touching here may procure water and supplies or repair damages.” Folklore also indicates some kind of direct overseas relations between Ghogha and Sri Lanka. According to historical accounts, Arabs had established their colony at Ghogha in the year 636 AD. The earliest Arabic inscription from Ghogha dates to 1170 AD. The presence of ancient Jain temples at Ghogha dating back to the 10th -11th centuries suggest that this was also a religious center. During the British period, ships upto 1500 tons visited here. Ghogha is also known to provide a harbour for large ships though they would lie dry in mud during low tides. Currently, a special infrastructure ferry terminal project worth Rs.296-crore for Dahej-Ghogha has been launched on Ghogha coast by the Gujarat Maritime Board.
Beaches at Ghogha

There are two major tourist beach spots near Ghogha – the Kuda and Koliyak Beaches. Both are located on the same stretch at a distance of about 4 km from each other. They are among the popular tourist destinations in the district and most tourists that visit these places come from the nearby cities and villages.

Kuda Beach

Kuda is a village 5 km away from Ghogha town and 22 km away from the main city of Bhavnagar. The beach at Kuda is about 2.5 km long. The sea is muddy due to high sediment content. The tidal currents are very high in this area and it can get quite dangerous with frequent casualties on this beach. Kuda attracts a lot of tourists from Bhavnagar during festivals and holidays. There is a temple of Chikotar Devi, lending the place its religious significance.

The beach at Kuda is a means of livelihood for several vendors. A separate place has been allotted by the Panchayat where all the vendors sell their ware. There are four permanent food stalls and hawkers wander on the beach during peak hours. The main activities are selling corn, water pouches, wafer packets, and other eatables. There is also a horse riding activity and children are found playing cricket and other sports. The village of Kuda has a population of around 4,000 people, who are primarily engaged in diamond activities and agriculture.
Koliyak Beach

Koliyak village lies 21 km away from Bhavnagar city. The beach here is about 4 km in length. It is believed that Pandavas established Nishkalank or Nakalank Mahadev on a new moon night of the Indian calendar month of Bhadarva and so the beach is favoured by Shiva worshippers. The popular Bhadarvi Fair is held on the new moon night in the month of Sharvan. A temple of Lord Shiva is located on an island 3 km to the east of Koliyak. This temple can be reached between 9.00 am to 12.00 pm on the day after the new moon night. It has to be noted that the island gets inundated by tides so visitors need to leave the place before 1.00 pm. On the auspicious day of Bhadarvi Purnima around 2-3 lakh pilgrims visit the Koliyak beach to offer prayers to Lord Shiva.

The sea at Koliyak is suitable for swimming and people regard bathing in the sea as an auspicious act. There have been benches installed for the people to seat and enjoy the scenic beauty of the beach.

There are around 30 coconut vendors on the beach along with few vendors engaged into selling of eatables and water pouches. Like Kuda, a separate place for vendors has been assigned by the Panchayat of Koliyak. During weekends and festivals, hawker and vendor movement peaks and the priests and locals too earn a lot of income.

Ecological Significance

Among flora, *Prosopis juliflora* is a prominent species. Others include *Ficus religiosa*, *Ipomoea biloba*, *Capparis deciduas*, *Capparis sepiaria*, *Pedalium murex*, *Avicennia marina* and *Ficus beneghalensis*.
Tourism Potential

Both beaches, due to their religious importance, are popular local tourist attractions. However, the infrastructure can be improved and beach management can become more efficient to attract more tourists from outside. Better sanitation facilities, availability of changing rooms and drinking water need to be made available. Hotels, amusement parks, seating arrangements, life guard facilities, etc. can also be developed.

Challenges and Concerns

• **Cleanliness:** Around 5,000-6,000 people visit the beach during festivals and holidays and generate a lot of litter. Even though all vendors are permitted to sell items only at one specific site, the tourists tend to buy plastic food packets and dispose them on the open beach as there is no provision of dustbins on any of the beaches. Moreover, the presence of temples on both the beaches results in religious waste like flowers and offerings often wrapped in polythene. The presence of coconut vendors on the beach has created huge a problem of plastic straws which in addition to being non-biodegradable also spoils the ambience of the place.

• **Lack of awareness:** Due to lack of proper knowledge regarding environmental issues created by waste, locals and villagers visiting the beaches do not hesitate to throw plastic and other waste into the sea. There is a definite need to educate the public about the importance of beach conservation. Moreover, certain beliefs and superstitions of pilgrims regarding religious offerings made to the sea also add to the environmental pressures and disturbing the beauty of the beach.

• **Soil erosion:** The area faces direct tidal currents from the Arabian Sea. The current is fairly strong near the mouth. High tidal amplitude and associated currents have a significant role in soil erosion in the mouth and the adjoining areas.
Recommendations for Beach Maintenance

- **Waste management:** The Gram Panchayat and Forest Department need to take care of solid plastic waste and religious waste. The frequency of solid waste collection must be increased in the festive season and on holidays. Deployment of large waste collection trunks, both, at the vendor site and near the temple will ensure effective collection. It must also be ensured that harmful waste is not dumped directly in to the sea.

- **Awareness generation through mass media:** There is a need to educate the people of Bhavnagar and nearby villages regarding the importance of cleanliness and conservation of their beach. Advertisements in print and on radio can be used to do the same. Festive and religious gatherings can also be used as a platform for creating awareness. People should be made aware about the harmful effects that the religious waste can create.

- **Dustbins and Display Boards:** Dustbins need to be provided to every vendor. Hoardings and display boards can be put on the beach and on the main road at regular intervals along with new dustbins on the footpath for public use. A penalty system for littering can also be put in place.

- **Declaring the beach as a 'No-plastic' zone:** The waste generated because of plastic water pouches can be reduced by setting-up either stationary or mobile drinking water sources. Plastic generated from packaged food items cannot be recycled due to poor quality. It not only makes the place look dirty but also causes air pollution when burnt by the local vendors. Hence, the government should declare the beach as a 'No-plastic' zone wherein either the vendors themselves are barred from selling plastic packs or the public is not allowed to carry plastic packs along. The 'no-plastic' zone should allow plastic of a specific thickness range.
Getting there

Gopnath is around 40 km from Bhavnagar which is well connected to different parts of the state.

By Air: Various domestic airlines connect Bhavnagar with Mumbai and Ahmedabad.

By Rail: It is on the Western Railway Line, 777 km from Mumbai via Ahmedabad.

By Road: State transport buses and private luxury coaches provide easy connectivity to Bhavnagar.

GOPNATH  
Talaja taluka, Bhavnagar district

Gopnath is a small village along the coast of Gulf of Khambhat, favoured by pilgrims due to its association with myths and legend. Gopnath gets its name after the legend where Lord Shiva took the form of a ‘Gopi’ to play Raas Lila with Lord Krishna. There is a magnificent Vijay Villas palace near Gopnath, which is a popular tourist destination in its own right. Once the summer residence of Maharaja of Bhavnagar, Gopnath is situated about 75 km from Bhavnagar, and is known for its splendid beach. Every weekend, the beach sees a footfall of around 5,000-6,000 people.
Alang, located by the beach, houses the world's biggest ship-breaking yard. The sacred Talaja temple is located on the shore at an altitude of 350 feet on a volcanic hill. This Shiva temple is where the devotional poet Narsinh Mehta supposedly had his spiritual experience almost 500 years ago. The coast in Gopnath is full of tiny islands and offers a picturesque view to the onlooker. The area near the beach is quite rocky. Fishing activities are carried out near the shore along with agriculture. Once the work is completed, the area will cater to tourists as well as pilgrims.

The beach at Gopnath is frequented by many vendors. A separate place has been allotted to them to sell their items by the Customs Department which manages the beach. There are around five to six permanent food stalls near the temple selling eatables and other products. In addition to these, during weekends and festivals, many temporary vendors also move on the beach.

**Ecological Significance**

With limestone cliffs, breathtaking views, cool sea breezes and an abundance of waterfowl, the kilometer-long Gopnath beach has an exotic charm. The flora here is dominated by Prospis juliflora and Ipomoea biloba, Pedalium murex and Avicennia marina are also present.

**Tourism Potential**

With better infrastructure and management, more tourists would be attracted to Gopnath. Better sanitation facilities, availability of changing rooms and drinking water can be made available at the beach for tourists and pilgrims. The temple trust has already started work on developing a chowpati near the beach and seeks to promote the area as a picnic spot. It should, however, be ensured that the natural environment of the area is preserved during the development.
Challenges and Concerns

- **Cleanliness:** Like the Ghogha beach, religious activities at Gopnath too need to be better managed. Major sources of waste are the coconut water vendors and the packaged food items that are sold. The temple trust has not provided any support towards cleaning of the beach. The vendors on the beach maintain cleanliness on their own as instructed by the Customs Department. The coconut fibre they gather is used as a fuel instead of dumping it into the sea. The plastic straws and plastic pouches are collected by them every day and taken back and disposed into the dustbins near the temple.

- **Lack of awareness:** Tourists and locals alike must be made aware of the rich heritage of the place along with their role in keeping the beach clean and safe. Awareness regarding the importance of a well-functioning beach ecosystem needs to be explained to the vendors, villagers and tourists.

- **Stakeholder coordination:** Interactions with vendors, temple authorities and the Tourism Department suggest a lack of coordination and vision in terms of development of the beach. Each of the stakeholders has done their bit to promote lucrative, safe and eco-friendly beach tourism. However, their initiatives need to be further integrated to better manage the beach and collectively solve issues.

- **Shipping activities:** The Alang ship-breaking yard is near Gopnath and hence all the waste from such activities gets collected near the Gopnath beach. The waste includes thermocol, rusted iron and steel and other harmful remains from the ship.

- **Tidal currents:** The area faces direct tidal currents from the Arabian Sea, causing soil erosion in the mouth and near the shoreline.
**Recommendations for Beach Maintenance**

- **Waste management**: By providing an alternative to packaged food items through locally made items, the dual problems of livelihood and waste management can be addressed. Additional measures may be taken during holidays and festivals to keep the beach clean. A part of the income of the temple may be utilized for the maintenance of the beach.

- **Creating public awareness**: There is a dire need to educate the people of Talaja and nearby villages regarding the importance of cleanliness and conservation of their beach. Print and radio ads as well as festive and religious gatherings can be used for generating awareness. People should be made aware about the harmful effects that religious waste can create. The temple trust can create more awareness about the sanctity of the beach by holding periodic prayer meetings on the beach.

- **Dustbins and Display Boards**: Dustbins should be provided to every vendor. Hoardings and display boards can be put on the beach and on the main road at regular intervals to create awareness among the visitors. New dustbins should be placed at strategic locations for public use and a penalty system for littering can be introduced.
Getting there

**By Air:** The nearest airports from Harshad are Porbandar and Ahmedabad. Several flights operate on a weekly basis from Mumbai.

**By Rail:** The nearest stations are Porbandar and Jamnagar and regular trains run from Ahmedabad to these cities.

**By Road:** It is well connected with Porbandar, 45 km away.

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**HARSHAD**
Khambhalia taluka, Jamnagar district

Harshad village is located along the south-west coast of Saurashtra peninsula, in Jamnagar district. The village is a pilgrimage site, known for the ancient temple of Goddess Harsiddhi. The temple is situated on a hillock and one has to climb all the way up to reach it. The shrine attracts thousands of tourists every year from India and abroad due to the religious importance attached to it. The beach and estuary in Harshad extend for 8 km and cover Miyani beach, Harshad Mata temple and Medha creek. Harshad beach starts from the Harshad Mata temple and goes up to the Harshad Bandar fishing village. The area near Harshad is sandy with dry white soil. The water is clear and is considered pure due to the region's religious association. However, the beach near Harshad Bandar is not suitable for visitors and tourists, as it is occupied by the fishing community and is too dangerous for swimming or bathing. Tourists mostly visit the place to offer prayers and not for recreation at the beach. The Miyani beach is calm and gentle, with a gradient and periodic rocky protrusions. Maximum footfall is during Navratri and vacations when nearly 20,000 pilgrims visit the villages.
The presence of a temple near the beach has created a means of livelihood for the people of Gandhvi who operate as temple vendors along the Medha creek. Stalls here sell coconut juice, toys, snacks, packaged food, beverages and religious material like coconuts, vermilion, and flowers for offering in the temple. There are approximately 50 food vendors near the temple and they do not have to pay any money to the panchayats for setting up and running their stalls. The total population of Gandhvi village is around 3000 people. The main beach-front is occupied by the fishing community at Harshad Bandar. They own and operate around 70 to 80 boats from here. The total population of this village is round 2000 people.

*Ecological Significance*

The beach near Harshad temple has a beautiful diversity of molluscs. The creek area is dotted with good mangrove patches due to mudflats. *Avicenia* spp. is the dominant mangrove species. *Porites* sp. of coral species is also found here.

*Tourism Potential*

The place is already developed as a religious destination due to the presence of the temple. The beach is not suitable for recreation activities. The entire beach at Harshad Bandar is used for fishing and it is unsuitable for bathing or swimming due to its steep gradient. However, the Miyani beach across the Medha creek attracts a lot of tourists who also visit the temple.
Challenges and Concerns

- **Temple waste:** Since there is an ancient temple near the beach, pilgrims come with offerings of coconuts. They throw the residuals of coconuts and plastic bags in the estuarine zone of the sea, which get deposited by the currents on the beach and make it filthy. Around 400 to 500 kg of coconut fibre is deposited everyday, which eventually ends up in the sea.

- **Fishing activities:** Fishing activities have contributed to beach litter. Vast quantities of shells in a decomposed state were found on Harshad Bandar beach during the survey. Dead fishes and plastic nets are other major constituents of fishing litter.

- **Improper disposal of untreated water and sewage:** There are two urinals for general public in addition to one private urinal per vendor near the temple that drains out directly into the sea and pollutes the sea water. No system has been developed to prevent the waste from entering the sea water.

- **Conflict management:** Several issues spring up at times between the two villages, as both the village residents belong to different religions and have a lot of cultural differences. Conflicts between them have contributed the mismanagement of the beach. The fishermen in Harshad Bandar also are said to face electricity and drinking water problems due to the friction between the communities.
Recommendations for Beach Maintenance

- **Waste disposal**: The panchayat needs to take care of the plastic waste which is produced in ample amounts due to different activities. It also needs to deal with the direct waste disposal problem at the beach. It should inform all the shop owners to keep their area clean and not to dispose the waste into the creek. A large garbage bin should be installed where the shop owners can dump waste on a daily basis. Arrangement should be made to provide a truck to collect this garbage on weekly basis from the temple area. This way, the Panchayat can solve the waste collection problem without appointing more workers. Alternatively, the bio-degradable waste may be collected and used for producing compost.

- **Educate the locals through mass media**: There is a need to educate the people of both villages regarding the importance of cleanliness and conservation of their beach. Street plays and awareness campaigns can be conducted to engage the people and create an emotional connection between them and the environment. People should be made aware regarding various hazards created due to disposal of waste into the sea.

- **Waste to wealth from shells and coconut fibre**: A market link can be created to reuse the shells and coconut fibre in handicrafts and other decorative products to generate income for the villagers. The women from the fishing community can also be trained to make such products from the shells and fibres to earn a living. Different NGOs and SHGs can be approached to provide training or purchase the raw material from the villagers.

- **Dustbins and Display Boards**: Hoardings should be put up with messages to avoid dumping near the beach. Display boards with important rules and regulations can be erected at every stall to generate awareness about maintaining beach cleanliness. Penalty can also be levied to prevent visitors from littering the place. The panchayat should ensure that each vendor makes use of the dustbin given to him.
Getting there

**By Air:** The nearest airport from Madhavpur is at Porbandar. Several flights operate on a weekly basis.

**By Rail:** The nearest stations are Porbandar and Junagadh. Trains run on a regular basis from Ahmedabad to these cities.

**By Road:** It is well connected by road to Porbandar, 60 km away. Madhavpur is also well connected with Junagadh and Rajkot. State transport buses and private luxury coaches operate between the cities.

Madhavpur village is situated along the south-west coast of the Saurashtra peninsula and is a small but culturally significant village of Gujarat. According to folklore, Lord Krishna married Rukmini at Madhavpur after first kidnapping her. This event is venerated with a temple dedicated to Lord Madhavrai. Every year, for three days from day of Ram Navami, a cultural fair is held to celebrate the marriage of Lord Krishna with Princess Rukmini at Madhavpur.
Madhavpur also has one of the meditation centers of Osho, where prominent Osho follower, Swami Brahmvedant, resides and gives sermons. Currently, the Swami, along with other Osho followers has also undertaken a project for constructing a canal for providing drinking water in Madhavpur village. There is also a bethak of Mahaprabhuji to commemorate the discourse given by Shri VallabhaCahrya on Shrimad Bhagwat for seven days near the beach.

The 6 km long stretch of the beach is among the most beautiful, sandy beaches of Gujarat. The water here is clear and the sand, white in colour. The sunrise and sunset on the beach add to its allure. There is a cool breeze that blows along the tranquil beach through the day. The Madhavpur beach enjoys international recognition as one of the best beaches in the world. However, it is yet unexplored by most people in India and this has indirectly helped in retaining its charm. It needs to be noted that despite its charms, the sea here is rough and unsuitable for swimming and water sports. There have even been a number of fatal incidents in its turbulent waters.

The beach is divided into two stretches; one is used by the local villagers and the other by tourists. There is a shrine of Lord Shiva on the beach where locals offer prayers every morning. During the Indian month of Shravan, scores of people throng to the Shiva temple. On festival days, the number of tourists visiting Madhavpur exceeds 10,000. Major vendor activities include selling coconuts, fruits, snacks and food packets. A separate area for the vendors, away from the shore, has been allotted by the gram panchayat. It does not charge them any kind of rent for selling their items at the beach.
Tourism Potential

This beach is among the ideal ones in Gujarat for tourism with its excellent natural beauty and pristine sea. It is easily accessible as it is well connected to the major cities of Gujarat. By putting proper infrastructure in place, this beach can be developed as the one of the best recreation spots for tourists across the country. Due to its association with Lord Krishna, Madhavpur also offers scope to promote religious tourism.

Ecological Significance

Madhavpur is one of the major nesting sites for the endangered Green Sea Turtle and is thus an important area from the conservation standpoint. Some permanent hatcheries have been developed here that are being maintained by the Marine National Park, Jamnagar.
Challenges and Concerns

- **Litter from recreation, festivals and religious activities:** The local visitors and food stalls are responsible for the huge amounts of litter on the beach. As there are no dustbins, people simply dispose plastic and other waste on the shore itself. They also dispose religious waste like flowers and coconuts into the water along with the non-degradable plastic. The situation is worse during the festival months as a major fair is held at the beach at this time with a large number of visitors.

- **Improper disposal of waste:** There is no proper disposal system developed by the panchayat for the garbage collected from the village. The waste is dumped in the by the beach, making it filthy.

Recommendations for Beach Maintenance

- **Waste management:** The gram panchayat needs to take care of the solid and plastic waste getting dumped near the beach. The disposal of the garbage and cleaning of the beach should be made more frequent, at least twice a week. Sufficient dustbins should be placed at regular intervals and more manpower needs to be deployed to clean the beach.

- **General awareness through mass media:** There is a need to educate the locals regarding the importance of cleanliness and conservation of their beach. Short jingles and advertisements on radio and television can be broadcast to create awareness about beach cleanliness. Festive and religious gatherings, especially the Madhavrai Fair, can also be exploited for communicating the message to the public. Street plays can be shown to the locals, including children to make them aware about the beach and its importance.

- **Declaring as 'No-plastic' zone:** The government should declare the beach as a 'No-plastic' zone wherein either the vendors themselves are banned from selling plastic packs or the public is not allowed to carry plastic packs along. This should solve the plastic waste problem to a great extent.

- **Dustbins and Display Boards:** Dustbins should be provided to every vendor. Hoardings and display boards can be put on the beach and on the main road at regular intervals to create awareness among the visitors. A penalty system for littering can also be introduced.
Getting there

**By Air:** Various domestic airlines connect Bhavnagar with Mumbai and Ahmedabad.

**By Rail:** It is on the Western Railway Line, 777 km from Mumbai via Ahmedabad.

**By Road:** State transport buses and private luxury coaches provide connectivity to Bhavnagar.

MAHUVA Mahuva taluka, Bhavnagar district

Mahuva is a small town on edge of Bhavnagar district, known for its mild weather and coconut tree plantations. It is a lush green oasis in the otherwise semi-arid Saurashtra region. Morari Bapu, the well-known storyteller of Ramkatha, is from this town and has developed an ashram where Sanskrit teachings are imparted to children along with other religious activities.

Pingleshwar, a small village near Mahuva, is known for a very old Shivling under the sea. It is only visible in the morning when the tide is out, accessible by a stone-paved road. Mahuva is also known for a medley of things such as wooden toys, raw onions, groundnuts, and local Jamadar mango. It is home to a thriving agribusiness industry, especially those related to dehydrating vegetables such as garlic and onions for use in processed foods. Mahuva beach is located near the historical Bhavani Temple and is 2 km away from Katpar village.
Ecological Significance

It is about 3 km long and the sea water here is quite muddy. The beach is sandy with lots of Prosopis trees on the periphery. Avicennia marina, a mangrove species is also found along the coastline.

Challenges and Concerns

There are around three to four temporary stalls and all are engaged in the selling of food items like coconut, Bhel Poori, and drinking water pouches, etc. A few permanent stalls selling refreshments are also there near the temple area. Thousands of visitors come to the beach on weekends and festivals.

- **Litter:** The main source of litter is from the packaging material of food and water pouches used by the tourists. However, no specific measures have been taken by the village panchayat although the beach comes under its authority. No dustbins have been installed and there is no monitoring system in place to look after the conservation of beach. The vendors too have no provision for dustbins and dump the waste on the beach itself.

- **Lack of awareness:** Local residents and tourists need to be made aware of the importance of maintaining a clean beach. The locals are ignorant of the issues of dumping plastic in the open sea.

- **Erosion:** The water at this beach is turbid in nature and might cause erosion in parts. Otherwise, the wave action is moderate and does not pose any major threat.

Tourism Potential

For decades, the Mahuva beach has been regarded as a popular picnic spot and attracts thousands of tourists every week.
Recommendations for Beach Maintenance

- **Waste Management**: The panchayat needs to prevent the dumping of solid and harmful waste into the sea. It needs to organize the regular collection of solid waste and install dump collection trunks at the vendor site and near concrete shops.

- **General public awareness**: Locals and tourists need to be made aware through mass media campaigns and religious and festive events about the need to conserve the beach and keep it clean.

- **Dustbins and Display Boards**: Dustbins should be provided to every vendor and should also be installed at regular intervals for public use. Hoardings and display boards can be put on the beach and on the main road at regular intervals to create awareness among the visitors.
Getting there
By Air: The nearest airport is in Bhuj.
By Rail: The nearest railway station is Bhuj.
By Road: It is about 56 km south of Bhuj.

MANDVI Mandvi town, Kutch district

Mandvi is a fair weather lighterage port situated on the right bank of River Rukmavati in the Gulf of Kutch, on the west coast of Gujarat. It is about 56 km south of the regional capital, Bhuj. The town was once the summer retreat of the Kutch royalty. The establishment of the town dates back to the late 16th century (1581 AD) and is attributed to the first Jadeja ruler of Kutch, Rao Khengarji. In addition to the beach, Mandvi also has the famous Vijay Villas palace for tourists to visit. Historically, Mandvi was one of the most important ports of India, earning sizeable revenue from export. The place has a 400-year-old tradition in ship building which is still active even today. Mandvi is also a unique town, showcasing Kutchi culture with its art of handpainting and embroidery works.
The beach of Mandvi is about 5 km long, located adjacent to the Forest Department guest house. A cemetery is also present close by. The beach is sandy, dotted with giant wind mills, and the water is crystal clear. The seashore sees maximum visitors on weekends and festivals, thronging from neighbouring villages, Bhuj and other cities. The cleanliness and maintenance of the beach is handled by the Mandvi Municipality which has appointed four people for regular cleanup on the beach. It has also established basic tourist infrastructure and sanitation facilities.

There are 60-70 stalls selling a variety of eatables and drinks set up in a specially designated area at the beach. Besides the food vendors, photographers, camel riders, and vendors for children’s rides and water sports also come to the beach to take advantage of the heavy tourist traffic.

While Mandvi’s economy thrives on tourism, fishing and agriculture activities are also important to local livelihoods. There is a wind farm setup on the beach front due to the high velocity of wind in this area. The town area has an eclectic mix of numerous small-scale industries producing embroidery and ‘bandhani’ works, home-made sweets, fishing gear, and engaging in traditional ship building.
Ecological Significance

The coast at Mandvi is one of the known habitats for sea turtles in Gujarat. And the Forest Department has set up a special turtle hatchery here as part of its conservation initiatives. Mandvi has been noted as one of the nesting sites of a number of turtles including the Green Sea Turtle, and Leather Back and Olive Ridley species of turtles. Jellyfish, sand crabs and shells are also seen on the beach. Among birds, seagulls, storks and egrets have been spotted in this area. From the flora aspect, there is a large patch of Prosopis juliflora, Acacia spp. and a few trees of Phoenix sylvestris.

Tourism Potential

Mandvi has a rich royal heritage and many attractions for tourists to enjoy for at least a couple of days. The beach is beautiful with clear water and sandy the shore is perfect for vacationing crowds. However, there is a lot of scope of development for the beach, the palace and the route leading upto Mandvi. There is a need for improving the condition of the road to Mandvi and of setting up proper sign boards and directions along the way. Some refinement at the beach and palace, along with establishment of better hotels and restaurants will boost tourism in Mandvi.
Challenges and Concerns

- **Litter**: During holidays and festivals, over a thousand tourists visit Mandvi. Although the stalls are arranged in one cluster, they are still situated on the shore. There is also a great deal of movement from people like cameramen and the camel riders. All these activities collectively produce a lot of plastic waste on the beach.

- **Inadequate manpower and need for education**: The municipality has around 100-150 people at its disposal for cleanliness of which only four have been appointed for beach cleaning. This is too small a number for such a vast beach which sees heavy crowds on a regular basis.

- **Lack of awareness**: Tourists and locals need to be sensitized about the importance of the beach and its conservation. There is a facility of ‘Pay and Use’ toilets at the beach but many of the visitors do not use it because they are not ready to pay even Rs. 2 for the same. Although there is one dustbin per stall, the tourists do not use them, preferring to discard the wrappers randomly anywhere on the beach. One hurdle faced by the municipality is the stealing of dustbins. These had been installed by them twice in the past but each time they got stolen. Due to the cemetery just behind the beach, a lot of religious waste is dumped on the shore.
Recommendations for Beach Maintenance

- **Niche tourism:** Since Mandvi offers a host of attractions for different segments of tourists, these attractions could be further developed. The beach is home to many varied marine species especially turtles, and tourism here could focus on their conservation and ecological significance. Meditational camps and ayurvedic massage centers can be setup for those looking for leisure and relaxation by the shore. The palace too could improve its maintenance for those interested in Mandvi’s cultural heritage. The road to Mandvi needs to be improved and have sign posts erected at regular intervals.

- **Educational camps:** There are 32 primary schools, 8 high schools and 2 colleges in Mandvi and nearby areas. There is active participation from the students of these schools and colleges whenever a cleanliness drive is organized. Educational camps for students can be carried out at this place as there is a lot of scope for practical learning for them. The students of Mandvi can be taught about turtle nesting and hatcheries.

- **More manpower for beach cleanliness:** The municipality needs to appoint more personnel beach cleanliness. It should also educate the vendors on the beach regarding the importance of cleanliness. If possible, one or two officials should be appointed for collecting fine from the tourists.

- **Infrastructure:** The beach does have basic infrastructure but this needs to be improved. A concrete corridor for the vendors needs to be constructed and proper facilities for drinking water need to be set up.

- **Declaration of 'No-Plastic' Zone:** Preventing the tourists or vendors from using plastic or charging a fine for using it will mitigate the problem of plastic disposal to a certain extent.
Getting there

This town is located between Okha and Dwarka. It is about 10 km from Okha and about 20 km from Dwarka.

**By Air:** The closest airport to Dwarka is located at Jamnagar, about 137 km away. There are regular flights from Jamnagar to Mumbai. Taxis are available from Jamnagar airport to Dwarka.

**By Rail:** Dwarka railway station in the Ahmedabad - Okha rail route is connected to other major railway stations.

**By Road:** Gujarat state transport buses connect Dwarka with all major cities in the state. Luxury coach tourist buses are also available from nearby cities to Dwarka.

MITHAPUR

Dwarka taluka, Jamnagar district

Mithapur is a coastal town located on the upper extreme western tip Saurashtra in Jamnagar. This town is essentially a colony that is supported by Tata Chemicals Ltd. (TCL), one of the flagship companies of the Tata Group. The Mithapur story began in 1939, when the Tatas took over the Okha Salt Works. Okhamandal, the region where Mithapur is situated, was an undeveloped and desolate place where many kingdoms and civilizations had thrived in the past. Mithapur, privately owned by Tata Chemicals, is part of the 5,398-acres of freehold land obtained in the 1930s from the government of the erstwhile princely state of Baroda. The town square at Mithapur, from where roads branch out in many directions, is symbolic of the central place the company enjoys in this community comprising of employees and their families, teachers and merchants. Spread across 663 acres of land, Mithapur enjoys the advantages of urban infrastructure along with the beauty of its idyllic surroundings.
The Mithapur-Okha coast is spread over a rocky land cover of 10 sq km. It is rich in marine flora and fauna. However, the beach at Mithapur is a small sandy patch maintained by the Tata Company as a picnic spot. The water is clear and the sand is white and clean. The beach is made of dead corals and shells. There are several slides and swings for children, and shades and benches for visitors. Cleanliness is very well maintained and the area has been declared as a ‘No Plastic’ Zone. The traces of plastic that can still be found do not originate from vendors and stalls as they are absent from the beach, but by the residents of the company colony who come on picnics. TCL organizes environmental drives on a regular basis to involve the colony residents and other tourists in environment and coastal conservation.

Ecological Significance

The Mithapur coast has unique marine and coastal resources comprising rich coral reefs, lush mangrove cover, turtle nesting site and bird nesting and roosting areas. This area has beautiful reef vegetation which shows the presence of Spathoglossum asperuam, Halimeda porphyroides, Caulerpa scalpelliformis, Gracillaria corticata, Halymenia venusta, Gracillaria fergusonii, Laurencia spp., Halimeda spp., Udotea indica, Cystophyllum muricatum, Sargassum tenerrimum and Enteromorpha spp. The coral fauna present here are Coscinaraea monile, Cyphastrea serailia, Favia favus, Favia speciosa, Favites bestae, Goniastrea pectinata, Goniopora plannulata, Goniopora stutchburyi, Montipora explanata, Platygyra sinensis, Polycyathus verrilli, Porites compressa, Porites lutea, Porites lichen, Siderastrea savignyana, Symphyllia radians and Turbinaria peltata. One patch of Prosopis juliflora is also found along the coastal area.

TCL, through its Society for Rural Development (TCSRD) has been working in partnership with eco-clubs, self-help groups and other organizations to restore denuded mangrove cover along the Mithapur coast of Jamnagar. It also runs a conservation programme for whale shark which was launched in 2004. This programme seeks to spread awareness about the world's largest fish, which was till recently being brutally slaughtered along the Gujarat coast for export. Other partners like Wildlife Trust of India and International Fund for Animal Welfare are also involved in the project.
Tourism Potential

The beach is presently visited by the colony dwellers. Although it offers a picturesque view and good infrastructure, it is part of a housing colony and developing it as a full-fledged tourist location might disrupt the regular lives of the colony residents while also adding to the anthropogenic pressures on the beach. However, with the rise in the number of tourists in Dwarka, Mithapur is also likely to see a rise in the number of people visiting its beach.

Challenges and Concerns

- **Litter:** Although the town has a 'no plastics' rule, still traces of plastic packs of food snacks were spotted during the field survey. The tourists who visit the beach can show disregard for the environment and spoil it by littering around.

- **Chemical works at Mithapur:** Tata Salt and Chemical Works at Mithapur is one of the largest salt manufacturing units in the Gulf of Kutch. Such units pose a few environmental concerns for the coast. In June 2001, about a lakh mangrove trees died due to a leakage of brine water from the pipe of Tata Chemicals Ltd. near Poshitra and this was the first important case officially recorded against damage on such a scale.

Recommendations for Beach Maintenance

- **Stricter enforcement of regulations:** The colony along with the beach has been declared as a 'no-plastic' zone by TCL. However, there has to be stricter enforcement of this regulation.

- **Hoardings and dustbins:** Hoardings and display boards for beach cleanliness should be installed at the entrance of the beach. More dustbins should also be placed.
Narara within the Marine National Park is situated around 60 km west from the city of Jamnagar. It is one of the 42 beautiful islands in the Gulf of Kutch. It is also one of the largest areas of Marine National Park & Sanctuary with Khijadiya Bird Sanctuary located nearby.

Narara reef forms the eastern bank of Pathfinder Inlet and Kalubhar reef having stretches of mangroves and patches of corals. On the eastern side of Narara, lies the Dantio Kado Island. A small Sri Reef is located between the north of Dantio Kado, Narara Reef and Goose Reef.

NARARAR

Island, Jamnagar district

Getting there

By Air: The closest domestic airport to Narara is located at Jamnagar. There are regular flights from Jamnagar to Mumbai.

By Rail: The nearest station is Jamnagar, which is well-connected with other cities.

By Road: Narara is a 60 km drive from Jamnagar.
Narara is not among those beaches where families can go on a leisure trip for swimming and enjoying. It is a place for marine life lovers since it is the abode to thousands of marine creatures and a vast walkable coral reef. It is a treasure trove of a large variety of flora and fauna. On the way to the intertidal zone of Narara, several salt water pans are found on either side of the road. Flamingos, pelicans, grebes, ducks and several other migratory birds flock to the region.

The beach at Narara is very small, with a length of 0.5 km and width of 40 - 50 m during high tide. During low tide, up to 2 km of the intertidal area is exposed comprising mainly rocky and sandy habitats and small mudflats. This gives tourists a chance to observe the richest diversity of marine habitats in the country, including sea grasses, rocky shores, mudflats, creeks, sandy strands, coral reefs, and mangroves. The National Park is famous for coral walks without sailing to the islands. For visiting this part of the Marine National Park and Sanctuary, one needs to get prior permission the from Park authorities. There is a specific period, only between Mid-October to May in the year, when tourists are allowed observe the marine beauty at Narara. A member of the Sanctuary staff always accompanies the tourists to guide them through their tour. This way the member not only prevents the tourists from walking past restricted areas but also educates them about the various species present on the shore.
The Narara beach is a no-plastic zone, but some plastic litter can still be found. The Park and Sanctuary area including Narara, is used for fishing, pearl and marine product collection industries, water transport and recreation. Fishing in the creeks and surrounding areas is a major activity and paddle fishing is done in this group of islands. Cutting of tree branches for fuel purposes by locals has also been reported in this area.

**Tourism Potential**

Tourism is one of the important activities carried out by Marine National Park & Sanctuary at Narara. The island is known for coral walks and bird watching. Educational camps are also held at the reef involving nearby schools. Besides, a small museum displaying various marine species and their importance has also been set up at the island.
Ecological Significance

Since there is rich marine biodiversity on the island in its intertidal zone, Marine National Park & Sanctuary carries out various research activities on many of the species. Considerable information on species like sea anemones, star fish, sea cucumber and puffer fish and birds like gulls, terns, kingfishers, osprey, painted stork and darter has been collected.

- **Corals and coral reefs:** Narara reef shows different habitats with hard coralline areas. The distribution of corals is widely spread. One kilometer long shoreward belt from the roof edge shows good but scattered patches of scleractinian corals. The northern area along with the reef edge supports subtidal corals. Dantio Kado and Sri Reef also have coral formations.

- **Mangroves:** The area is replete with mangrove swamps spread across the island. The eastern area of Narara has a lush growth of mangroves which further cover basal creek area adjoining the left side of Dantio Kado. Saltpan boundary on the creek side has a stretch of mangrove growth. The species of mangroves found here are Avicennia marina, Aalba, Ceriops tagal and Rhizophora mucronata. They provide good shelter and protection to the coastline.

- **Migratory and resident aquatic birds:** As many as 86 species of aquatic birds can be found over here at different intervals during the year. Some of these include waders like flamingo, pelican, crab plover, Black-tailed Godwit etc.

- **Other marine species:** The area is rich in invertebrate and vertebrate fauna. A variety of different species of sponges, prawns, crabs, molluscs, turtles, sea mammals etc. are found.
**Challenges and Concerns**

The Marine National Park in the Gulf of Kutch is home to the fragile coral ecosystem. In recent years, the biodiversity in the Park has been under threat on several scores like extraction of corals and sands by cement industries, increased turbidity of water, oil refineries, and chemical industries and mechanised fishing boats.

- **Extraction of corals**: There is a possible threat of illegal extraction of corals and sands by cement and fertilizer industries owing to the vast diversity of corals found on this island. This has, however, not been reported after declaration of the area as a protected zone.

- **Tourism**: Tourism activities not only spread litter around the place but also disturb the natural habitats of marine creatures. Reef walking and trampling have already produced visible damages of this sort spoiling the aesthetic beauty of the area.

- **Oil spills**: Oil drilling by industry is a major issue of concern. The oil spills and wastage directly land on the beach during high tide. They choke the mangroves growing near the shore and destroy marine life in the vicinity. There is a threat from the underwater oil pipeline as well.

- **Other activities**: Mechanized fishing and cutting of mangroves for fishing also affect the ecosystem of Narara.

- **Turbidity**: There is a threat of increased turbidity and rising sedimentation owing to cyclones and river discharge along the southern coast of Gulf of Kutch. Turbid waters are a threat to corals and certain species dwelling on the ocean floor.
Recommendations for Ecotourism

- **Awareness generation:** There is no major awareness about the existence of Narara Island or the vast variety of marine wild life and bird species found at this place. A communication strategy that not only promotes ecotourism and coral walking on the shore of Narara but also talks about the importance of marine biodiversity should be put in place. Promotion of the area at nearby religious tourist spots like Dwarka and Somnath, may also be taken-up.

- **Display of regulations and information:** Since the area is a protected area under Marine National Park and Sanctuary, it becomes extremely necessary to put up Park regulations at strategic locations. Moreover, displays showing brief information about various flora and fauna at Narara should also be put up where necessary.

- **Dustbins:** With passage of time, Narara will only see more number of tourists. In order to avoid people from littering, more dustbins need to be installed at the site. Besides, stricter surveillance should be observed.

- **Educational camps:** Currently, educational camps are being held only for the students of schools of nearby areas. Similar camps for visitors of all ages should also be organized wherein the tourists are taught an eco-friendly way of living and best practices in an area rich with fragile flora and fauna.
The village of Nargol is located in the southern region of Gujarat near the Maharashtra border, along the coast of Gulf of Kambhat. Nargol is a scenic region with vast landscapes of dry grasslands dotted with small farmhouses, arrays of tall palm trees leaning along the roadside and herds of buffaloes swimming in the river.

The village holds great importance for the followers of Sahaja Yoga. There is a particular Casuarina tree near the beach that is popularly known as the “Nirmal Vruksh.” According to the founder and spiritual leader of Sahaja Yoga, Shri Mataji Nirmala Devi, the Sahasrara chakra was opened in Nargol in 1970 under this tree, thus marking the beginning of Sahaja Yoga.

**NARGOL** Umbergaon taluka, Valsad district

**Getting there**

**By Air:** The nearest airports are Daman and Surat and flights operate from Mumbai and Ahmedabad.

**By Rail:** The nearest railway station is Sanjan, about 11 kilometres from the village with frequent train connections to both Mumbai and Gujarat.

**By Road:** The nearest town is Vapi, located about 25 km and the state transport buses as well as luxury coaches connect Nargol to different cities in Gujarat and Mumbai.
The Parsi Fire Temple is located just by the beach, and is visited by Parsis from Mumbai and the neighbouring areas. Since Udwada is close to Nargol and home to the oldest and most significant of all Parsi temples, many Parsi worshippers also visit Nargol during the course of their journey.

The Nargol beach is still relatively unexplored and hence quite clean. It is devoid of food stalls and other vendor activities. The beach is mostly used for national sports activities like hockey and training purposes. Its maintenance and cleanliness is taken care of by the gram panchayat.

**Ecological Significance**

The beach at Nargol is about 4 km long and is one of the major beaches along the 63 km long coastline of Valsad. It is sandy and free of rocks. The water is very cloudy possibly because the several large rivers along the bay bring along with them a lot of sediment. However, this water is quite suitable for swimming. The Causuarina trees form a beautiful backdrop to the beach. In fact, the forest land here has been declared as “Nirmal Van” by the Forest Department and the forest cover is a part of the eco-zone under the Nargol JFMC (South Valsad Forest Division of Gujarat State) for promotion of environmental awareness, ecotourism and peace project. The sea waters here have a population of sea turtles and several other marine creatures like the jellyfish, dolphins and crabs have also been spotted.
Tourism Potential

The village of Nargol along with its beach is a delight for nature lovers and holiday goers. The beach is good for swimming and relaxing. This picturesque region can be further exploited for ecotourism once basic infrastructure tourist facilities like toilets, benches, cottages and hotels are established.

Challenges and Concerns

- **Lack of sanitation facilities:** Around half the people of the Nargol village do not have proper sanitation facilities and hence they use the beach.

- **Litter:** The beach is important as a religious spot since the forest cover close by is named after goddess Niramala Devi. On festivals, the place is visited by a large number of pilgrims who litter the place with a lot of plastic waste.

- **Threat to marine fauna:** A lot dead jellyfish were spotted on the beach during the field visit. A similar pattern was observed in Tithal and Dandi beaches as well.

- **Severe salinity:** The village is facing water scarcity problems as well salinity problems due to high tidal influence. If not controlled, it will turn the fertile land around into high salinity areas.
Recommendations for Beach Maintenance and Ecotourism

- **Development as a tourism spot:** Nargol can be developed as a tourist destination once required infrastructure and facilities are in place.

- **General awareness:** There is a need to educate the people about Nargol as a tourist spot as well as the importance of cleanliness and conservation of the beach. Since the beach is linked to religion, religious and emotional connects can be exploited to maintain beach cleanliness.

- **Waste management:** The gram panchayat needs to take care of the waste that will be generated once the place is developed for tourism activities. Firstly, it has to make the solid waste collection more regular and it will have to install large dump collection trunks to ensure that harmful waste is not dumped directly into the sea.

- **Dustbins and display boards:** Dustbins should be put up on the beach at regular intervals for the tourists. Hoardings and display boards can be put on the beach and on the main road at regular intervals to create awareness among the visitors. A penalty system can also be put in place.
Porbandar, an important port of Gujarat, is situated on the south-west coast of the Saurashtra peninsula, by the Arabian Sea. This coastal city is doubly renowned as the hometown of Sudama who was friend of Lord Krishna, as well as being the hometown of Mahatma Gandhi.

The city has a lot to offer, be it tourist spots, religious shrines, historical monuments or educational institutions. Several major industries for cement, chemicals and seafood are located here. The fishing industry is a major source of livelihood for locals and migrants from neighbouring districts.
Porbandar has an excellent rocky and sandy beach that stretches out over almost 10 km. The beach has been one of the greatest attractions of Porbandar for generations. Important government offices as well as the tourism guest house are situated right along the beach. Porbandar has a chowpati on the sea face, and this was modernized about a decade ago. The chowpati now has well-laid seating arrangements for tourists and commuters. This place has become a hot tourist destination and sees about 5,000-6000 tourists every Sunday evening. Apart from weekends and holidays, the beach is regularly visited by the early morning joggers and swimmers. An independent social welfare club provides free swimming coaching to city locals and even organizes swimming competitions at state and national levels on the beach. The chowpati ground is also used for holding the Janamashtmi Fair, one of the biggest festivals for the people of Porbandar. The city has a number of hotels and restaurants to offer tourists.

The municipality has allotted a separate area to vendors on a monthly rental basis to sell food, toys and other items. A few hawkers also move around near the entrance to the beach. Around 60-70 ragpickers dwell nearby and earn their livelihood by informally selling plastic water pouches.
**Tourism Potential**

This beach is ideal for tourism with excellent infrastructure and pristine waters for swimming. Porbandar is also very well connected to other cities in the state. However, the large weekend crowds make the beach filthy and a ban on food packets can solve this problem and encourage more outsiders to visit the beach.

**Ecological Significance**

A small part of the coast is rocky, but further southeast, it is exclusively sandy. Although not at the chowpati, the coastline of Porbandar is rich in marine flora and fauna. The Green Sea Turtle can be sighted here along with very rare glimpses of the whale just 5 km off the coast. *Scleractinian* corals are also found here.
Challenges and Concerns

- **Recreation and festivals:** Heavy crowds of up to 6,000 people during weekends pose a major problem of litter. Even though vendors are allowed to operate only at one specific site, visitors move around with food packets on the beach and throw the wrappers on the shore. Currently, there are hardly 2-3 dustbins that are seldom used by visitors. There is a need for more manpower to attend to the cleaning. Littering gets worse during festivals like Janmashtami and Uttarayan when more waste is generated from the festive activities.

- **Misuse of public property:** The municipality had installed dozens of garbage bins at the beach, with one under every streetlight. However, local youngsters eventually burnt and damaged all of them by firing crackers inside them. This kind of vandalism makes the task of beach maintenance for the local civic body even more tedious.

- **Improper disposal of waste:** There are times the garbage is not picked up by municipality waste collectors and the dump stays unattended on the beach. This creates a problem for the hawkers and the shop owners as the waste is accumulated right outside their shop. To get rid of it, they end up burning it, thus generating toxic fumes from the plastic. Another problem of waste disposal is the release of untreated waste water directly into the sea. The major source for this is the toilet facility constructed at the beach.

- **Lack of awareness:** There are few dustbins at the beach but these are rarely used by the visitors. Garbage is thrown on the beach indiscriminately.

- **Sedimentation:** The coast experiences direct and strong tidal currents from Arabian Sea. High tidal amplitude and associated currents have a significant role in sedimentation on the mudflats and surrounding areas.
Recommendations for Beach Maintenance

- **Waste management:** The municipality needs to take care of both, solid plastic waste and untreated waste water. Solid waste collection needs to be made more regular and large dump collection trunks need to be installed near vendor sites and concrete shops. Measures should also be taken to ensure that harmful water is not released directly into the sea.

- **Employment for rag pickers:** Since the municipality already lacks manpower it can take advantage of the rag pickers to do the cleaning up of the beach by giving them some remuneration.

- **General awareness:** There is a need to educate the people, including youngsters, about caring for the beach and looking after public property like dustbins. Advertisements on maintaining cleanliness at the beach can be shown in movie halls and mass media. Public gatherings during fairs and festivals can also be used for awareness generation. More focus should be given to the cleanliness drives that already happen on a regular basis in Porbandar.

- **Involvement of local welfare clubs:** There are several welfare clubs in Porbandar and these clubs should be supported for developing the beach. The municipality should also support them for conducting activities like state/national level swimming competitions, cleanliness drives, education camps, etc.

- **Declaring as a 'No-plastic' zone:** Since it is difficult to control the litter from food packets, the beach should be declared as a 'No-plastic' zone where either the vendors themselves are barred from selling plastic packs or the public is not allowed to carry plastic packs.

- **Dustbins and display boards:** Dustbins should be provided to every vendor and should also be installed along the footpath for public use. Display boards can be put on the beach and on the main road at regular intervals to create awareness among the visitors. Fines for littering can also be levied.
Getting there

By Air: Nearest airport is Jamnagar.
By Rail: Regular trains operate to Jamnagar, the nearest station.
By Road: It is about 10 km drive from Dwarka.

SHIVRAJPUR Okhamandal taluka, Jamnagar district

Shivrajpur beach is situated 10 km from the coastal town of Dwarka. The coastline is a narrow intertidal rocky strip, about 1 km in width, with a sandy shore. Since Shivrajpur is a bay, the waters over here are calm and peaceful, well-suited for beach lovers. The beach is special for its coral formations and presence of endangered turtles. It is home to the Green Sea Turtle and the Olive Ridley Sea Turtle. If lucky, tourists could also catch a glimpse of migratory birds and dolphins. With clear blue waters and a velvety white carpet of shells and corals, this beach has the potential to become one of the best beaches in the state.
**Ecological Significance**

**Corals and coral reefs:** The corals here consist of the species Faviafavus, Faviaspeciosa, Acanthastreahillae, Cyphastrieaserailia, Goniopora minor, Coscinaraeamonile, Siderastreasavignyana, Poriteslutea, Poritescompressa, Goniastreapecticata, Montiporaexplanata, Gonioporanigra, Plyatigyrasinensis, Gonioporanplanulata, Favitesmelicerum, Porites spp. (nodular branches) and Turbinariapeltata.

**Other marine flora and fauna:** The reef vegetation shows the presence of Halymeniavenusta, Padinatetrestometica, Ulvalactuca, Caulerpascalpeliformis, Colerparecemosa, Enteromorphacompessa, Grateloupia india, Halminthocladiacladavosii, Turbinariaomata, Ulva spp., Halimeda, Hypnea, Gelidiella spp., Gracillaria spp., and Dictyota, Hydroclathrusclathratus. The other fauna present include Moray eel, Nudibranch, Eupoliahemprachii, Crassostreacuculata, Nerita spp., Littorina spp., Chiton, Patella - Cellana radiate, sponges, Ikedellamisakiensis, hairy crab, Portunus pilagicus, Atergatisintegerrimus, Theraponjarbua, and Gobi.

**Challenges and Concerns**

**Litter:** At the moment, this beach is almost untouched by the humans and relatively very clean. However, traces of plastic waste, household waste from the Shivrajpur village and religious waste due to the temple were found.

**Future development:** In case this place is developed further, the beach will face pressures from recreational and tourism activities. Since turtles usually select deserted sandy beaches for laying eggs, presence of huge crowds at the beach might disrupt the normal reproduction cycles of turtles.

**Sand mining:** In 2011, huge pits were discovered at Shivrajpur and few other areas of Dwarka because of illegal mining activities. Few of the turtle species from Shivrajpur were found trapped in the big pits. Although swift action was taken by local authorities, some recurrent incidents continue.
Recommendations for Ecotourism

Shivrajpur is one of the cleanest and most beautiful beaches of Gujarat and can developed as a destination for beach holiday.

- **Directions to the beach:** Even though both towns are close, there are no sign posts to lead one to Shivrajpur from Dwarka. The beach also has negligible presence on the internet. Hence, installing sign boards and creating awareness about this beach is the first step that needs to be taken.

- **Conservation of biodiversity:** Since this beach is home to many varied marine species, tourism development should be done in harmony with nature without causing harm to flora and fauna. Locals should also be engaged so that they can earn livelihood while participating in the conservation activities.

- **Educational camps:** Educational camps for students can be carried out as there is a lot of scope of practical learning for them. A similar activity has already been taken up at Narara Island.

- **Maintenance:** More focus needs to be given to cleaning and maintenance of the beach. Installation of sign boards with beach regulations and dustbins should be taken up as a priority. Village people need to be educated regarding waste disposal and wildlife conservation.

- **Recycling of sea shells:** Research should be conducted to check if it is feasible to use sea shells and other material on the beach for any occupational activities.
Getting there

**By Air:** The nearest airports to Somnath are Porbandar and Ahmedabad.

**By Rail:** Somnath is 6 km from the nearest railway station at Veraval.

**By Road:** Somnath is 79 km from Junagadh and 25 km from Chorwad. State transport buses and private luxury coaches connect various centres of Gujarat to Somnath.

SOMNATH  
Veraval taluka, Junagadh district

Somnath is situated along the south-west coast on the Saurashtra peninsula, beside the Arabian Sea. It is around 8 km from the city of Veraval. Somnath is named after the renowned Somnath temple which is devoted to Lord Shiva. The temple is one of the most admired tourist attractions in the state. Legend goes that it was constructed in gold by Somraj, the Moon God. However, with the passage of time, it was destroyed and reconstructed several times. The present temple is made of stone. Just few kilometres away from Somnath is the renowned Gir National Park and Wildlife Sanctuary, the only refuge for the Asiatic Lion.
The temple, with all its grandeur and legend, attracts devotees from around Gujarat as well as India. These devotees, after their pilgrimage, also visit the beach that is just alongside the temple. A chowpati is being developed on the beach jointly by the Somnath Temple Trust and a private firm to attract more tourists. It will include several facilities for entertainment and refreshment such as a park and garden, games, and food stalls. These new facilities will be maintained by the Trust.

Currently, the beach has vendors selling processed and non-processed food items, toys, photography equipment, gifts and temple memorabilia. Many of these vendors have registered themselves as a co-operative which functions very informally but is recognised by the Trust. A number of handicraft stalls along this beach sell ‘ghagra-cholis’ and traditional outfits covered with embroidery work, wall hangings and Patola silk garments and draw both local and foreign tourists. There are around 150 food vendors on the beach and around 20 camel and horse riders.

**Ecological Significance**

The Somnath beach is a beautiful stretch of 6.5 km starting from the confluence at Triveni Sangam and going upto Kodiyar village. The water over here is crystal blue and the beach, sandy. The beach is lined by forest cover that enhances its beauty. *Prosopis juliflora* is found as the most dominant species along the coast in association with *Calotropis procera*. The *Prosopis* patch is declared as a Protected Forest.
Tourism Potential

Somnath is already a very famous tourist destination owing to its religious importance and the pilgrims visiting the temple also visit the beach. In order to handle such a huge crowd, more facilities need to be developed at the beach. Currently, all the activities are confined to the entrance of the beach. However, waste generated here is spread across the entire beach by wave action. It is important to put a system in place for the waste collection and disposal to keep the area clean and conducive for spiritual activities.
Challenges and Concerns

- **Litter by vendors and tourists:** Since pilgrims visit Somnath in large numbers due to its great religious significance, there is a huge opportunity for an array of vendors on the beach. There are at least 150 vendors, of which only 48 are registered. Different types of waste routinely get discarded by vendors and tourists alike, causing immense cleanliness problems. No proper arrangements exist for the disposal of used coconuts, plastic straws, food packs and water pouches. Tourists take the eatables with them to the beach near the water and throw it into the sea. Photographers, who are also found on the beach, discard waste film on the sand, which is not degradable. Horse and camel riding leads to lot of congestion and animal excreta on the beach. Most of the tourist activity is concentrated within a small stretch of the beach close to the temple entrance. There is heavy overcrowding here and the waste disposed off in this narrow stretch and is spread by the wind and the waves across the entire beach. Religious waste like flowers, cloth and rice grains is also dumped into the sea water. There are hardly any dustbins for the collection of garbage.

- **Conflict of ownership:** The current authorities cannot take specific steps to curb the pollution on the beach as there is ambiguity about the jurisdiction of the beach. There is also an issue of registration of the vendors at the beach.
Recommendations for Beach Maintenance

- **Collaboration of various stakeholders:** Active involvement of the vendors, Somnath Temple Trust and Veraval-Patan Municipal Corporation to solve the issues on the beach will help in developing a sustainable system for beach management. The Trust can help in the cause by projecting the beach as an extension of the Somnath temple and hence the need to maintain the sanctity of the beach.

- **Association of vendors:** A committee can be formed from the registered vendors and identity cards can be provided to them to look after the cleanliness of the beach. NGOs can be included to manage such activities on a voluntary basis.

- **Dedicated corridor:** Camel and horse riding should be carried out far away from the beach along a dedicated route to resolve the issue of excreta on the beach. All the stalls too should be restricted within a specific portion on the beach.

- **Dustbins and display boards:** Dustbins can be provided to every vendor. Hoardings and display boards can be put on the beach and on the main road at regular intervals to create awareness among visitors.

- **Corporate involvement:** Attempts can be made to encourage adopt-a-beach campaign where companies and industries can maintain the beach in their own way.

- **Removal of wild trees:** The wild *Prosopis* tree near the beach can be removed and the land can be made even to enhance the ambience around the beach.

- **Mass awareness:** Documentaries can be shown to the people who visit the temple before the start of the light and sound show to create awareness at a greater level. This way a lot of people can be reached.

- **Conservation of forest cover:** The Protected Forest area must be conserved and propagated as it serves as the last line of defence against coastal erosion. The path leading to the main beach and forest area may be cordoned by a bamboo fence.

- **Sanitation facilities:** Existing sanitation facilities should be repaired and new ones may be constructed in the same area.
Getting there

Tithal beach is located 6 km west of the town of Valsad.

By Air: Surat is the nearest airport with several domestic flights connecting metros and other major cities.

By Rail: Valsad is well connected to all major cities of India by rail.

By Road: Valsad is around 234 km from Ahmedabad, 131 km from Vadodara, and 297 km from Mumbai and 108 km from Surat.

TITHAL  Valsad taluka, Valsad district

Tithal lies to the west of Valsad town, along the southern coast of Gujarat. The town of Valsad has several tourist attractions apart from the beach at Tithal. A number of personalities belong to this region. It is the birthplace of former Prime Minister of India, Moraji Desai; the famous Marathi playwright Ram Ganesh Gadkari; famous actors Nirupa Roy, Bindu and Manhar Desai; and producer Manmohan Desai. Both Valsad and Tithal are known to be the homes of the Parsis. Legend has it that the Parsis entered India through a port called Sanjjan which lies along the coast of Valsad. Above all, the region is famous for its chickoo and Alphonso mango (Valsadi hafoos), which are even exported to other countries.

The beach at Tithal is around 5 km long extending all the way to Devka beach in Daman. It is flat and sandy, devoid of any rocks. The shore here is well-known for its black sand. The Casuarina plantation occupies a large area along the coast and is maintained by the Forest Department. The water here is unsuitable for swimming, being cloudy and turbid, with high tidal amplitude.
The entire stretch of the beach is divided into three parts: one near Shri Swami Narayan temple, the chowpati, and one near the Shri Sai Baba temple. Both the temples are quite beautiful with exquisite carvings. The beach also houses several food stalls and fun rides for kids. Thousands of tourists, especially from Surat, Valsad and Navsari visit Tithal over weekends and holidays. The sunsets here are especially beautiful and make the beach more inviting in the evenings.

There are around 8-10 female coconut sellers who have been assigned a specific area near the Swaminarayan temple on the shore. There are also a few mobile vendors who sell ice creams and Indian snacks. Apart from the food vendors, camel rides, children's rides and a few sports rides are also found on the beach. Most of these vendors are locals who even recycle and reuse whatever they can. Sometimes during festive seasons when the crowd crosses a thousand people, locals from nearby villages also come and sell things at the beach. The village panchayat in Tithal is currently engaged in a number of activities for beach maintenance and cleanliness. It has already developed infrastructure at the beach for public convenience. It is now planning to construct a walled boundary along the shore to avoid flooding in the village during monsoons.

**Ecological Significance**

Casuarina plantation occupies a large area along the coast and is maintained by the Forest division of Valsad. Patches of Prosopis have also been encountered.

**Challenges and Concerns**

- **Sanitation facilities:** There are toilets installed on the beach by the Tourism Department. However, more work is needed to make them functional. Since they are not in a usable state, visitors turn to the open beach.

- **Waste management:** Most of the waste including plastic is simply burned by vendors in order to get rid of it. This is also a major cause of air pollution on the beach.

- **Recreation and festivals:** Tithal is the weekend getaway for residents of Valsad and its neighbouring areas. The presence of thousands of people on the beach produces a lot of litter. There are two major temples on the beach that also contribute to religious waste being dumped on the beach and in the sea.

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**Tourism Potential**

Tithal is already a well-known tourist destination and is visited by people even from distant places. There is a need to improve cleanliness at the beach to increase its allure.
Recommendations for Beach Maintenance

- **Disposal of solid waste:** Identification of a proper land fill site and recycling of plastic waste are two important areas that need immediate attention. Dustbins too need to be strategically placed so that they are used by tourists.

- **General awareness:** The public needs to be made more aware of the importance of cleanliness and conservation of their beach. Movie halls, radio, print media and local TV channels can be used for dissemination of messages. Festive and religious gatherings can also be exploited for generating awareness. More focus should be given to the cleanliness drives that already happen on a regular basis.

- **Declaring as 'No-plastic' zone:** The disposal of plastic is a major issue that can be effectively resolved by creating the entire beach area as a 'no plastic' zone.

- **Dustbins and display boards:** Dustbins should be provided to every vendor and new dustbins should be installed on the footpath for public use. A penalty system can also be put in place for littering. Hoardings and display boards can be put on the beach and on the main road at regular intervals to create awareness among visitors.

- **Revival of sanitation facilities and forest lodge:** Both, sanitation facilities and the guest house of the Forest Department, need to be revived for public use.

- **Involvement of temple authorities:** Two major temples are located at the beach. The management of both these temples needs to be involved in maintaining cleanliness at the beach. They can contribute their funds and manpower as well as sensitize devotees for keeping the beach clean.
Getting there
By Air: The closest domestic airport is Surat, about 32 km away.
By Train: A number of trains run from Mumbai to Surat and Navsari.
By Road: Hiring a cab or driving a personal vehicle from Surat or Navsari is an easy option. Luxury coaches are available on a regular basis from Surat and Navsari.

UBHARAT  Jalalpore taluka, Navsari district

Ubharat is a small village about 35 km away from Surat and 25 km away from Navsari. The beach here is managed by the gram panchayats of Ubharat and Danti. There is a protected forest cover running along the shoreline that is under the jurisdiction of the Forest Department. The beach is nearly 1.28 km wide and 4.94 km long. It is covered with silt clay and a thin layer of fine sand. The water looks a bit cloudy due to high turbidity.

The beach is frequented on weekends by hundreds of people of neighbouring towns and cities, especially Surat and Navsari. The drive to Ubharat is a memorable experience in its own right, as the road is straight and lined with trees on either side. It is possible to make a night halt at Ubharat as there is comfortable resort here. However, most visitors head back home the same day.
Vendors on the beach sell their ware in fragile, makeshift bamboo huts. There are over 80 vendors on the beach with such huts and most sell food items like boiled corn, peanuts, coconuts, water pouches and plastic food packets. The panchayat ensures that every vendor keep his own part clean. It has plans to organize the vendors into an association for a more efficient management of the beach. The panchayat also plans to liaise with the Forest Department for assigning a separate corridor with concrete shops for vendor activities. This corridor would be just before the beach entrance. If these plans are implemented, it will not only help the vendors but also solve the problem of waste accumulation on the shore.

**Tourism Potential**

Ubharat is an attractive tourist destination for weekends. Its strategic location makes it convenient for urban visitors from south Gujarat who come down over holidays. However, the beach needs improvements in its infrastructure. Once basic sanitation and seating facilities are available, there is likely to be more influx of tourists.

**Challenges and Concerns**

- **Lack of infrastructure:** Presently, the beach lacks basic infrastructure such as shaded spaces for visitors, parking area and dustbins. Since there are no shades, the visitors utilize the shades assigned to those vendors whose shops are closed. In terms of parking, the best way to reach the beach is by car, but there is no space allotted to park the vehicles. The dustbins too are placed away from the beach, and are therefore not utilized. There is also a need to prevent stray animals from venturing into the beach area through the construction of boundary walls.

- **Sanitation facilities:** Toilets have been constructed but these need to be repaired and made functional again so that people do not use the beach for relieving themselves.

- **Lack of waste management:** Most of the waste including plastic is disposed by the vendors by burning. This causes air pollution on the beach.

- **Severe salinity:** Ubharat faces severe salinity problems due to high tidal influence. Fertile agricultural lands along the coast are quickly getting transformed into high salinity areas.

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**Ecological Significance**

Jellyfish, mud crabs, mudskippers and other marine creatures can be seen along this beach. The forest cover in the upper part of the beach primarily consists of Casuarina equisitifolia, Salvadora persica and Prosopis juliflora.
Recommendations for Beach Maintenance

- **Solid waste disposal:** A proper landfill site needs to be identified for disposal of the waste generated at the beach and options for such a site are already being investigated by the Forest Department and the panchayat. Vendors also need to be given basic education about waste management. They should be briefed about the beach regulations.

- **Hoardings and display boards:** Majority of the crowd who visit the beach of Ubharat are educated, urban tourists from Surat, Navsari and Valsad. Even small efforts to spread awareness on cleanliness among these holiday goers ought to be effective. Hoardings and display boards clearly indicating the beach regulations could be a suitable solution.

- **Development of the beach:** The beach needs a lot of basic tourist infrastructure development and work in this direction has been initiated.

- **Ban on plastic:** The visitors should not be allowed to carry plastic all the way to the sea shore. A penalty system can be put in place and the money collected can be used for minor development works.

- **Forest plantation:** Plantation of specific plants suited to the area can also be carried out to keep the area beautiful and clean.
Getting there

By Air: Flights from Delhi and Mumbai are available to Umbergaon.

By Rail: Umbergaon has train connections.

By Road: The city is 165 km from Mumbai.

UMBERGAON Umbergaon taluka, Valsad district

Umbergaon is a small industrial city in Valsad district, on the border of Gujarat and Maharashtra. There are around 1,300 industries including large ones like Parle, Uniflex, Grasim, Zodiac, Usha Garments and Baadshah Masala in this city.

The beach at Umbergaon is very quiet and calm, ideal for leisure seekers. The evenings see a number of strollers on the beach who also come out to see the spectacular sunset. The Lions Club in Umbergaon has developed games and rides for children and so the beach is a space where families spend time together. The weekends and even Mondays see large crowds as industry workers have holidays on these days. Both, Navratri and Ganesh Chaturthi are celebrated with gusto in this small city as the locals here are a mix of Gujarati and Marathi families. The major local communities residing in Umbergaon are the fisher folk. During monsoons, the water level in the sea rises a great deal, inundating the roads. A protective wall is now being built by the municipality to prevent such flooding. The beach of Umbergaon has about six vendors selling items like toys, water pouches, snacks, coconuts and food packets.
The other places of interest apart from the beach are the light house, the harbour, Ganpati Temple, Vishwakarma Temple and Radha Krishna Temple. There is a studio 2 km from the beach where shooting of famous epic serials took place, including Ramayana, Jai Hanuman, and Maa Vaishnodevi. The sets of these serials have still been retained at the studio.

**Ecological Significance**

The reef vegetation found here comprises intertidal algae. The Pennatula sp. of coral fauna is found in this region. There is rich marine biodiversity including molluscs, oysters and fishes, similar to Gulf of Kutch region. The entire shore is under the Forest Department and large numbers of the hardy Casuarina trees have been planted along the beach to enhance its beauty and protect the shoreline.

**Tourism Potential**

This beach is comparatively unexplored and has potential for becoming an active tourist destination. If measures are taken to control litter arising from greater traffic on the beach, the beauty of the beach can be preserved.
Challenges and Concerns

- **Festival litter:** The litter found on the beach peaks during festival time, especially Navratri and Ganesh Chaturthi. Lots of coconuts, clothes, photos of gods, and other religious waste gets strewn on the beach. Other than these, plastic pouches, straws and food packets are also found on the beach in the plantation area.

- **Lack of awareness:** The locals visiting the beach have low levels of awareness and are not inclined to use dustbins.

- **Cleaning of the beach:** Dustbins are provided by the municipality to beach vendors on but there is no monitoring and the waste is found on the beach rather than the dustbins. The Municipal Corporation cleans the dump from the beach, but this is done only on the upper side. No cleaning is done on the lower side of the beach where actual waste is found. Due to the large volumes of waste along the beach, there is a need for more manpower to do the cleaning. Although signs have been put up by the Forest Department to warn against littering, these are not heeded by the public.

- **Conflict of Authorities:** There is a conflict of role between the Municipal Corporation and the Forest Department due to which the maintenance of the beach has suffered. The plantation area is used by people for relaxing but they leave behind a lot of waste that becomes difficult to clean.

- **Threat to marine life:** A lot dead jelly fishes have been recently spotted on the beach, the cause of which is unknown.

- **Beach erosion:** Severe erosion of the beachfront is observed along the southern part of the beach and the Umbergaon municipality has also begun the construction of a sea-wall. It must however be ensured that this does not damage the beach further south and make the erosion there more severe. The reason for the erosion may be studied and other soft techniques to protect the beach may be explored.
Recommendations for Beach Maintenance

- **Waste management:** The municipality needs to take care of both, solid plastic waste and untreated water waste. More dustbins should be put up near the beach to reduce the garbage. Hoardings and display boards can be put on the beach and on the main road at regular intervals to create awareness among visitors.

- **Involvement of local welfare clubs:** A lot of welfare clubs function in Umbergaon and would be eager to help in maintaining the beach. These clubs should be supported and included by the government for beach-related initiatives.

- **General awareness:** Educational camps can be organised in the town and nearby villages to educate people regarding the hazards created due to polluting the sea water. They should be cautioned against using the sea for religious activities. A special work force should be developed with the help of local bodies to maintain the beach and collect fines for littering. Bike rallies can be organised to create marine awareness among the people.

- **Involvement of industries:** Since there are many industries in Umbergaon, some of these can be called upon to adopt the beach to keep it clean and develop tourist infrastructure. Hoarding space can be provided to the companies for advertisements and the revenue generated can be used by the municipality for keeping the beach clean.
Getting there

**By Air:** The nearest airport is Porbandar with flight connections to Mumbai.

**By Rail:** There are train connections to several major cities in Gujarat and other states.

**By Road:** State transport buses connect Veraval to other areas in Gujarat.

**VERAVAL**

Veraval taluka, Junagadh district

Veraval merely 6 km from Somnath, was once the fortified royal town of the Junagarh dynasty, founded in 14th century by Rao Veravalji Vadher. The city is reminiscent of its old Nawabi heritage, and has the beautiful summer palace constructed in Gothic style. The fort is by the beach. Sea going dhows and fishing boats are still made in this coastal town by local sea farers with only very simple tools. The town is considered as the gateway to the magnificent temple of Somnath and the pilgrimage centres of Prabhas Patan and Bhalka. Other attractions are the Gir National Park, just 42 km away.

Veraval has a large resident fishing community. Due its long coastline, quality fishes can be found. The seafood industry was thus introduced by the government and this is now thriving, and has encouraged numerous processing units to also establish their plants and export quality seafood to Japan, Southeast Asia, Europe, the Persian Gulf countries and the USA.
Veraval has a picturesque and scenic sea face. Its intertidal area is rocky, covering a stretch of 1.5 km. The beach has benches and a jogging track which is utilized by city dwellers in the mornings and evenings. There are only two to three stalls for refreshments and a few games and rides for children on the beach. Most other vendors have been allotted a separate place, away from the shore by the municipality. Plans to develop a chowpati are currently being considered.

Ecological significance

The reef area has species such as Caulerpa racemosa, Padina tetrastomatica, Scinaia furcellata, Sargassum tenerrimum, Dictyopteris australis and Halymenia vanusta. The coral fauna includes species such as Favites halicora, Plesiastrea versipora, Favia favus, Montastrea valenciennesi, Acanthastrea spp. and Symphyllia spp.

Challenges and Concerns

- **Litter:** There are two food stalls near the beach which sell food packets and water pouches, which are the main sources of waste in the beach area. The beach is devoid of dustbins and the municipality has no proper system in place for regular clean up.

- **Lack of awareness:** There is a slum near the beach and its residents use the beach for the disposal of human excreta due to the absence of public toilets in the vicinity.

- **Fishing:** Waste generated due to fishing activities is minimal; however, certain items like plastic pouches, nets and fish residue can be seen on the beach.

Tourism Potential

The beach holds considerable tourism potential once it is developed as a chowpati. The inclusion of various rides, amusement park and better food facilities will promote Veraval as a destination where holiday-goers can spend a few days with family and friends. The town too is well-connected to most major cities of the state.
Recommendations for Beach Maintenance

- **Beach cleanliness:** The municipality needs to take care of the garbage and other waste getting collected on the beach on a regular basis. It should deploy sufficient manpower and equipment for cleaning the beach. Trucks for waste collection should also be organized on a weekly basis.

- **Tree plantation and awareness campaign:** There should be a plantation drive near the beach by school children to make them understand the importance of trees. Awareness camps should also be conducted in schools and colleges to involve youth in such activities.

- **Involvement of industries:** Companies and industries should be involved for beach development and cleaning by assigning them specific areas and allowing them to adopt that area. This will help in conserving the beach as well as developing it with infrastructure and other facilities.

- **Involvement of morning walkers:** There is a club of doctors who regularly come to the beach for morning walks and are interested in beach cleaning activities. Some authority can be provided to them for maintenance of the beach and ensuring its cleanliness.

- **Dustbins and display boards:** Dustbins should be allotted to all beach vendors and penalty should be levied on those who litter. Display boards should be put up with messages to avoid litter on the beach.