

The Problems of Coastal Tourism, Environment and Local Sustainable Development along Sindhudurg District, Coastal Maharashtra India

Yogesh Pisolkar¹ and Navendu Chaudhary²

Abstract

India has a long coastline of about 7,500 kilometers, with an exclusive economic zone (EEZ) of 2.02 million square kilometers. The state of Maharashtra is located on the western side of the Indian Peninsula. The state has 720 kilometers coastline. Towards the southern end of Maharashtra coastline lies the Sindhudurg coastal district. Situated between latitudes 15^o 37' and 16^o 40' north and longitudes 73^o 19' and 74^o 18' east, Sindhudurg district has a coastline of 121 kilometers. Apart from the beautiful pocket sandy beaches, island & inland ports, the coast is also known for built heritage, local culture and Malvani cuisine. The area has rich coastal and marine biodiversity. Ecosystem services are extremely important for the sustenance of livelihood of local people. However, coastal tourism has picked up in a most unplanned manner in last two decades in three coastal districts Deogad, Malvan, Vengurla of Sindhudurg district. The paper starts with the key statements by some of the reputed organizations and committees observations and suggestions on coastal tourism. The past experiences and directions along the Sindhudurg coast has been assessed. Some gaps & problems perceived by authors in the study area are enlisted. Being geographers, the authors' experience is largely conditioned by the geomorphic backdrop and spatio-temporal change in both physical & socio-cultural environment of the study area. Problems as seen by the authors may have solutions from other parts of the world. Some site specific solutions are suggested by the authors.

Key words – Coastal Tourism, Environment, Sustainable Development(SD), Ecosystem services, Livelihood.

¹Symbiosis Centre for Management Studies (SCMS-P), Viman Nagar, Pune 411014
Email- yogsh.pisolkar@scmspune.ac.in

²Symbiosis Institute of Geoinformatics, Model colony, Pune, 411016
Email- navendu@sig.ac.in

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Introduction

There is no single definition of the coast. The literature refers to the coast, coastal area, coastal zones, and so on. Some authors refer to the coastal zone as ‘... that part of the land most affected by its proximity to the sea and that part of the ocean most affected by its proximity to the land ...’ (Hinrichsen [1996] quoted in Burke, Kura, Kaseem, et al 2000) However in India “**Coastal Zone**” means the area from the territorial waters limit (12 nautical miles measured from the appropriate baseline) including its sea bed, the adjacent land area along the coast, and inland water bodies influenced by tidal action including its bed, upto the landward boundary of the local self government or local authority abutting the sea coast, provided that in case of ecologically and culturally sensitive areas, the entire biological or physical boundary of the area may be included, as specified under the provisions of Environment Protection Act, 1986 (MoEF, 2008)

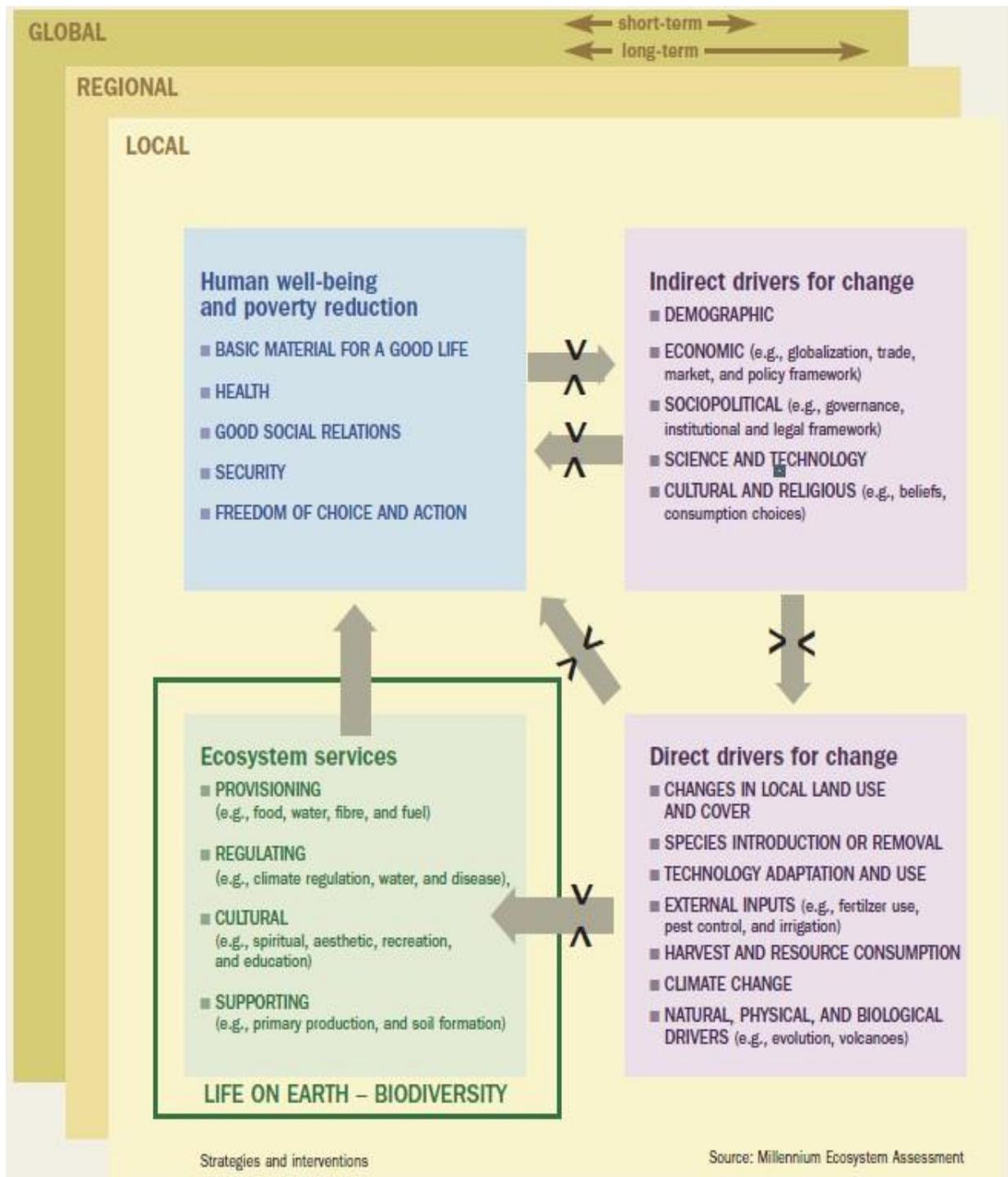
Coastal Tourism and Ecosystem Services

India’s coast and coastal tourism has always been the focus of the domestic as well as international tourists with their own demands. Coastal tourism has an important spatial dimension as it integrates local people, geomorphology and ecosystem services for benefits of tourism.

Ecosystem services are the benefits people obtain from ecosystems. These include provisioning services such as food and water; regulating services such as flood and disease control; cultural services such as spiritual, **recreational**, and cultural benefits; and supporting services, such as nutrient cycling, that maintain the conditions for life on earth. Global changes and a range of drivers are causing degradation or loss of ecosystem services. Coastal and marine ecosystems are among the most productive, yet threatened, ecosystems in the world; they include terrestrial ecosystems (e.g., sand dune systems), areas where freshwater and saltwater mix, near shore coastal areas and open ocean marine areas. Fig 1, (UNEP, 2006)

Fig1. Millennium Ecosystem Assessment (MA) Conceptual Framework of Interactions Among

Biodiversity, Ecosystems Services and Human Well-Being and Drivers Of Change.



Source : UNEP – 2006

Literature review

The Sindhudurg Coastal and Marine Ecosystem (SCME), located on the west coast of India (Maharashtra) is one of the 11 ecologically and economically critical habitats identified along the Indian coast. Critical habitats include: rocky shore, sandy shore, rocky island, estuaries, mud flats, marshy land, mangroves, coral reefs, and Sargassum forests. There are 367 species of marine flora and fauna reported from the area which include 73 species of marine algae, 18 species of mangroves, 11 species of coral, 73 species of mollusks, 47 species each of Polychaetes and arthropods, 18 species of sea anemones and 74 species of fishes. Globally significant species include Whale shark, Indo-pacific humpback dolphins, Olive Ridley, Green and Leatherback turtles, and corals. Avifauna presents 121 species, including 24 true migrants. Vengurla Rock is an Important Bird Area (IBA). The area has a rich repository of corals, with the recent discovery of a large coral area in Angria Bank. Due to its high ecological importance, 29.12 sq. km of SCME was designated as the Malvan Marine Sanctuary (MMS) in 1987 and is one of seven marine Protected Areas in India. SCME has enormous economic significance as well, being one of the major fish landing centers, and as a rapidly emerging tourism destination. The primary drivers of ecosystem degradation in the SCME include unsustainable fishing by trawlers, an expanding tourism sector, and pollution from fishing vessels and other maritime traffic. Agro-chemical and industrial pollution are relatively limited at present but a precautionary approach is warranted, and climate change poses an impending threat. The existing institutional arrangement in the SCME is inadequate in addressing these issues from a landscape perspective (UNDP, 2011)

United Nations Development Program & Global Environment Facility (UNDP-GEF) along with implementing partners and responsible partners Ministry of Environment and Forest (MoEF Government of India), Forest Department, Government of Maharashtra respectively is working on a project – Mainstreaming Coastal and Marine Biodiversity Conservation into Production Sectors in the Sindhudurg Coast, Maharashtra, India with the total budget of US\$15,438,294. The UNDP-GEF intervention aims to address this through the following outcomes: (1) Cross-sectoral planning framework that mainstreams biodiversity conservation; (2) Enhanced capacity of sector institutions for implementing biodiversity-friendly fisheries management plan, ecotourism management plan and MMS management plan; and (3) Sustainable community livelihoods and natural resource use. By the project end, it is envisioned that production activities in at least 6,327 sq. km of SCME mainstream biodiversity conservation objectives, in turn improving the conservation prospects of critical

species and ecosystems, apart from contributing to the sustainable development of the region. (UNDP, 2011, 2013)

It is also clear that coastal areas are the habitats of fishing communities. These communities are in double danger as well – ironically, from conservation and from development. On one hand, these communities are marginalized and even alienated from their lands because of the need for conservation in marine parks or forested islands. And on the other, they are in jeopardy because of large development projects which displace them and take over their lands and livelihood. Their land is prized today for tourism and high-end housing projects. Future policies for coastal area management must reverse these trends and find approaches to conserve and protect vulnerable ecosystems and secure livelihoods and habitats of its people. This is the challenge. (Swaminathan et.al, 2009)

Use of satellite and information technology to map the coast and to monitor real-time violations of that are taking place. This mechanism has been used in the case of the State of Goa where, based on a decision of the Hon'ble High Court Bombay, the government undertook mapping of the entire coast to identify violations. (Swaminathan et.al, 2009)

Problems with coastal tourism in Sindhudurg

Recent field visits and observations in the study area by authors have identified following gaps and persistent problems of Coastal Tourism, Environment and Local Sustainable Development along Sindhudurg District -

1. Temporal changes and its impact on Land Use and Land Cover (LULC) with respect to habitats is not mapped. The reconnaissance of Gram Panchayat and District Collector's office revealed that no survey has been undertaken at least since 1961.
2. Cadastral maps (revenue maps) are not Geo-referenced. Hence mapping of change in respective survey numbers (i.e. New hotels, Homestays, infrastructural development, etc.) are a challenge. The cadastral maps date back to British Era are still not comprehensively surveyed. The survey is proving difficult as no authorized survey marks can be located.
3. The nature of the changing coastline (eroding, accreting) & mapping of the same on a cadastral map has not been done. Sand is removed from the beach sand dune system for construction activity without any systematic mapping or monitoring (Pisolkar, 2013) Coastal Creek management using sophisticated GIS technology is possible, but currently non-existent. This work is currently being undertaken by the authors.
4. Mechanism to develop capacity building and skill development of staff & hotel owners is

- lacking. Detailed facility inventory is required for sustainable planning.(John Holiday 2013)
5. The local traditional fisherman is getting marginalized due to commercial trawlers and persian net fishing. The number of '*Rapan Sangh*' (group of traditional fisherman) and members in it has decreased considerably in the last decade. Fishing grounds are neither mapped nor regulated, leaving the stakeholders unaccountable. (Ujjani,2014)
 6. Along the coast there is a rich repository of corals which is one of the main tourist attractions now. '**Scuba Diving**' and '**Snorkeling**' especially near Sindudurg Fort, Malvan rocks give an easy and affordable option to both - service providers and tourist. However, there are no guidelines & training for safety of tourist, dress code& code of conduct, and most importantly authenticity of the majority of service providers.
 7. Coral are very fragile.Scuba divers (service providers) and Tourist are making it more vulnerable by improper conduct in the field.Visit to the Devbag and Tarkali reveals that no inventory of existing coral reefs with respect to the extent and quality exists.
 8. The majority of the beaches like Tarkarli-Devbag, Tondavali, vulgar, Shiroda etc. used for beach tourism geomorphologically is a spit – a detached type of beach with Areabian Sea to its west and rivers bordering their eastern margins in the major section of the beach. In the majority of the situations all trafficking is along the narrow road that runs all along from north to south of the spit. There is an urgency for site specific traffic management policies or solutions, especially on Tarkarli- Devbag spit. (Pisolkar, 2014)
 9. Carrying capacity studies are essential. The situation currently is more vulnerable regarding quality and quantity of water in certain section of the coast, especially in Devbag. (Pisolkar, 2013)
 10. The villages of Devbag and Tarkarli have no waste management policy. Waste management awareness and policy for planning is found lacking.(Pisolkar,2013)
 11. Lack of promotion of quality local products, traditional knowledge of local arts, culture and drama, built & geo-heritage in Integrated Coastal Zone Management (ICZM) and for tourism. (Pisolkar,2015)

Discussions

Present day relative positions on the Sindhudurg coast should be mapped with Geographic Information System (GIS) and Remote Sensing (RS). Mapping of the same on revenue maps is essential for all practical purposes.Temporal changes & Coastal Tourism and its impact on

critical habitats, especially beach sand dune alterations, is not mapped. Detail study of Land Use and Land Cover (LULC) is essential for biodiversity conservation and sustenance of tourist activities. Also, it is essential, as coastal sand dunes absorb the impacts & safeguard coast at the time of surges in monsoon. It is essential to design policy, regulation and / or law and training programs to enhance the capacity and skills of all service providers. Strict guidelines and code of conduct is essential for tourists, especially for scuba divers. It is the need of the hour to create awareness regarding ecological importance and its conservation among all stakeholders in Sindhudurg district. Traditional fishing practices should be marketed and should be made tourist attraction. It is essential to identify site specific ecological, management and engineering solutions for coastal erosion. Local people always have a better understanding of the ecosystems, ecosystem services and site specific solutions. Modern GIS and Remote Sensing (RS) technologies & sound traditional knowledge of local people, should be used for Integrated Coastal Zone Management (ICZM) & Sustainable Tourism practices with more & more benefits to local people.

Conclusion

Sindhudurg district coastal zone today are facing challenges from various fronts such as population shifts, local conflicts, economic growth, developmental realities, erosion, flooding, increased tourism and lack of sustainable policy to name a few. For effective coastal zone management along Sindhudurg coast, we need to integrate diverse information encompassing various natural as well as man-made aspects. GIS based regional approach will have a positive effect on collaboration between scientists, local stakeholders, policy experts and coastal zone managers. GIS can aid better decision making through better analysis and visualization. It will help local governments maintain a variety of records at spatial scales, thus improving the quality and availability of information. GIS will provide intelligent information about phenomena such as beach erosion and coastal flooding. In addition, GIS can provide ready data for coastal zone management projects. Capacity building of GIS infrastructure can truly integrate collection and distributions of coastal information at Institutions or Governmental agencies which will create cooperation at all levels of stakeholders. GIS information can incorporate environmental, social and economic realities in the decision making process.

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