

Project Completion Report Implementation of Participatory Conservation of Biodiversity in Velas to Dabhol Coastal Stretch in Ratnagiri District of Maharashtra'

June 2017



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Project Completion Report. Implementation of Participatory Conservation of Biodiversity in Velas to Dabhol Coastal Stretch in Ratnagiri District of Maharashtra'

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Executive Summary

Sahyadri Nisarga Mitra (SNM) implemented the project titled 'Implementation of Participatory Conservation of Biodiversity in Velas to Dabhol Coastal Stretch in Ratnagiri District of Maharashtra' from October 2015 to April 2017. In April 2017, the project was formally completed. This consultancy project was funded through a contract with the project on Conservation and Sustainable Management of Coastal and Marine Protected Areas (CMPA) of the Indo-German Biodiversity Programme. The CMPA Project is jointly implemented by the Ministry of Environment, Forests and Climate Change (MoEF&CC), Government of India, and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH on behalf of the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB). This project, also called the implementation phase, was the follow up of the start up phase conducted by SNM between June 2014 and November 2014. The project was implemented in three villages, namely Velas, Kelshi, and Anjarle in the project area. In the implementation phase, the project was divided into six components. The first component was a detailed study of solid waste generated and its management in the project area. This resulted in the development of solid waste management protocols for stakeholder groups in the project area. The second component was a study on existing practices of beach management in project villages. Beach management protocols for the concerned stakeholders were developed based on the beach management study and its findings and recommendations. The third component of the project focused on strengthening existing home-stays. In the first phase of this component, an analytical report on home-stays was prepared to highlight the strengths and weaknesses of home-stays in project villages. In the second phase, new home-stays were initiated in project villages. Over 18 months of the project,

existing home-stays were visited periodically to explain various best practices. The fourth component of the project was conservation education. In this component, thematic programmes on biodiversity in the project villages were conducted in primary and secondary schools. Similarly, educational posters and photos were installed at important locations in project villages. The fifth component of the project dealt with a rapid biodiversity survey in project villages. In the sixth component, biodiversity survey of project villages was conducted. This was a follow up of the survey conducted in the start up phase. A report on the findings of this survey was prepared. In this final report, an overview of the outcome of the start up phase is provided. This is followed by a description of the subsequent components of the implementation phase. The project outcome is presented at the end of the report.

Chapter 1

Introduction

The Ministry of Environment, Forests and Climate Change, Government of India (MoEF&CC) has done a technical cooperation agreement with the German Federal Ministry for Environment, Nature Conservation, Building and Nuclear Safety (BMUB) for implementing the project 'Conservation of Sustainable Management of Coastal and Marine Protected Areas (CMPA)'. The BMUB has commissioned the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GMBH to jointly implement the project with the MoEF&CC in selected states in India.

The overall objective of the project is, 'to contribute to the improvement of the conservation and sustainable use of the biodiversity in the pilot protected areas while taking into consideration the economic circumstances of the local population'.

The CMPA Project emphasises the involvement of stakeholders at the local, state and national level in the design of participatory approaches for conservation and management of existing coastal and marine protected areas and supporting the creation of new protected areas. This strategy

is complemented by measures for capacity-strengthening, and information transmission and education.

In 2014, one of the pilot areas selected for the implementation of the CMPA Project in Maharashtra was the Velas-Dabhol coast, a 60-km coastal stretch in Ratnagiri district of Maharashtra. In this area, activities were focussed on communities in Anjarle, Kelshi, and Velas. The CMPA Project had commissioned a start up phase for the pilot project in this area. The start up phase included an in-depth literature review of the area, an assessment of existing biodiversity, a stakeholder analysis, and development of educational material for outreach activities. In May 2015, the results of this phase was presented to the stakeholders and decision-makers during a workshop in Velas and used to develop the Global Action Plan, 2015-17 for the project area. The objective of the current consultancy project (implementation phase) was to assist stakeholders in the implementation of activities included in the Global Action Plan, which were in line with the overall objectives of the CMPA Project.

Photo 1: Celebration of World Environment Day in Anjarle, 2016



1.1. Start up Phase

SNM implemented the start up phase of the project, 'Participatory Conservation of Biodiversity in Velas to Dabhol Coastal Stretch in Ratnagiri District of Maharashtra' from June 2014 to November 2014. A detailed review of the literature on participatory marine biodiversity conservation was the first component. It was complemented by three action components; rapid biodiversity survey, stakeholder analysis of the project villages, and conservation education.

The core of the survey was the study of inter-tidal habitats that are important for turtle nesting. The study covered sand-profiling of nesting beaches, analysis of organic content, and listing of mega and macro fauna. In addition to studying habitats and their condition, checklists of key organismic groups like plants, invertebrates, birds, and mammals were prepared based on secondary data sources. The survey recommended solid waste management and beach management as interventions for the implementation phase.

1.1.1. Literature Review

The literature review included collation of existing knowledge on the Velas-Anjarle coastal stretch along with knowledge on coastal and marine sites in India and their management. The objective of this review was to identify key knowledge gaps in existing practices and identify suitable interventions for the proposed project on participatory management of biodiversity in the Velas-Dabhol coastal stretch. The list of suggested interventions for the implementation phase included the strengthening of ecotourism, strengthening of livelihoods, waste management, and conservation education.

1.1.2. Rapid Biodiversity Survey

It was conducted in project villages; Anjarle, Kelshi, and Velas. The beaches of these villages are used for nesting by Olive Ridley sea turtles.

Figure 1: Components of the start up phase

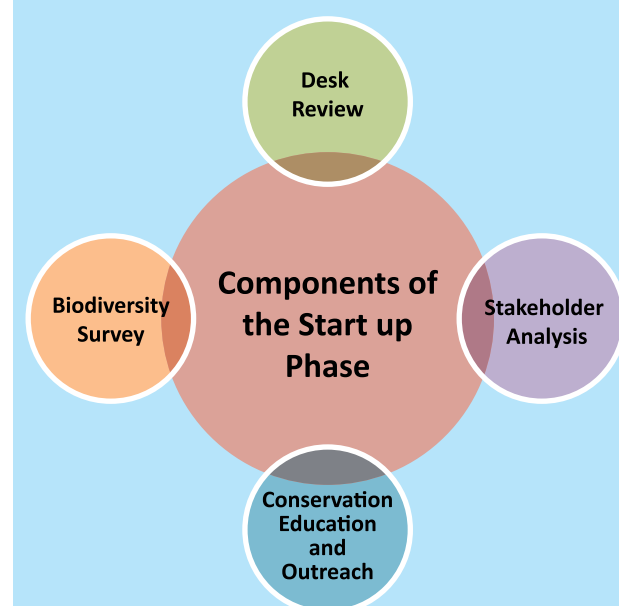


Photo 2: A colouring competition being conducted after a nature awareness programme



1.1.3. Stakeholders Analysis

Stakeholder analysis of the project villages identified major stakeholders and their influence on biodiversity. The analysis identified 13 stakeholder groups spread across 41 occupations. In the analysis, it was observed that stakeholders directly dependent on biodiversity enjoyed relatively less influence on decision-making and the importance of their participation in the project was highlighted. The analysis suggested that the project could have interventions to link biodiversity conservation with income generation of these stakeholders. Another intervention that emerged from the stakeholder analysis was the need to institutionalise ecotourism.

1.1.4. Conservation Education and Outreach

Conservation education activities included creating biodiversity libraries in local schools, celebrating dedicated environment days with schools and villagers, and creation of permanent exhibits. The target groups were schools, Gram Panchayats (village councils), and villagers.

1.2. Implementation Phase

In May 2015, the results of the start up phase were presented to stakeholders and decision-makers in a workshop in Velas. Based on the outcome of the start up phase, an action plan for two years was developed. Subsequently,

SNM worked on the project 'Implementation of Participatory Conservation of Biodiversity in the Coastal Stretch from Velas to Dabhol' from October 2015 to April 2017. The implementation phase included the following components,

- Strengthening of home-stays
- Solid waste management
- Development of beach management protocol
- Conservation education and outreach activities
- Strengthening of the turtle conservation initiative
- Follow up biodiversity assessment in the project area.

Figure 2: Components of the implementation phase



Chapter 2

Component 1: Strengthening Home-stays

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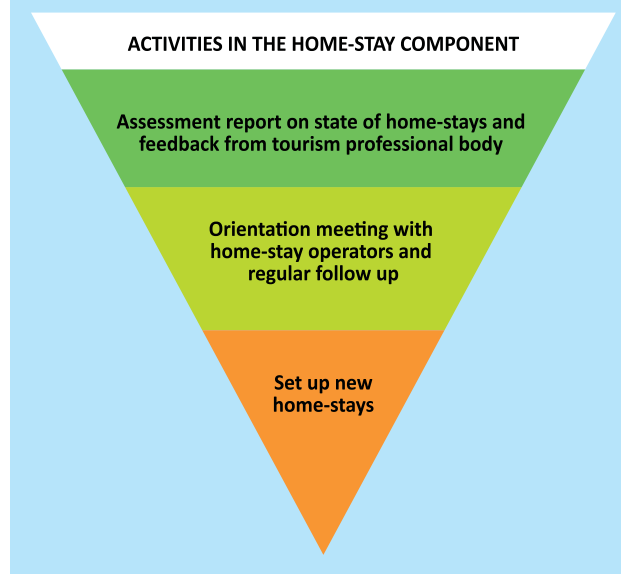
In Velas, home-stays were initiated by SNM in 2006. It was a strategic intervention to strengthen the participation of the local community in the turtle festival and in turtle conservation. Over the years, the number of home-stays in Velas has gradually increased, through learning from peers and guidance from SNM. Home-stays helped SNM link turtle conservation with improved livelihoods in the local community. Over the years, SNM helped willing community members to establish home-stays.

In the implementation phase of the CMPA Project, the current state of these home-stays was studied. Subsequently, focused efforts were done to set up new home-stays and to improve existing home-stays.

2.1. Assessment of home-stays

An assessment of home-stays in Velas, Kelshi, and Anjarle was carried out in December 2015 and January 2016. It was based on personal interviews with home-stay providers in the study villages and visits to the home-stay facilities with prior permission from the service provider.

Figure 3: Activities in the home-stay component



Opportunistic interviews of tourists attending turtle festival in Velas were conducted to document their perspective. In addition, some telephonic interviews of tourists were also conducted.

In Velas, the home-stays have been initiated by SNM in 2006. They have been catering to tourists

Photo 3: The MTOA delegation during their visit to a Velas home-stay



visiting Velas for the turtle festival, which is generally conducted in February and March every year. In 2006, six families had ventured into this new income generation strategy with financial support from SNM. In 11 years, the number of home-stay providers in Velas has increased to 39. Of these, 15 were initiated during the implementation phase of the CMPA Project, i.e. October 2015 to April 2017.

In Kelshi, there are around 20 home-stay providers. Kelshi is visited by a mix of religious tourists and weekend holidaymakers. Home-stays in Kelshi are comparatively older than Anjarle and Velas. There are 20 home-stay providers in Anjarle, which is frequented by weekend holidaymakers.

The assessment reviewed the state of public facilities such as transportation, road connectivity, telecommunication networks, waste disposal systems, and supply of water and electricity. The main focus of the review was to evaluate the services provided by home-stay providers in project villages. The services provided in home-stays include tangibles such as vehicular parking space, boarding and lodging, which include bedding, dining, washroom etc. and intangibles such as providing relevant information to guests, personal security of guests and their belongings etc. Home-stays in project villages have been praised by tourists for the authentic and delicious local food served and their hospitality.

A set of 16 recommendations emerged from the assessment. These included:

- Home-stays should have an internet-based facility for bookings and online payment.
- Traditional set up of the household should be maintained.
- Maintain register of visitors.
- Supplementary income is possible through the sale of mementos.
- Registration with Food and Drugs Authority and Maharashtra Tourism Development Corporation for authenticity and improved publicity.
- Introduce 'Pay-and-Park' facilities on public land to avoid traffic jams during the peak tourist season.

2.2. Visit by an expert from Maharashtra Tour Operators Association

Professional feedback on the state of home-stays in project villages was sought from the Maharashtra Tour Organisers Association (MTOA), a registered organisation of tourism-related agencies in Maharashtra. In May 2016, a delegation from MTOA conducted an assessment of the home-stays in project villages. The delegation shared their observation and recommendations in report. The delegation suggested that project villages should have an online presence for a wider reach. Other important recommendations from the delegation included installing informative boards along tourist routes and organisation of thematic events like Mango Festival or Crab festival to attract tourists throughout the year.

Table 1
Increased income in Velas

Year	Estimate of tourists availing home-stay facility	Rate charged per tourist (Rs/person)	Estimated range of gross income (Rs)	Number of home-stays providing regular service
2006	100-150	350	50,000-60,000	7
2014	1,800-2,000	500	9,00,000-10,00,000	18
2015	2,000 -2,500	500	10,00,000-12,50,000	20
2016	2,500-3,000	550	12,00,000-16,50,000	35
2017	3,000-3,500	650	20, 00,000-25,00,000	39

MTOA has offered to help home-stay providers in project villages to improve their facilities to attract more tourists and enhance their income through ecotourism.

2.3. Meetings and follow up with home-stays

In February 2016, the assessment report was ready. The findings and recommendations of the report were shared at an orientation meeting organised for home-stay operators in March 2016. Subsequently, regular monthly meetings and visits to home-stays were conducted to assist home-stay providers to improve their facilities. Instructional and informative posters prepared as a part of the conservation outreach component of the project were given to home-stay operators to help them shift towards ecotourism.

2.4. Contribution to formulation of the home-stay policy of Maharashtra Tourism Development Corporation (MTDC)

SNM is a member of the consultative committee established by MTDC to formulate a policy for home-stays. SNM was invited to participate and present its views and suggestions to the cultural secretary of Government of Maharashtra. SNM is proactively contributing to the formulation of the policy for home-stays.

2.5. Increased tourism income in Velas and Anjarle

In 2006, the first year of home-stays in Velas, the estimated gross income of the village from turtle tourism was between ₹50,000 and ₹60,000. There were seven home-stays catering to around

150 tourists. Over the last 11 years, the number of tourists visiting Velas, especially to attend the turtle festival, has increased nearly 30 times. In 2017, the number of tourists in Velas was in excess of 3,000. The number of home-stays has increased from seven in 2006 and 20 in 2015, to 39 in 2017. The gross income of the village from turtle tourism has increased 50 times. The increase in tourist-related income in Velas over last 11 years is included in Table 1.

In Anjarle, the first turtle festival was held in 2016. The number of tourists visiting the turtle festival was estimated to be around 2,000. In 2017, the number of tourists attending the second turtle festival was reported to be around 3,000.

Photo 4: Display board in Velas



Chapter 3

Component 2: Solid Waste Management

The activities under the solid waste management component included preparation of an assessment report on existing solid waste management practices in project villages. As a part of the assessment, major stakeholders in solid waste management were identified. As a follow-up of the report, solid waste management protocols for various stakeholder groups were

prepared. The protocols were shared with the Gram Panchayats of project villages. SNM followed up with the Gram Panchayats to pass a resolution for 'Plastic-free Village'. Importantly, this resolution was passed at a grand Gram Sabha (village meeting) of Gram Panchayats of Anjarle, Kelshi, and Velas held on 26th January, 2016.

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Figure 4: Activities in the solid waste management component

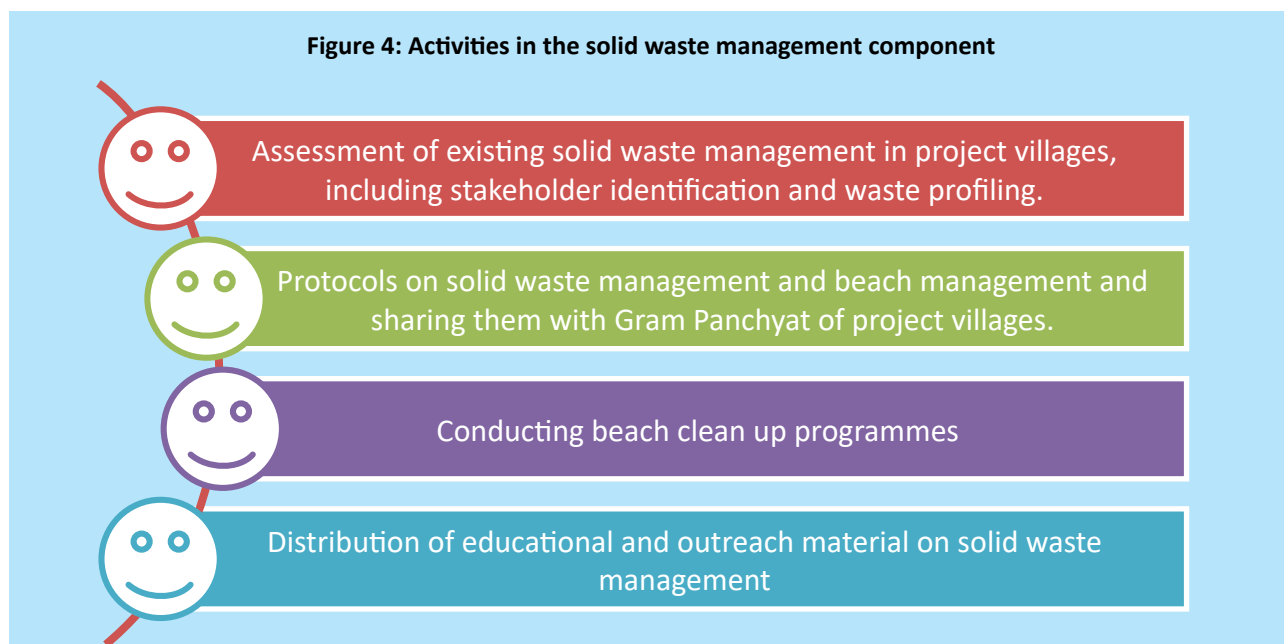


Photo 5: Litter deposited by the high tide



Photo 6: Disposal of medical waste in Kelshi



3.1. Assessment of existing solid waste management in project villages

Apart from its intrinsic environmental importance, solid waste management in project villages is also important for tourism and turtle conservation efforts. The report on existing solid waste management in project villages used a mix of quantitative and qualitative data collection methods. A detailed analysis

of stakeholders in solid waste management in project villages was also carried out. The report listed sources of waste and developed a profile of solid waste in project villages, including rate and volume of waste generation. Finally, the report recommended follow-up actions. One of the recommended action was to develop protocols for solid waste management, which was implemented immediately.

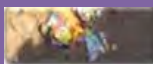
Figure 5: Salient findings of the solid waste management report



Identified 20 stakeholder groups and their role in waste -generation, disposal, transportation and, community organisation



Average per day domestic waste per household in project villages is less than 1 kg



Waste quantity increases during the tourist season



Non-biodegradable waste at the household-level is approximately 15-20% of the total waste generated



Biomedical waste disposal is practiced effectively the Primary Health Centre in Kelshe

Table 2
Solid waste management and beach management protocols

Protocol Number	Title
Protocol I	Protocol for solid waste segregation
Protocol II	Protocol for door-to-door waste collection from creek-side houses
Protocol III	Protocol for wet solid waste composting
Protocol IV	Protocol for beach management
Protocol V	Protocol for waste collection equipment
Protocol VI	Protocol for recyclable dry solid waste management
Protocol VII	Protocol for wet solid waste
Protocol VIII	Protocol for biomedical waste management

Table 3
Beach cleanup programmes

SN	Village	Programme conducted on
1.	Velas	13th February, 2016 and 5th March, 2016
2.	Kelshi	30th January, 2016
3.	Anjarle	21st October, 2015 and 30th January, 2016

Photo 7: Beach cleanup in Anjarle



Photo 8: Beach cleanup in Anjarle



3.2. Solid waste management protocols

Solid waste management protocols were developed for all project villages based on the findings of the assessment report. Seven protocols were developed for each village, targeted at specific stakeholder groups. The Gram Panchayats were briefed about the protocols at a special meeting and they promised to implement them in their villages.

3.3. Gram Panchayat resolution on waste management

On 26th January, 2016, the Gram Panchayat of

all project villages passed a resolution to make their village plastic-free. SNM had provided the draft for this resolution.

3.4. Participatory beach cleanup programmes

Five participatory beach cleanup programmes were held in the 24-month period of the project (Table 3). In addition to these formal events, which would be announced a week in advance, SNM volunteers conducted regular beach cleanups whenever they visited a beach in these villages.

Photo 9: Collection of beach cleanup programme in Velas



Photo 10: Solid waste management poster in Marathi



Photo 11: Litter washed up on Velas beach



Educational and outreach material on solid waste management

A total of 35 posters (five copies of seven poster designs) were prepared. The posters are

in Marathi and in English. They are distributed to home-stay operators. The home-stays have displayed the posters prominently.

Chapter 4

Component 3: Beach Management

The activities under the beach management component included preparation of an assessment report of existing beach management in project villages. The major stakeholders in beach management were identified as part of the assessment. As a follow up of the report, beach management protocols for various stakeholder groups were prepared. The protocols were then shared with the Gram Panchayats of project villages.

Photo 12: Bottles washed up on the beach



11

Figure 6: Activities in the beach management component

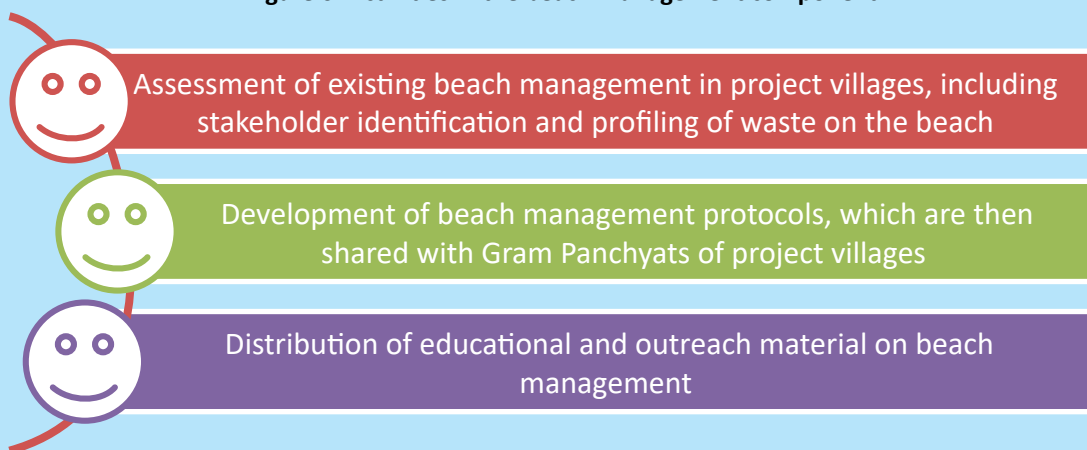


Figure 7: Salient points from the beach management report

Velas receives more waste from the sea than Anjarle and Kelshi.

Waste washed up on the beach includes strips of medicinal tablets, medicinal syrup bottles, plastic bottles of cold drink, glass beer and alcohol bottles, used syringes, plastic waste, liquor bottles, empty milk packets, thermocol used in packaging, footwear, and empty nylon gunny bags.

Faecal matter is common along the shore due to direct release of sewage into the sea by coastal villages and towns.

Every high tide brings an average 0.68 kg waste to the beach of each project village

4.1. Educational and outreach material on beach management

A total of 30 posters (five prints of six designs) and six information boards (three prints of two designs) were prepared.

The posters are in Marathi and English. They were distributed to home-stay operators. The information boards were installed near the beach to ensure that they were read by tourists visiting the beach.

Photo 13: Information board on solid waste



Chapter 5

Component 4: Strengthening the Turtle Conservation Initiative

The main tasks under this component were to analyse and conduct turtle conservation activities and develop appropriate products and material to support these activities in project villages.

The following activities were conducted under this component.

5.1. Guidelines on management of turtle hatchery

SNM has pioneered participatory conservation of Olive Ridley sea turtles in coastal Maharashtra. SNM has documented its experience of in situ conservation of the Olive Ridley sea turtles nesting on the Konkan coast through research

13

Figure 8: Activities to strengthen the turtle conservation component



Photo 14: Turtle hatchery on Velas beach



papers, popular articles and in-house field notes. SNM experience spans over 12 years and works in 50 locations from Palghar district in the north to Banda in Sindhudurg district in the south, i.e. 750 kms of the Konkan coast. In the course of eight years, between 2006 and 2014, SNM volunteers would regularly visit nesting locations and collect data on the number of nests, eggs, and hatchlings released. At the same time, SNM was in touch with marine turtle experts and organisations involved in turtle conservation in India. SNM volunteers also visited mass turtle nesting (Arribada) in Odisha in 2008. Each of these activities provided inputs to develop guidelines to manage turtle hatcheries, which are important for ex situ conservation of marine turtle nesting. The guidelines are prepared in English and Marathi. The draft was circulated among community members of project villages for their feedback. Later, it was finalised and formally released by a German delegation that visited Velas in April 2016.

The initial two chapters of the guidelines deal with locating turtle nests and their in-situ protection. Tracking and locating eggs laid by an Olive Ridley sea turtle female requires considerable experience and practice. In relation to the hatchery technique, in-situ

protection is comparatively cumbersome and labour-intensive. Over the years, SNM has found that relocating the eggs to a safe place, protecting them, and caring for them till the hatchlings emerge is far more efficient. Setting up the hatchery is an important step in the ex-situ protection of turtle eggs. Chapter 3 of the guidelines cover hatchery management in detail and includes information on site selection for establishing the hatchery, fencing, materials, land preparation, systematic relocation of eggs, numbering of eggs, and monitoring. Chapters 4 and 5 provide details for hatchling release, and rescue and care for turtles caught in fishing nets. Chapter 6 provides guidance on general beach management. The contact details of local forest department officers and individuals in the Konkan region involved in Olive Ridley sea turtle conservation are given in the annexure of the document.

Guidelines on conducting marine turtle festival

In 2006, the first turtle festival in India, and possibly in the world, was organised by SNM in Velas. Its aim was to generate additional income for villagers through marine turtle conservation. That time it was a new intervention in which

Photo 15: Release of posters and report by a German delegation



tourists would witness turtle hatchlings crawling towards the sea. As part of the festival, the idea of developing home-stays to host tourists attending the turtle festival was proposed to the villagers. Although 2006 was the fourth year of SNM's activities in Velas, none of the villagers showed any interest in conducting the turtle festival and operating home-stays. In an effort to showcase the possibilities of income generation through turtle festival and home-stays to the villagers, SNM organised the first turtle festival with the help of villagers and hired their homes to house tourists. Villagers were surprised by the presence of 250 tourists, their enthusiasm for the turtle festival, and their determination to return for similar events. The festival also received coverage in mainstream media. Subsequently, SNM took responsibility for organising the turtle festival and villagers took the responsibility for hosting tourists. SNM established an information centre in Velas to provide information about marine turtles to tourists. Over the years, the number of tourists and home-stay providers has increased gradually. In 2017, Velas received more than 3,000 tourists and the gross income of the village is estimated to be around ₹25,00,000.

In Anjarle, the CMPA Project was the trigger to hold the first and second turtle festivals in 2016 and 2017. Local governing bodies of villages such as Harihareshwar in Raigad district have also expressed interest in hosting a turtle festival. The guidelines for hosting a turtle festival have been prepared in Marathi and English in response to the growing interest of local governing bodies to organise such festivals. The draft of the guidelines was initially shared with community members in Velas. The guidelines were then finalised and released by a German delegation in April 2017.

Figure 9: Salient points of the turtle festival guidelines

Activities before turtle festival

- Formation of turtle conservation and festival committee
- Orientation for the turtle conservation and festival committee
- Village-level meeting
- Informing various stakeholders about the festival

Activities during turtle festival

- Review home-stay facilities
- Signage to guide and instruct tourists
- Release of hatchlings
- Conducting activities
- Turtle festival update

Activities after turtle festival

- Collection of “Turtle Conservation Fund”
- Evaluation and sharing information with government authorities

5.2. Handholding of local community members to organise turtle festivals in Velas and Anjarle (in 2016 and 2017)

SNM project staff made regular visits to Velas and Anjarle in 2016 and 2017 after the first nesting of the season was reported. During these visits, SNM volunteers helped local community members to build the hatchery, relocate eggs to the hatchery, and to determine the tentative date when they were expected to hatch. The turtle festival was then announced around that date. On the days of the festival, SNM project staff helped local organisers manage visitors and ensure that the hatchlings were released safely. In the period between the first nesting and the turtle festival, SNM staff helped local community members organise tourist bookings and conducted an orientation on good practices for home-stays. Just before the 2016 turtle festival, SNM provided posters on solid waste management and information posters on the protection of local biodiversity to home-stay operators. These posters were appreciated by everyone, including tourists and home-stay operators.

5.3. Policy advocacy on Velas and Anjarle as biodiversity heritage sites (BHS) as per the Biological Diversity Act, 2002

In May 2017, the beaches of Velas and Anjarle were declared BHS under the Biological Diversity Act, 2002. A BHS represents a unique, ecologically-fragile ecosystem with the presence of rare and threatened species. Since these beaches are nesting sites of the Olive Ridley sea turtle and the community is making proactive efforts to conserve turtles, they were declared BHS sites by Maharashtra State Biodiversity Board (MSBB). SNM initiated the formation of a Biodiversity Management Committee (BMC) in Velas in 2011-12. It conducted regular follow ups and conducted many meetings with the Gram Panchayat to form the BMC. SNM initiated contact with Maharashtra State Biodiversity Board, which subsequently conducted an orientation meeting in Velas about forming the BMC and preparation of a Gram Panchayat resolution to declare Velas beach as a Biodiversity Heritage Site. This orientation meeting was attended by many coastal villages involved in turtle conservation at the time. It took more than five years, from 2012 to 2017,

Photo 16: Olive Ridley sea turtle female



Photo 18: Award recipient, Mr. Abhinay Kelaskar



Photo 17: Award recipient, Mr. Mohan Upadhye



Photo 19: Filming turtle conservation initiatives



for the formation of BMC, formulation of the BHS resolution by the Gram Panchayat, and finally to send a copy of the Gram Panchayat resolution to Maharashtra State Biodiversity Board. After this, a special committee of MSBB declared Velas beach as a BHS. In this interim period, Maharashtra Forest Department, MSBB, GIZ and the Gram Panchayats of Velas and Anjarle worked together to follow up the matter with various authorities.

5.4. Friends of Turtle Award

In March 2017, Mr. Mohan Upadhye of Velas and Mr. Abhinay Kelaskar of Anjarle were conferred with the Friend of Turtle Award for their contribution to turtle conservation in the Konkan region. SNM instituted this award to recognise institutional and individual efforts in marine turtle conservation in the Konkan region of Maharashtra.

5.5. Film on turtle conservation

A film on the efforts underway to conserve Olive Ridley sea turtle nesting on the Maharashtra coast was developed. The film is 20 minutes long and covers various efforts made over the past decade, followed by the interventions under the CMPA Project. The medium of the film is English and will be dubbed into Marathi in the future.

5.6. Cloth bags with environmental message

Cotton bags with an environmental message have been prepared during this project. These bags will be distributed to participants of various programmes that SNM organises periodically.

Chapter 6

Component 5: Conservation Education and Outreach

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The conservation education and outreach component complemented other components of the implementation phase. The activities in this component were mainly focused on creating awareness in project villages on the conservation of coastal and marine biodiversity, habitats and

species. Activities in this component included celebration of days such as World Environment Day, World Mangroves Day, Wild Life Week etc., by conducting educational programmes in schools, organising training programmes for nature guides etc.

Figure 10: Activities of conservation education component

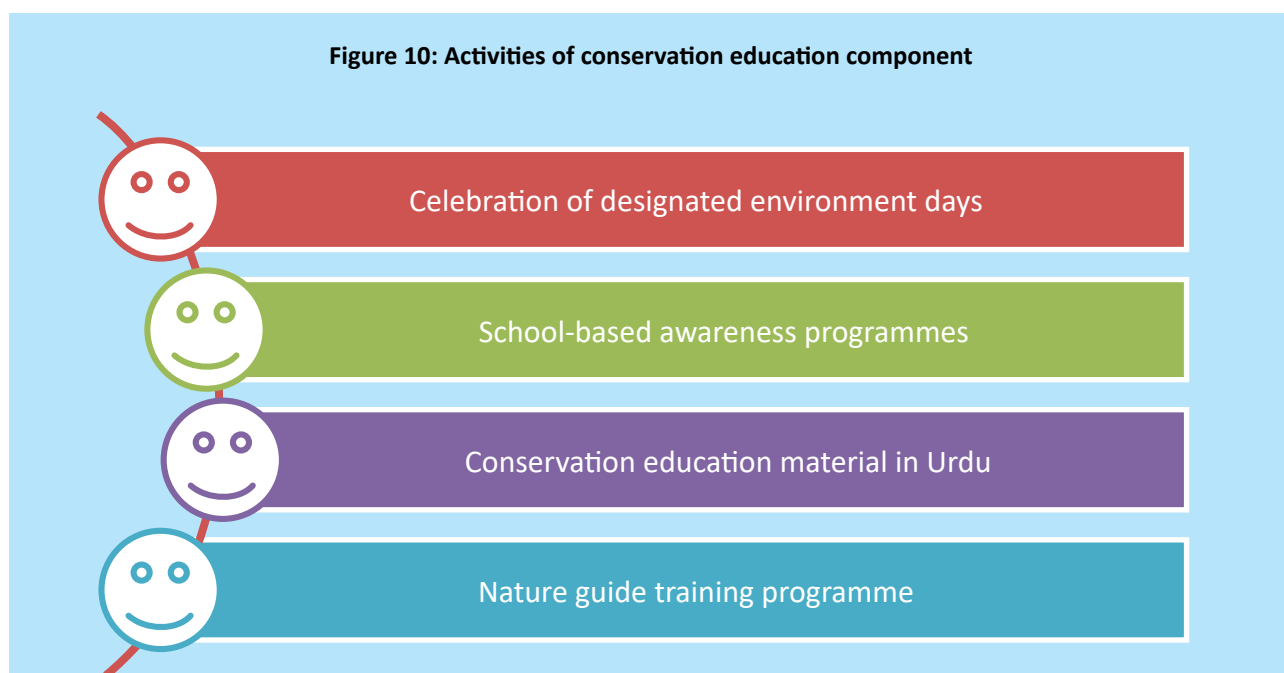


Table 4
Celebration of designated environment days

Wildlife Week	2nd to 7th October, 2015
Biodiversity Day	22nd May, 2016
World Environment Day	5th June, 2016
Wildlife Week 2016	2nd to 7th October, 2016

Table 5
School-based nature education programmes

Theme	Month	Number of schools			Number of programmes
		Velas	Kelshi	Anjarle	
Mangrove ecosystem					
Wetlands	January 2016	2	3	3	8
	February 2016	3	2	2	7
Gastropods – Shells on the beach	August 2016	2	3	2	7
Monsoon Flora and Butterflies	September 2016	2	3	2	7
Rocks and minerals	January 2017	-	2	2	4
	February 2017	-	2	3	5
Feedback Session with teachers		Grand Total			38

6.1. Celebration of designated environment days

During the project period, several environment days were celebrated. Local community members and Gram Panchayats of the villages helped and participated in these celebrations. The celebration included holding special events to generate awareness such as slide shows, nature trails, expert talks, distribution of saplings of native trees for plantation etc.

6.2. School-based awareness programmes

School-based awareness programmes were conducted regularly in seven schools in project villages. These programmes covered five themes. Each programme was interactive. Photos, real samples, and computer presentations were used to convey important points. In each school, five thematic programmes were conducted during the project period. Interactive session of each thematic programme was followed by a feedback session in which word puzzles, drawings, and

fill-in-the-gap quizzes were used to test if the message was communicated effectively. The top three performers at each feedback session were rewarded with a prize to encourage participation.

6.3. Workshop on nature tourism and working as a nature guide

In January 2016, SNM asked the Gram Panchayats of project villages to select candidates for training as nature guides. SNM had planned a year-long programme with monthly orientation sessions for the trainees. However, none of the Gram Panchayats responded despite follow ups. Therefore, an orientation workshop on nature tourism and working as nature guide was organised in November 2016. This workshop was attended by around 50 participants. In the first session, subject experts spoke on various topics related to nature tourism. In the afternoon session, the participants were taken on a nature trail for a live demonstration of the role played by a nature guide.

Chapter 7

Component 6: Rapid Biodiversity Assessment

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The biodiversity assessment conducted in the implementation phase was conducted in September 2016. It was a follow-up of the biodiversity assessment conducted in the start

up phase in 2014. The methodology used for both assessments was similar. The assessment conducted in September 2016 had the following objectives:

Table 6
Objectives of the biodiversity survey in 2016

Identification of coastal habitats and their physical and biological parameters
Map sites using satellite images
Identify interventions and threats to the sites

Photo 20: Students participate in a quiz during a feedback session



Photo 21: Sand profiling in progress



Photo 22: Identification of fauna on the beach



Photo 23: Award presentation to students who won prizes



Biological and non-biological parameters were considered to assess the overall ecological condition of the sites. Standard protocols suggested by the Leibniz Centre for Tropical Marine Ecology were adopted for Rapid Biodiversity Assessment in 2014. A similar methodology was adopted for the follow-up survey in 2016.

A rapid vegetation survey was also conducted on the beach and in mangrove sites of project villages. It was found that mangroves are affected by anthropogenic activities like bridge-building and direct disposal of untreated sewage in the creek. Spatial and temporal study of mangrove ecosystem is necessary to identify the factors that impact mangrove diversity and develop appropriate conservation measures.

Figure 11: Parameters documented in the biodiversity survey

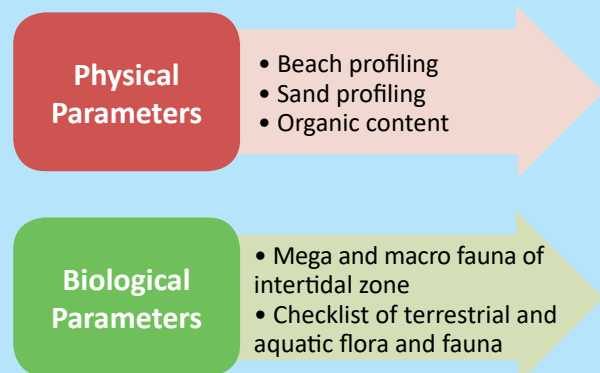


Figure 12: Salient points from the biodiversity survey 2016

Anjarle

- Dune vegetation receded from 15m to 6m from the permanent marker
- Fine sand proportion has decreased
- Organic content has increased
- All organismic groups—Polychaete worms, Crustaceans, Insecta, Bivalve, Gastropods and Shrimps—are moderate in abundance.
- Ghost crabs frequency has increased

Kelshi

- Sand dune has shifted towards the land. Vegetation is progressing towards the sea
- Coarse sand proportion has increased.
- Organic content has increased
- Higher abundance of all organismic groups—Polychaete worms, Crustaceans, Insecta, Bivalve, Gastropods and Shrimps
- Ghost crabs frequency has increase

Velas

- The number of sand bars has increased. More crest and troughs were observed than 2014. Vegetation progressing towards sea.
- Coarse sand proportion has increased.
- Organic content has increased
- All organismic groups, except Insecta, are moderate in abundance. Insecta was totally absent in 2016.
- Ghost crabs frequency has increased

Chapter 8

Summary of all components of the implementation phase

The output of all the components is summarised below.

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Table 7
Objectives of the biodiversity survey in 2016

Component	Output	
	Site based	Report/write up/awareness generation material/educational material
Strengthening Home-stays	New home-stays initiated – 15 in Velas, 4 in Anjarle, and 1 in Kelshi	Report on assessment of existing home-stays
	Monthly meetings with home-stay operators	Feedback report by MTOA on home-stays in project villages
	Policy advocacy on separate policy for home-stays – prepared draft on home-stay policy and participated, on invitation, in meetings conducted by MTDC	Awareness and educational material: - 40 photo frames (10 designs X 4 prints mounted on a wooden frame) - 40 educational posters (4 designs X 10 prints of each design)
Solid Waste Management	Survey to assess status of solid waste management in the project villages	Report on assessment of solid waste management in the project villages, including stakeholders assessment
	Beach clean-up programmes in the project villages	Development of protocols on solid waste management in the project villages
	Feedback meetings with Gram Panchayat members on solid waste management	Educational and informative material on solid waste management - 35 posters [7 designs (5 Marathi and 2 English) x 5 prints of each design]
	Resolution of Gram Panchayats of project villages for a plastic-free village	

Table 7
Objectives of the biodiversity survey in 2016

Component	Output	
	Site based	Report/write up/awareness generation material/educational material
Beach Management	Survey to assess status of beach management in project villages	Report on assessment of beach management in project villages, including stakeholders assessment
	Beach cleanup programmes in project villages	Develop beach management protocols in project villages
	Feedback meetings with Gram Panchayat members on beach management	Educational and information material on solid waste management - 30 posters [6 designs (4 Marathi and 2 English) X 5 prints of each design]
Strengthening of turtle conservation initiative	Handholding to organise turtle festival in Velas and in 2016 and 2017 in Anjarle	Guidelines on management of turtle hatchery and rescue centre (English and Marathi)
	Policy advocacy on declaration of Velas and Anjarle beaches as Biodiversity Heritage Sites	Guidelines on organisation of turtle festivals (English and Marathi)
	Friends of Turtle Award	Film on turtle conservation
	Five beach cleanup programmes (Velas – Feb 2016 and March 2016, Kelshi – Jan 2016 and Anjarle – Oct 2015 and Jan 2016)	
	Distribution of 500 cloth bags with environmental message	
	Gram Panchayat resolution on plastic-free villages	
Conservation education and outreach	Celebration of Wildlife Week in 2016 and in 2017, Biodiversity Day, World Environment Day, Mangroves Day etc. Through public events	Educational material on five themes – Mangrove ecosystem, Wetlands, Gastropods on the beach, Monsoon flora and butterflies, Rocks and minerals
	School-based activities on nature conservation – 38 events in during the project (8 in Jan 2016, 7 in Feb 2016, 7 in Aug 2016, 7 in Sep 2016, 4 in Jan 2017 and 5 in Feb 2017)	
	Orientation programme on working as nature guides	
CMPA Project Impact Assessment – Biophysical Indicators	Field survey in Velas, Kelshi and Anjarle	Report on follow up biodiversity survey at Anjarle, Kelshi and Velas

Annexure 1: List of activities conducted in the start up and implementation phase

Activity SN	Date	Description of the activity	Language	Number of units/ participants	Supporting Document for verification
1	Sep-14	Biodiversity Assessment Report	English	NA	Report
2	Sep-14	Stakeholder Analysis report	English	NA	Document
3	Sep-14	Desk review on CMPA	English	NA	Document
4	Nov-14	Education material: Jigsaw Puzzle	Marathi, English	100	Sample of the puzzle, photo
5	Nov-14	Education material: Educational posters	Marathi, English	300	Sample of the posters, photo
6	Nov-14	Education material: Educational banners (standees)	Marathi, English	50	Sample of the standees, photo
7	Nov-14	Education material : Photo frames for schools	Marathi, English	100	Sample of frames, photo
8	Nov-14	Education material: Biodiversity Library in schools	Marathi	11 Schools x 100 books	Photos and work update
9	Nov-14	Celebration of specific days	Marathi and English	9 events in 3 villages	Photo
10	Oct 2015 to March 2017	Facilitation of new home-stays. 15 in Velas, 5 in Anjarle, 1 in Kelshi	Marathi	NA	Photos,
11	21-Oct-15	Beach Clean Up Programme in Anjarle	Marathi	20	Photos
12	23-11-15	One-day refresher course on turtle conservation for volunteers in Velas-Dabhol coastal stretch and in Anjarle	Marathi	40	Photos
13	Dec 2015 – March 2017	Film on participatory turtle conservation efforts of SNM	Marathi	NA	Film and Interim Progress Report
14	26th January 2016	Gram Panchayat Resolution on Plastic-free villages in Velas, Kelshi, Anjarle	Marathi	NA	Photos and letter written to the Gram Panchayats
15	30th January 2016	Beach Cleanup Programme in Anjarle	Marathi	15	Photos
16	30th January 2016	Beach Cleanup in Kelshi	Marathi	15	Photos
17	Feb-16	Photo frames for Home-stays	English and Marathi	40	Installation of frames in home-stays
18	13-Feb-16	Beach Cleanup in Velas	Marathi	15	Photos
19	Feb-16	Visit of a Correspondent of a German TV	English + Marathi	50+	Photos and interim progress report I
20	Feb-16	Anjarle Turtle Festival	Marathi	70+	Photos + Work Update + News Paper Article
21	05-Mar-16	Beach Cleanup in Velas	Marathi	15	Photos

Annexure 1: List of activities conducted in the start up and implementation phase

Activity SN	Date	Description of the activity	Language	Number of units/ participants	Supporting Document for verification
22	20th April 2016	Visit of a German delegation visit	English + Marathi	15	Photos and interim progress report I
23	20-Apr-16	Coastal Biodiversity Interpretation Centre in Velas	English	NA	Photos
24	May-16	Visit of tourism expert for feedback on home-stays	English	NA	Report
25	May-16	Report on SWM in Velas, Kelshi, and Anjarle	English	NA	Report
26	May-16	Report on Beach Management in Velas, Kelshi and Anjarle	English	30 (20 Marathi + 10 English) (6 designs)	Installation of posters in home-stays
27	May-16	Biodiversity Day celebration	Marathi	20	Photos and work update
28	May-16	Guidelines on conducting turtle festival	Marathi and English	NA	Document
29	May-16	Guidelines on Turtle Hatchery Management	Marathi and English	NA	Document
30	Jun-16	Home-stay assessment report	English	NA	Report and photos
31	Jun-16	World Environment Day celebration	Marathi	75	Photos and work update
32	Jun-16	Pre-monsoon Biodiversity Survey of Gastropods on the beach	English	5	Photos and report
33	Sep-16	Biodiversity assessment follow-up report	English	NA	Report
34	Sep-16	Policy input to MTDC's home-stay policy – Meeting I	Marathi and English	NA	Minutes of Meeting by MTDC
35	Oct-16	Instructional Posters to be installed at home-stays	English and Marathi	40 (4 designs X 10 prints each)	Installation of posters in home-stays
36	Oct-16	Posters on SWM	English and Marathi	35 (25 Marathi + 10 English) (7 designs)	Installation of posters in home-stays
37	Oct-16	Protocol on SWM in Velas, Kelshi, and Anjarle	English	NA	NA
38	Oct-16	Posters on beach management in Velas, Kelshi, and Anjarle	English and Marathi	20	Installation of posters in the home-stays
39	Oct-15	Wildlife Week celebration	Marathi	100+	Photos and work update
40	Oct-16	Wildlife Week Celebration: Essay and drawing competition	Marathi	100+	Photos + work update
41	Oct-16	Post-monsoon Biodiversity Survey of Gastropods on the beach	English	5	Photos and report

Annexure 1: List of activities conducted in the start up and implementation phase

Activity SN	Date	Description of the activity	Language	Number of units/ participants	Supporting Document for verification
42	Nov-16	Prize distribution for Wildlife Week competition	Marathi	100+	Photos + work update
43	05-Nov-16	Urdu photo frames, posters, and standees	Marathi + Hindi	40+	Photos and work update
44	05-Nov-16	Orientation programme on nature guide as a profession	Marathi	40+	Photos + work update
45	Dec-16	Policy input to MTDC's home-stay policy – Meeting II	Marathi and English	NA	Email by MTDC
46	Jan-17	Cloth bags with environmental message for distribution	Marathi	400	Photo and cloth bag sample
47	Jan-17	Informative all weather boards on the beach for tourists	Marathi and English	12	Photos, Soft copy of the design
48	05-Apr-17	Kasavmitra Puraskar	Marathi	40	Photos + News Paper Article
49	4-7 April and 15-23 April 2017	Turtle Festival Anjarle	Marathi	100	Photos + News Paper Article

Photo 24: Home-stay poster at a Velas home



Photo 25: Home-stay poster at a Velas home



Photo 26: Home-stay poster at a Velas home



Photo 27: Home-stay poster at a Kelshi home



Photo 28: Home-stay poster at a Kelshi home



Photo 29: Home-stay poster in Anjarle



Photo 30: Hatchery in Anjarle



Photo 31: Tourists watch the release of turtle hatchlings



Photo 32: Sharing information on turtle festival



Photo 33: Turtle festival



Photo 34: All-weather boards in Velas



Photo 35: Cloth bags with messages



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Project Completion Report Implementation of Participatory Conservation of Biodiversity in Velas to Dabhol Coastal Stretch in Ratnagiri District of Maharashtra

June 2017

