

Discover the ecotourism potential and develop an ecotourism plan for Songaon, Ratnagiri district, Maharashtra

**Dissertation submitted in partial fulfillment of Master degree in
Environmental Science and Technology**

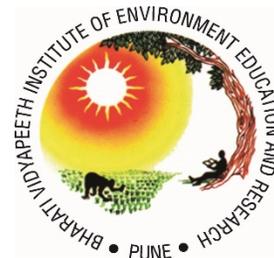
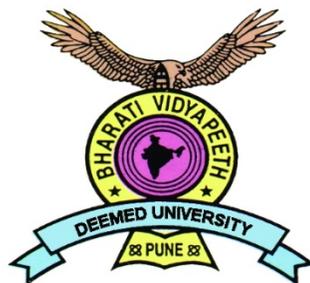
2019-2020

Puja Singh

Under the guidance of

Prof. Dr. Kranti Yardi

Mr. VandanJhaveri (External guide)



Institute of Environmental Education and Research

Bharati Vidyapeeth Deemed University

Pune, Maharashtra, India

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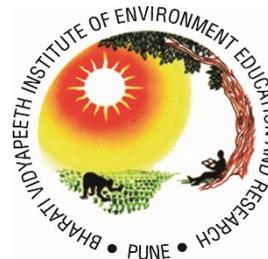
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2019-2020

CERTIFICATE

This is to certify that **Miss Puja Singh**, Final year student at the Bharati Vidyapeeth (Deemed to be University) Institute of Environmental Education and Research, Pune has been successfully completed the dissertation title, “**Discover the ecotourism potential and develop an ecotourism plan for Songaon, Ratnagiri district, Maharashtra**” under the guidance of **Prof.Dr. Kranti Yardi** and **Mr. VandanJhaveri (external guide)**, in partial fulfillment of the Master Degree in Environmental science and technology during the academic year 2019-2020.

The work has been completed to our satisfaction and standards. The said dissertation has not been submitted for any other degree or diploma and any such materials which have been obtained from other sources have been duly acknowledged in the dissertation.

Prof. Dr. Kranti Yardi

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Abstract

Ecotourism is a growing trend all across the world, in India also it has gained lots of popularity over the past few years. The western part of Maharashtra comprising the Konkan region has a diverse range of flora and fauna, which needs to be protected from the impact of urbanization. Nature tourism in this region is relatively higher than its surrounding regions, using this nature tourism as base an ecotourism plan development can be done which conserve the biodiversity and at the same time benefit the local community.

In order to do the same, an ecotourism plan has been developed for Songaon. The plan is based upon the potential sites and biodiversity richness, also the existing nature tourism of crocodile safari has been used as a driving force for ecotourism development in the village. The village currently has a very low tourist flow, which was an advantage for this study. Low tourist flow in the village has kept its biodiversity away from tourism impact, making it easier to study and recorded and also an opportunity for encouraging local community to do a homestay.

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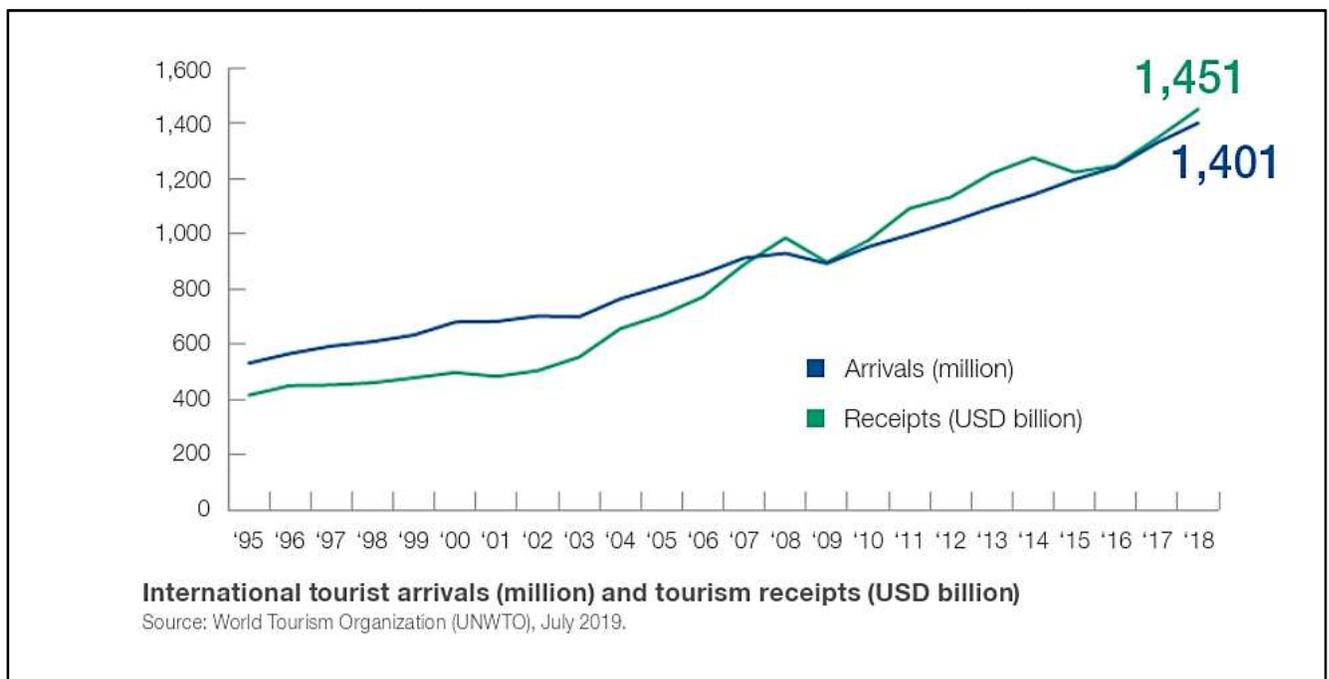
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Chapter 1: Introduction

1. Introduction

1.1 Tourism

Tourism is defined as the short term movement of people to a new place from their original place where they can relax and enjoy. The tourism sector is one of the most prominent sectors, countries having a high flow of tourist shows a significant growth in their GDP and employment rate. The World Travel and Tourism Council said that tourism generated 6.4% of the nation’s GDP in 2011 and also created 39.3 million jobs in India. Therefore it clearly shows that in the upcoming year’s tourism is growing to act as a backbone for economic development and employment generation sector for developing countries like India.(1)



Graph 1-1 International tourist arrivals and tourism receipts (% change)

The graphs above highlight the growth of tourism around the globe from 1995 to 2018. Over the past twenty-five years, there has been a significant change in tourism numbers from 400million approx. in 1995 to 1,401million in 2018. And the revenue generated from the tourism sector has also shot up from 500 USD billion approx. in 1995 to 1,451 USD billion in 2018. This enormous

growth in the tourism sector and the revenue generated from it clearly shows that the tourism industry is only growing to rise and that's why it's time to completely shift to sustainable tourism practices and eco-tourism which will ensure that biodiversity is not being degraded in this fast-growing tourism industry.

1.2 Tourism in India

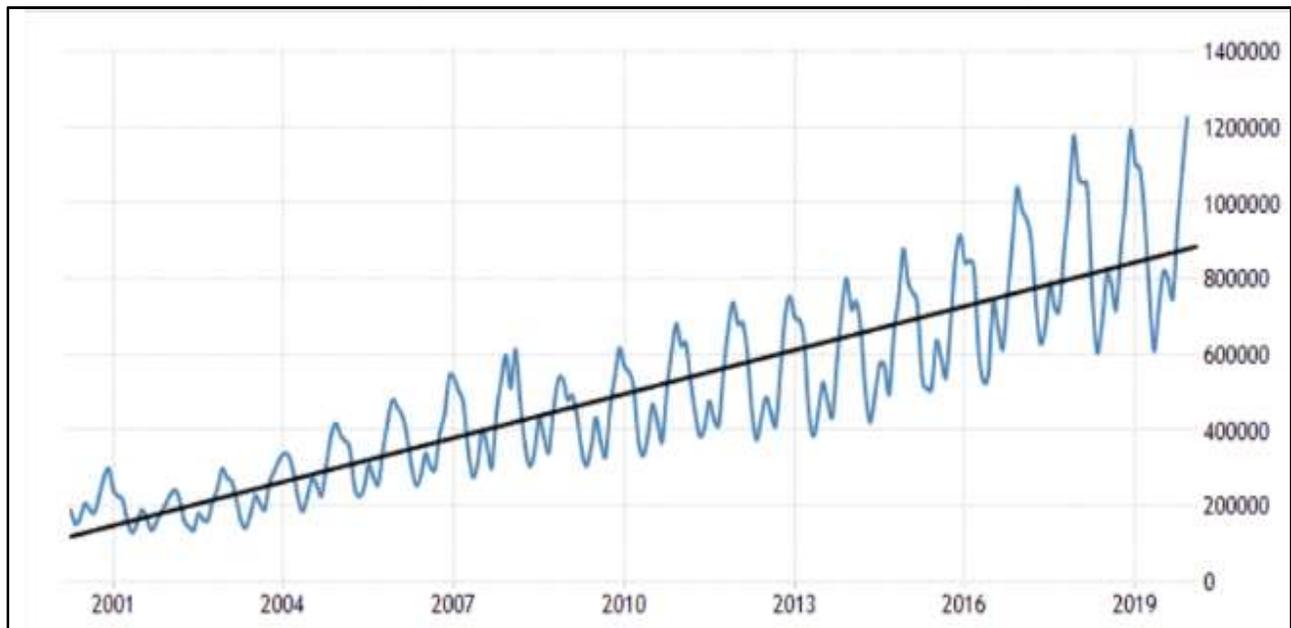
India is a country known for its diverse landforms and biodiversity. From east to west and north to south every region has its geography and with this varied landform comes to the vast resource of biodiversity and this biodiversity resource can be used for the development of tourism or more precisely ecotourism. Tourism development activities help in promoting development in rural as well as urban areas. If an undeveloped area has a significant amount of tourist flow lots of development activities are done in order to enhance the tourism of that area.(2)

Tourism also promotes the growth of infrastructure, improves the connectivity, provides employment to the local community, improves the living standards of locals, helps in conserving biodiversity and increases the country's GDP. The biodiversity is not confined to a landscape or state it is found all around the country in regions termed as biodiversity hotspots, and most of these hotspots act a potential ecotourism site and if the ecotourism is well planned and implemented it is undoubtedly going to work as sustainable tourism models for many upcoming years.(3)The FTA (Foreign tourist arrival) figures say that nearly twenty-six thousand tourists visit India every day. With such a massive amount of tourist inflow,we must implement a more responsible tourism model so that our biodiversity is not at risk due to the tourism sector.

1.3 Growth of tourism in India

From the past few year's tourism industries has seen a sharp rise. With so many new forms of tourism coming up, India has lots of offers to the tourist. Most domestic, as well as international tourism, has seen a sharp rise. Agriculture has been one of the essential sectors of India and a drive like agro-tourism is helping the local farmers earn by practising their old-age techniques. Not only agriculture but ecology has also been an essential driver for tourism growth. India has

always been a country rich in ecological diversity, and this has attracted many tourists around the globe. (4)



Graph 1-2 Tourism growth statistics of India

Reference: Tourism statistics of India

The above graph shows the trend of tourism growth in India from 2001 to 2019. The trend clearly shows sharp growth in the tourism sector. And till the end of 2020, it is estimated to rise more than 8.3% of the current growth rate. With the introduction of e-visa, tourist inflow is inevitably going to rise and boost the tourism industry.

1.4 Different types of tourism in India

The diverse landform of India gives us a good variety of tourism options. India has around 12 different types of tourism which are listed below.

- **Pilgrimage tourism**
- **Cultural tourism**
- **Wellness or medical tourism**
- **Business tourism**

- **Adventure tourism**
- **Wildlife tourism**
- **Ecotourism**
- **Heritage tourism**
- **Leisure tourism**
- **Cruise tourism**
- **Sports tourism**
- **Educational tourism.**

All these types of tourism are different from each other's, but each of them plays a crucial role in building up the tourism industry of the country.(3) Among all these 12 types of tourism adventure tourism, wildlife tourism and ecotourism are the modified versions of nature tourism. These 3 tourism types are linked to each other. Below are a few lines about all the 3 types of tourism:

- **Wildlife tourism :**

With 21.54% of forest cover, 544 wildlife sanctuaries and 104 national parks, India has a heart full of surprises and wonders in wildlife tourism. From Bengal tigers to Gir lions India has it all and over the past few years, this tourism has only seen new heights. In the upcoming years, when the environment and forest are going to be a significant concern, wildlife tourism is going to act as a substantial tourism benefit for India and help grow our GDP.

- **Ecotourism :**

Ecotourism an emerging new type of tourism, where tourism is clubbed with local community betterment and environment conservation. This new type of tourism has gained a lot of popularity in a very small amount of time frame and the main reason for its growth is that the younger generation is more aware and cautious with their actions and therefore prefers this responsible type of tourism pattern.

- **Adventure tourism :**

Adventure tourism is a very fast-growing trend in the tourism industry; the youths have a powerful drive for adventure tourism activities. From whitewater rafting in Rishikesh to

trekking in the Himalayas, rock climbing in ghats of Maharashtra, paragliding in Panchgani and skiing in the snow of Shimla and Manali. The upcoming generations are very keen to perform adventures and hence in the upcoming generations, adventure tourism is going to expand on a large scale in India.

1.5 Ecotourism

Ecotourism is defined as "responsible travel to a natural area that conserves the environment and sustains the wellbeing of the local community" by The International Ecotourism Society (TIES). The primary purpose of ecotourism is educating the travellers, providing funds for ecological conservation, directly benefitting the local economic and political development and preserving the local culture and biodiversity. Therefore, places having rich floral, faunal and cultural diversity are the prime attraction for ecotourism. (5) Ecotourism gained its popularity around the 1980s and now is one of the most trending forms of tourism around the globe. The recent development in biodiversity conservation in India has helped ecotourism gain such popularity in a very short amount of time. It is also a fact that sustainability is the demand for the upcoming decades and to gain suitability in the tourism sector, it is essential to create a perfect balance between the environment, social and economic sectors. Ecotourism serves the same purpose by maintaining a perfect balance between all the three sectors. (6)

Ecotourism development activities not only manage the environment but also play a crucial role in involving the local communities and ensuring their economic growth and development is not at all compromised. One of the prime reasons to develop ecotourism in India is that it generates lots of employment and starts the economic boost of the rural areas. Ecotourism popularity in India is entirely dependent on the fact that India has the one of the most diverse flora and fauna in the world which attracts millions of tourists every year. (7) The rich biological diversity of India is the core of the whole eco-tourism sector. If ecotourism is not adequately planned before execution, it will lead to unsustainable tourism practices which will inevitably degrade the biodiversity of the area to an unconvertible extent. Ecotourism ensures that the future generation gets tourist destinations untouched by the negative impacts of tourism. Ecotourism also ensures that local culture and heritage are preserved along with biodiversity conservation.

1.6 Ecotourism in Maharashtra

Maharashtra is the third largest state in the country having a shifting landscape ranging from mountains, Ghats, plains, rivers, and coasts. Among these landforms lies in one of the most famous hotspots of the world, the Western Ghats. These ghats comprise an enormous amount of floral and faunal diversity. All this diversity ranges from an incredibly beautiful landscape. Ecotourism is an essential part of Maharashtra tourism, several parts of the states have ecotourism, and several others are being developed as one. Maharashtra is considered as an ecotourism hub of India.(8)



Map 1-1 Wildlife map of Maharashtra by Green humor, July 2019

This map clearly shows the rich biodiversity of Maharashtra; there are different types of flora and fauna. All these diversity needs to be conserved from all types of threats, including the impacts of tourism and the best solution to this is eco-tourism. Ecotourism not only helps us conserve this biodiversity but also ensure that sustainable practices are well placed. With constant monitoring, ecotourism is the right future of tourism and conservation biology.

1.7 Tourism in Songaon

Songaon is a small village situated on the banks of the Vashishti river in Khed taluka. Vashishti river is famously known for the habitat of marsh crocodiles. The habitat region of the marsh crocodile is the islands present near Songaon village. Currently, there is some amount of tourism activity in Songaon, but the primary attraction is mainly for crocodile sightings. People visiting the village are mainly from nearby places like Mumbai, Chiplun or Ratnagiri. The Songaon village has functional biodiversity, and other ecotourism sites than the island are present in and around the village. Despite having a high biodiversity region, hardly any interest is observed from the tourist to explore the village.(9)

Therefore, to conserve the rich local biodiversity and direct tourist attention towards it, and the Mangrove Foundation has proposed ecotourism development plan for Songaon village. The Songaon village has the potential to be developed as an ecotourism site, hence efforts are being taken to increase the tourism activity in the village in order to enhance the conservation of biodiversity along with providing a better livelihood for the locals. Hence, it was necessary to do research that can bring out the potential of ecotourism of Songaon and make a proposed ecotourism plan consisting of all the alternative ecotourism sites present in the village.

Chapter 2: Aims and objectives

2. Aim

To discover the ecotourism potential and develop an ecotourism plan for Songaon, Ratnagiri district, Maharashtra

2. Objectives

1. Assessing the potential tourism site of Songaon
2. Local community knowledge about the biodiversity of Songaon and sensitizing them about biodiversity conservation
3. Present status of tourism in Songaon

2.1 Research question

Does Songaon have the potential to be developed as an ecotourism site?

Chapter 3: Literature review

3. Literature review

3.1 Ecotourism

Ecotourism- tourism that works on environmental sustainability along with social growth. The original meaning of the word ecotourism itself means tourism which ensures the wellness of the ecology. Ecotourism had been defined variably by different researchers. During the 1950s when hunting was legalization in Brazil, the forest areas were marked as protected areas. These protected areas helped the locals to earn by creating hotels and lounging. (10) This movement led to the origin of ecotourism; however, the modern ecotourism concept came up in the late 1980s and soon gained popularity among the tourist and environment conservationist. The ecotourism concept in the earlier stages was only popular among the communities living around the protected areas but later on a global scale, the demand for ecotourism raised as the majority of tourist was attracted to the biodiversity and wanted to experience it. Several times ecotourism has been used as a tool to uplift the social life of the local community.(11)

In many places around the world, it's observed how ecotourism has helped the local community to overcome poverty and also helped in the conservation of local biodiversity. Since ecotourism in the national parkshas generated employment for the local community. The local community works in the conserved of the national parks to ensure that their livelihood source is well maintained. When the local communities understand the importance of conservation for their better livelihood they work to ensure a better livelihood for them and how ecotourism is benefiting them at last, they practice conservation really well because it's their existence which is at stake.(6)

Ecotourism all around the world is seen as an excellent tool that ensures the grass-root level approach in conservation and local development. Non-government organizations (NGO's) are one of the most important stakeholders of management and implementation of ecotourism. They help in mitigating the issues of nature conservation,spreading awareness among the tourist and generate the amount for conservation activities. therefore, it's essential that NGO's are involved in the ecotourism development and planning part .(11)

3.2 Ecotourism plan

Ecotourism itself is a complex topic, and to develop a plan for ecotourism many factors have to be considered and studied so that a good plan can be formed. Ecotourism is a symbiotic relationship between the environment and tourism both factors have to be equally considered. Leaving anyone behind can cause the other to collapse miserably. A successful model is one that can in-depth balance both the environment and the local community. For a complete understanding and study of impacts of tourism on community development, different methodologies can be adopted because it's a complex subject and lacks a proper assessment tool. Therefore, the assessment must be done by using different methodologies to achieve the required outcome.(11)

Ecotourism planning can be divided into multiple steps. The first step is site conservation planning (SCP), this step helps the planner to understand what is the conservation target, how can the targeted conservation can be achieved in the most efficient manner, who all are the stakeholders in this plan and these all factors form the primary analysis part of the study. The second step followed by SCP is full site diagnosis (FSD), this step helps the planner understand the major threats of the sites and how to mitigate those issues, it also gives the planner a clear idea of where the ecotourism can be conducted in the selected site, which all activities can be performed in the final locations, who will be the in charge of all these activities and at the end how the monitoring of ecotourism functioning will be done. Therefore, at the completion of FSD, the planner has almost got all his elements ready for plan development.(12)

The third step is data analysis, all the data collected during the site study and survey is analyzed properly, and a meaning full result is derived from it, which helps the planners make decisions from it. during the data analysis, it is important to look for the various opportunities of ecotourism and also keep a close check for the ecotourism potential, because if a higher potential is not to be seen coming out then any planned development would be meaningless. In the end when the plan is being made it's important to keep in mind that the plan is not permanent and there could be changes in the future and therefore, adequate space for future addition of elements in the plan should be left. A good ecotourism plan will definitely serve its purpose and ensure that sustainable tourism practices are followed in the selected area.(7)

3.3 Community participation

The community can be defined as a heterogeneous group of people who live together in a similar landscape and share the commonly available natural services or ecological services. Local communities are usually kept out of the tourism sectors, but community participation in ecotourism planning is an essential part to ensure ecotourism is practised sustainably. (13) In the past few years, the tourism heads have started realizing that local community has the whole knowledge of cultural and biodiversity knowledge of their area, they are familiar with sites location, routes, birds, animals, etc. and hence their participation makes it crucial for both environmental conservation as well as the functioning of tourism. Also, the tourist is now keen to know about the local biodiversity and cultural knowledge from a local's point of view than the general guide. Therefore, tourism models must be community-based, benefitting both the tourist as well as the local community. (14)

Since ecotourism focus on environment conservation, it is important than it is clubbed with community involvement because, in this way, both factors (community development and environment) can be benefitted together. Community commitment to environmental conservation will ensure that the environment is conserved along with sustainable human development. Hence it's essential to integrate community participation along with environmental conservation. (15) Community participation in the ecotourism does not always have to be working as a tour guide or providing homestay, local community can adopt several methods for being a part of ecotourism development, can donate a piece of land, work as a full-time or part-time employee in ecotourism activities, they can also provide only food in homestay or organize the whole homestay. (16)

3.4 Biodiversity

India is a country rich in biodiversity and cultural heritage; the potential for ecotourism development in India is very vast. The biological diversity if properly conserved it will ensure that the right amount of revenue and rural development can be achieved through ecotourism. (17) Currently, the biodiversity of India is deteriorating at a very high rate; lots of natural habitats are

being lost for urbanization and industrial development. Forests are being cleared for highways construction and wetlands are filled up to act as construction sites, with all these degrading activities happening at such a large scale it's important that necessary steps for biodiversity conservation are taken as soon as possible. Ecotourism is an efficient way of conserving the biodiversity along with rural development, ecotourism if appropriately practised is an excellent sustainable solution to rural development without causing any harm to the biodiversity. Therefore, biodiversity conservation can be directly linked to ecotourism conservation.(18)

3.5 Picture elicitation test

Photo elicitation is an excellent method to study local people's knowledge about the area and biodiversity. Similarly, with the help of photo-elicitation, the villagers can also put forward the needs for tourism growth as well as indicate the area which needs to be developed and hence photo-elicitation test was considered an important tool to study the community perception and their knowledge on biodiversity in Songaon.(19) Ecological services play a key role in biodiversity conservation because they provide benefits to the local community people and detecting the role of the ecological service in the local community can be efficiently done using the Picture elicitation test.(20)

3.6 Homestay

Homestay basically means a facility program provided by the local community where a tourist can stay at the local's house and pay the rent for food and accommodation. Homestay can be for one day to several months; it depends on the agreement of locals and tourist. Several authors have explained how homestay facilities can be used for community development.(21)

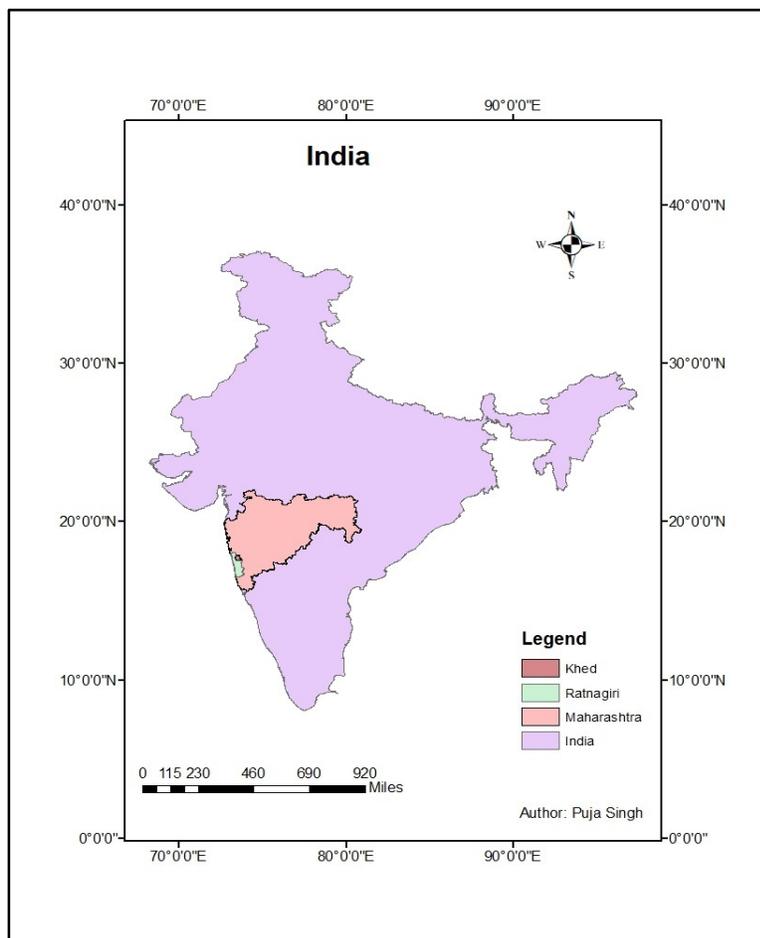
Homestay facilities enable ecotourism development more accessible as the locals are directly involved in the tourism sectors, making them the prime benefice ecotourism. Homestay also ensures that the locals are not exploited for their resources during the ecotourism program. (22)

Chapter 4: Study area

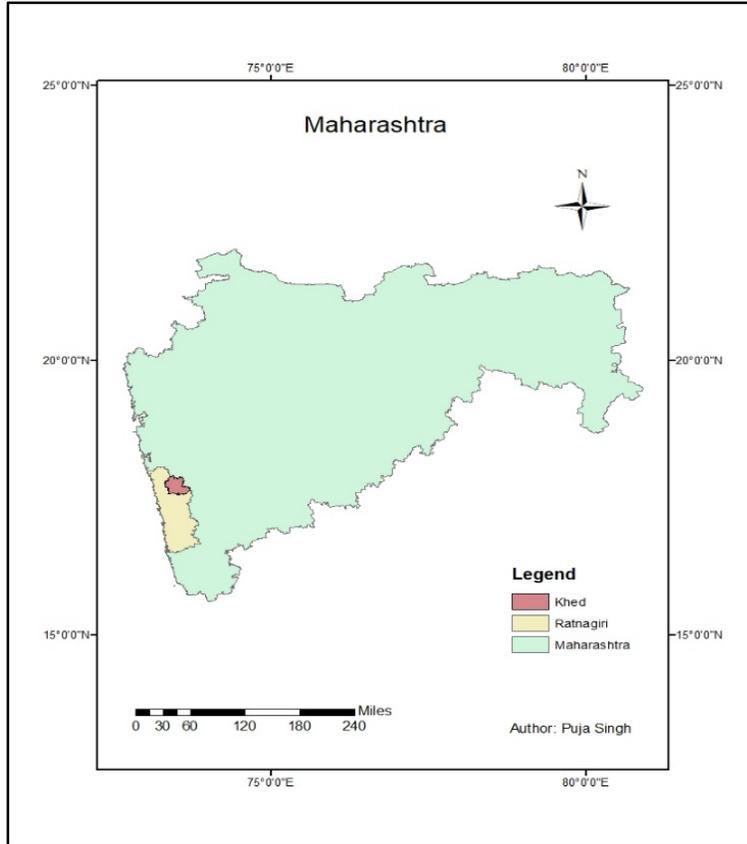
4 Study area

4.1 Thesis study area: Songaon

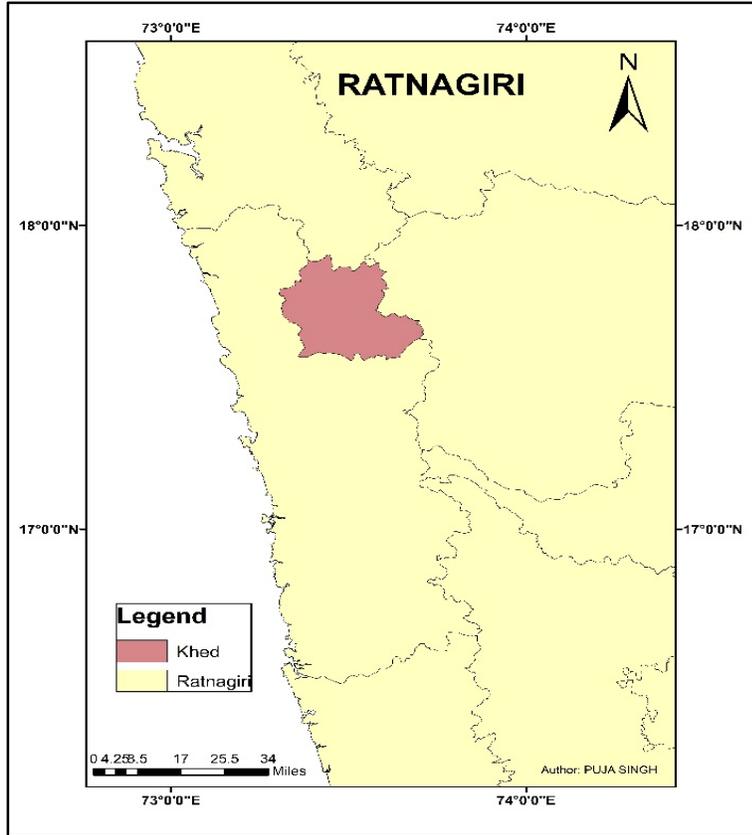
Songaon is a small village situated in the Khed taluka, Ratnagiri district, Maharashtra. Ratnagiri district located in the south Konkan region of Western Ghats has dense forest cover, and several rivers are forming estuaries which are dominated by mangrove species. Multiple numbers of sanctuaries and forest reserves located in this region which act as a significant tourist attraction. Songaon is situated on the banks of the Vashishti River. The Vashishti river originates from Tivra pass in the Western Ghats and ends at the Arabian sea. The region of the Vashishti river at Songaon has a constant inwards and outwards flow of marine water in the river forming a tidal river zone. (23) The river is home to the freshwater crocodile, who live and nest among the mangroves. The river has several islands, these islands have mangrove forest where crocodiles are mostly found. These crocodile habitats is a primary tourism site.



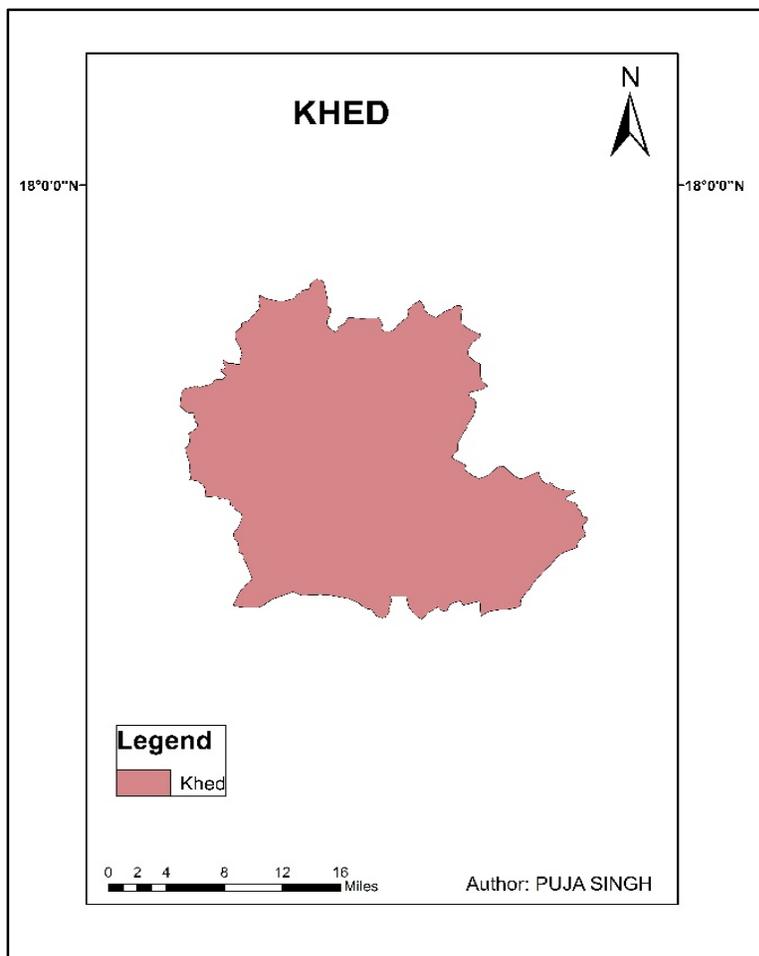
Map 4-1 India map with Maharashtra



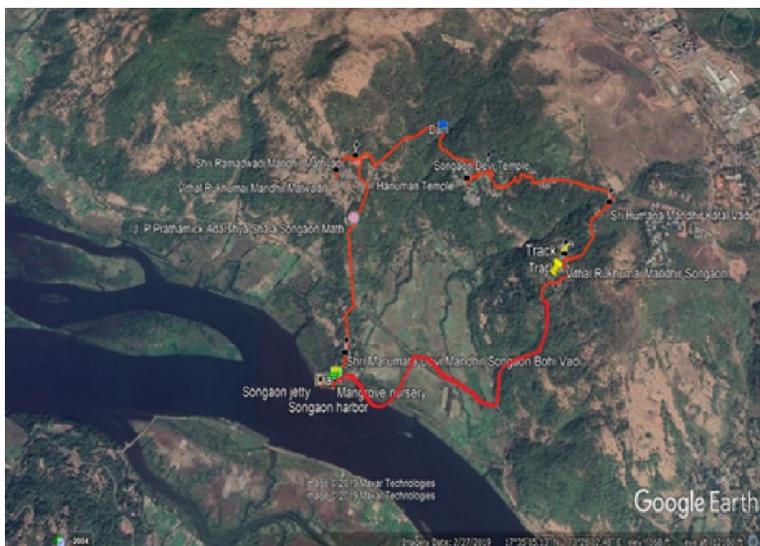
Map 4-2 Maharashtra map with Ratnagiri district and Khed taluka



Map 4-3 Ratnagiri district map showing Khed taluka



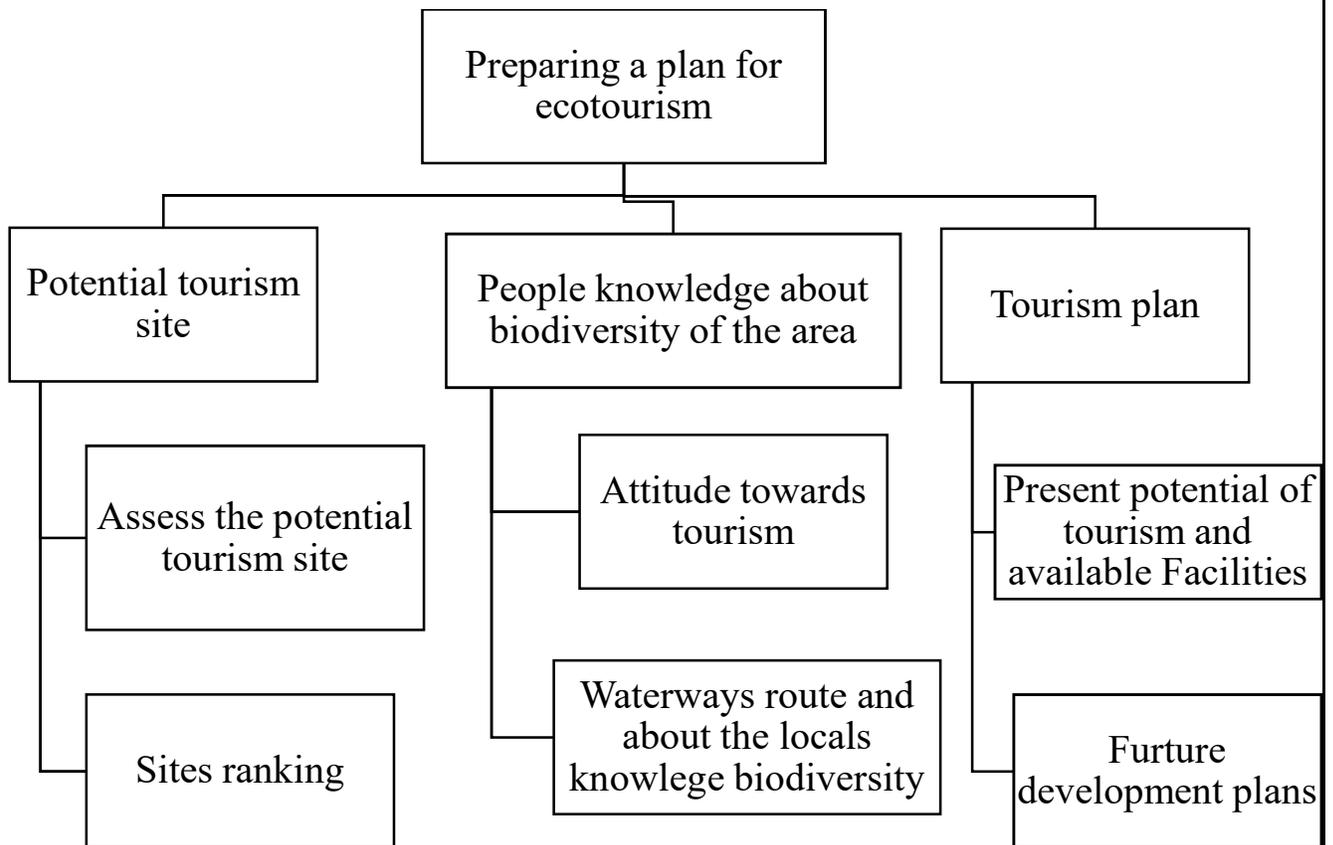
Map 4-4 Khed taluka map



Map 4-5 Songaon village map along with Vashishti river

Chapter 5: Methodology

5 Methodology

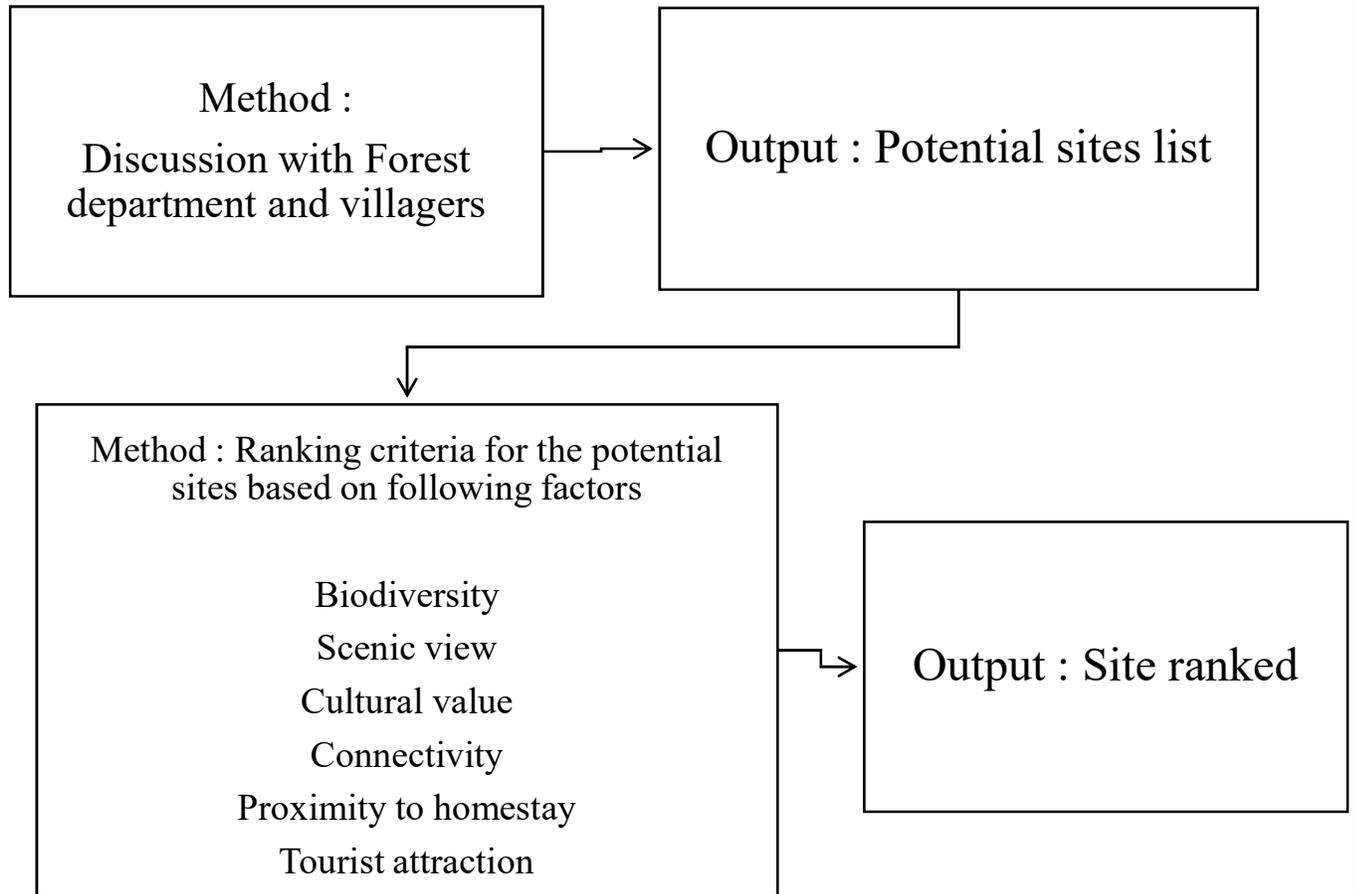


To develop an ecotourism plan for Songaon it's important to cover every aspect of ecotourism, therefore, the plan has been made using the three important aspects of ecotourism

- Biodiversity
- Present status of tourism
- Community knowledge and willingness.

All these three aspects are further bifurcated to present a clear idea of how all these factors had formed the base for ecotourism plan development.

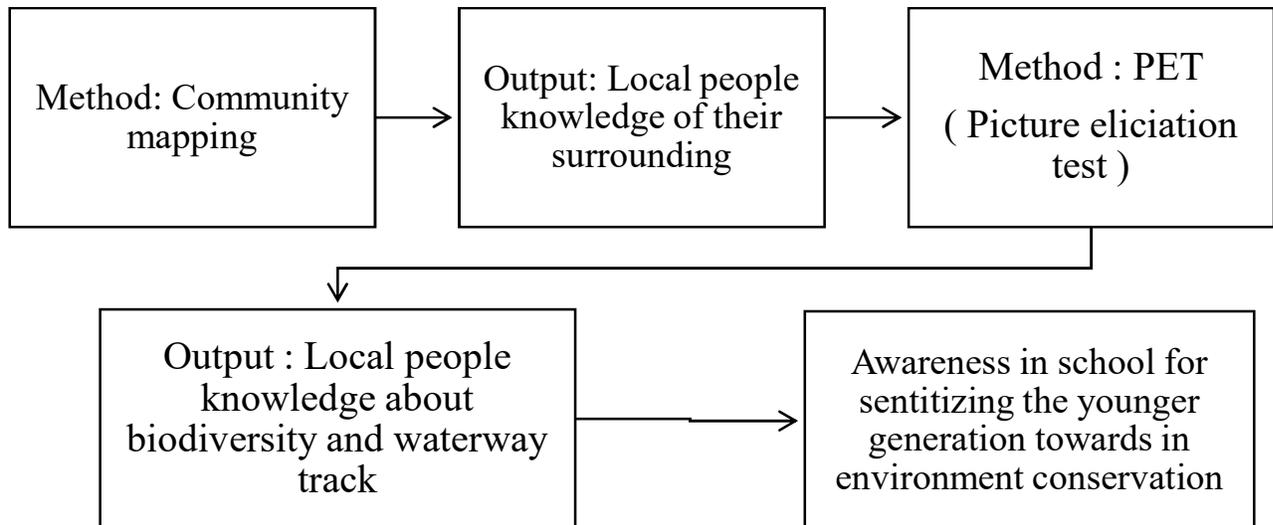
5.1 Methodology for objective 1) Assessing potential tourism sites in Songaon



For assessing potential tourism sites following procedure was carried out.

- The first step for plan development was to discuss with the forest officials who were in-charge of Songaon about all the potential tourism sites in and around Songaon.
- The output of the discussion gives us a potential site name list.
- After the list was made, and all the sites were surveyed one by one.
- All sites were surveyed and scored on a scale of 0-10 based on the six essential parameters.
- The sites are scored and they are ranked in a descending order of scores obtained.

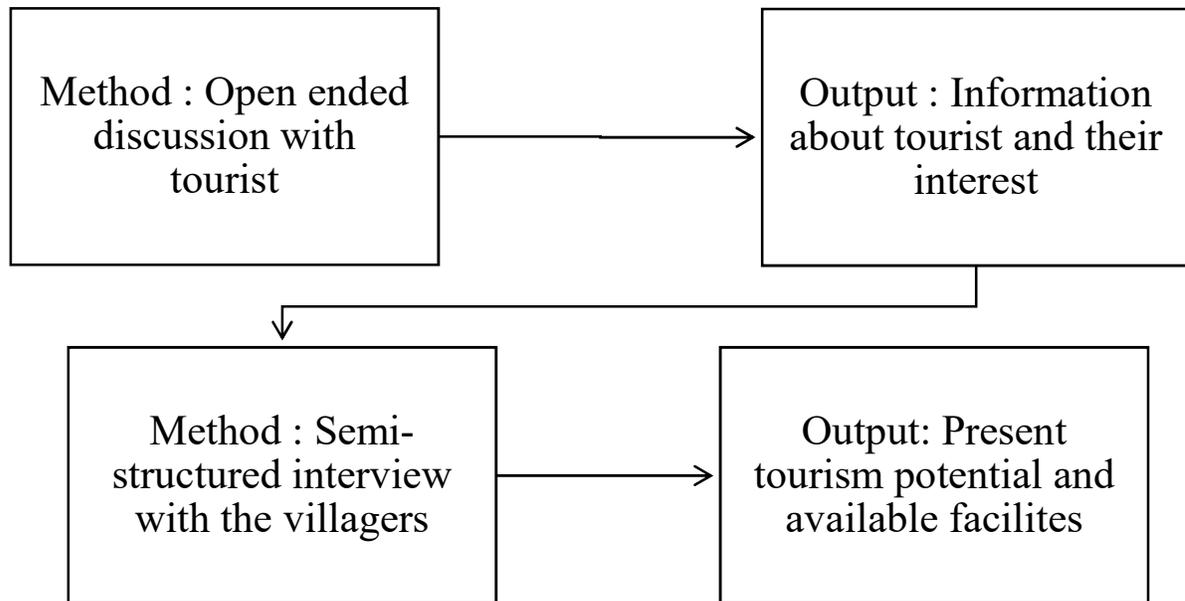
5.2 Methodology for objective 2) Local peoples knowledge about the biodiversity of Songaon and sensitize them towards environment conservation



For understanding people's knowledge about the biodiversity of Songaon following procedure is carried out.

- The local community was asked to participate in map-making of their village and show in it all the places which are important for them.
- The map made with the help of the local community gave us a clear idea about the local people's knowledge and understanding of their surrounding landscape.
- Next, a picture elicitation test (PET) was done where the local people were asked to show all the places which they feel has good biodiversity and tourist would like to visit them.
- The PET and community mapping exercise was done to understand the scale/level of local peoples knowledge about their biodiversity
- During the PET the boatmen also asked to show the water route and the birds, crocodiles, and mangrove on islands.
- The water route and places showed by them were plotted on the map.

5.3 Methodology for objective 3) Present status of tourism in Songaon



For knowing the present status of tourism following procedure was carried out.

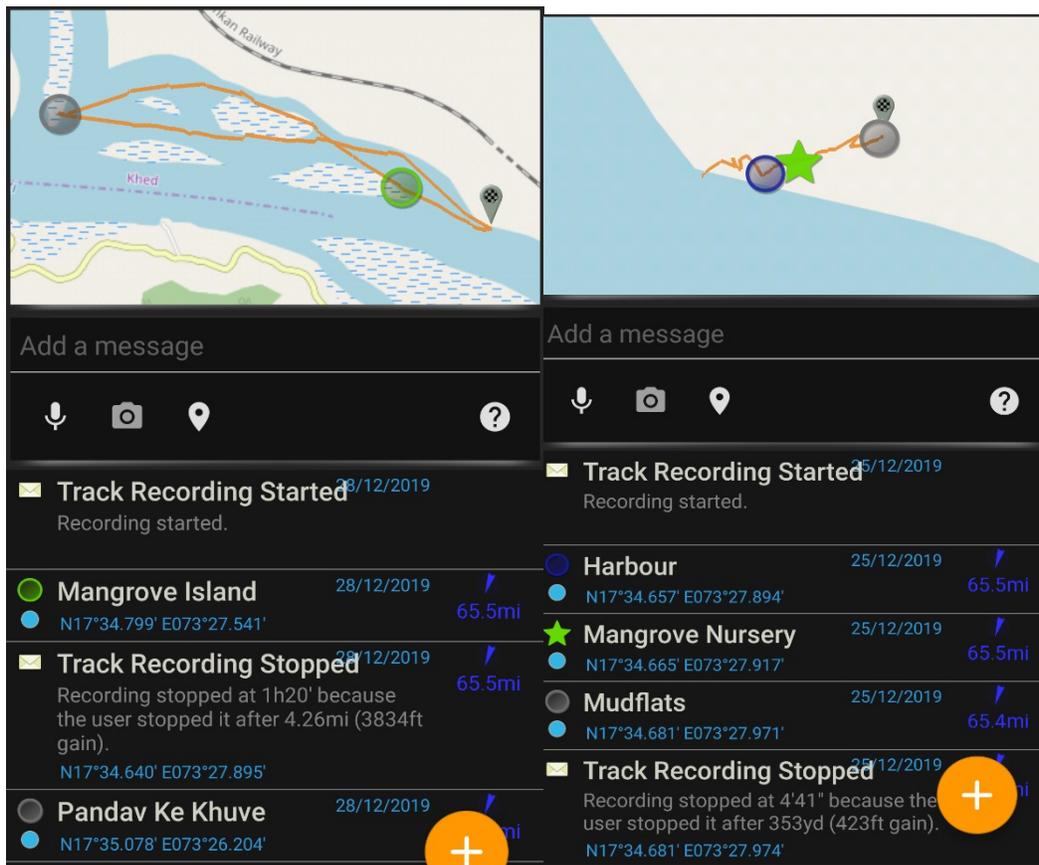
- An open-ended discussion with the tourist visiting the village was done.
- The result of the discussion gave us information about the tourist and their interest in the village.
- Also a semi-structured interview with the villagers about the tourism facility and willingness for a homestay in the village.
- These interview analyses help us drive the present tourism potential and currently available facilities.
- The analysis also helps us to understand the other essential tourism services currently missing in the village but are crucial for ecotourism development in Songaon.
- Biodiversity survey and documentation.

5.4 Datacollection

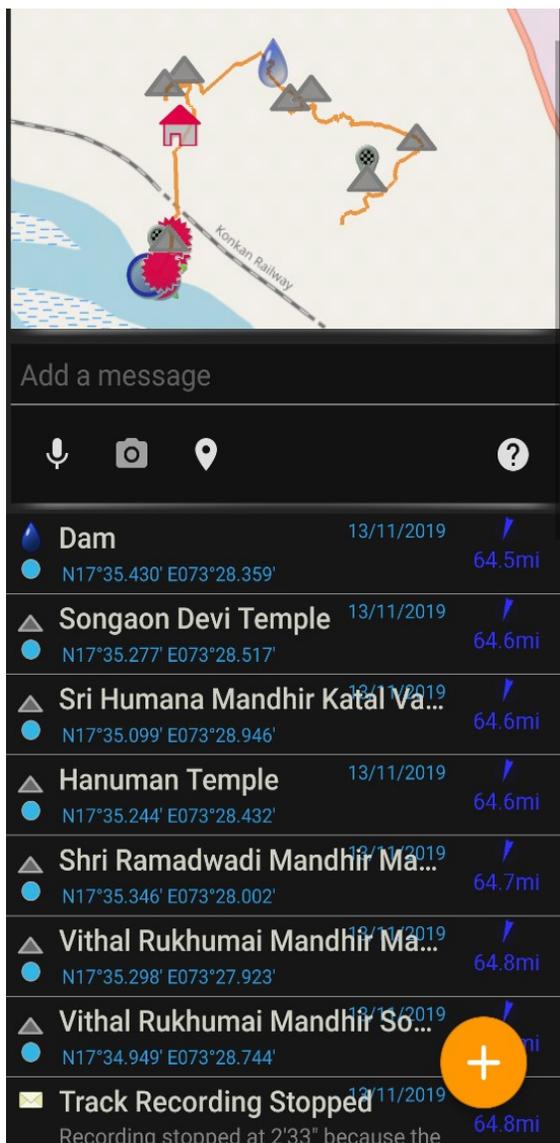
All the maps were made with the help of a GIS essential mobile app.

The tracks were made in the app and then later finished by using Arc GIS.

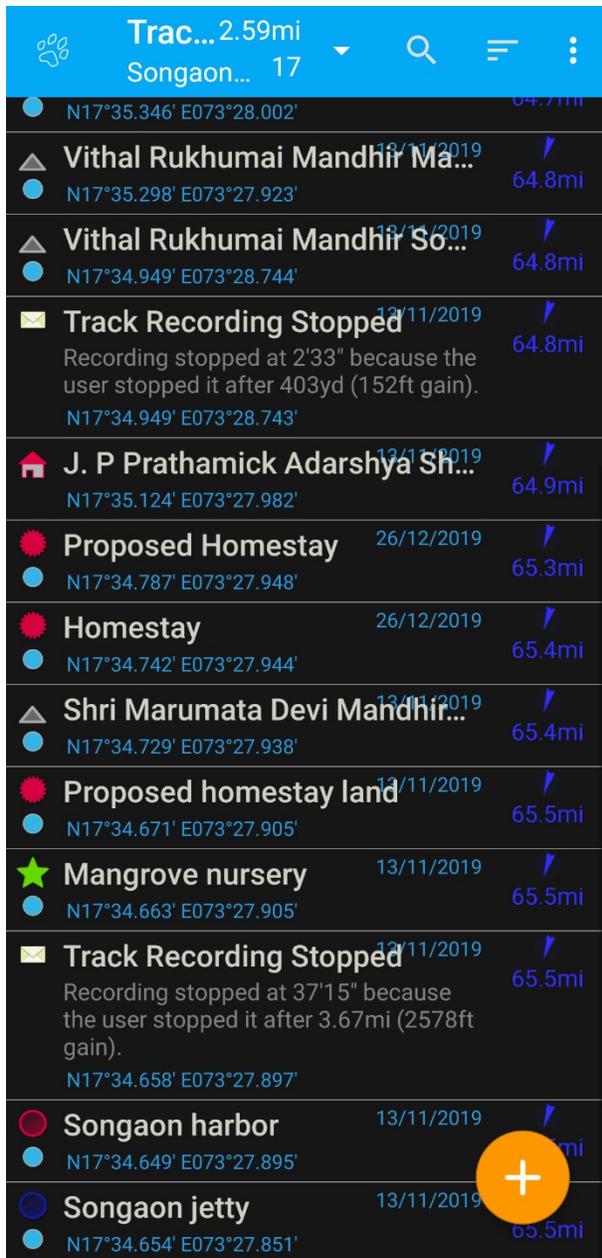
The following are the tracks images and their waypoints information along with coordinates.



Map 5-2 Boating track



Map 5-1 Nature trail track



Map 5-3 Songaon village track routing along with all the potential sites.

Chapter 6: Results

6 Results

The study was conducted to identify the potential tourism sites in Songaon, which is an ecotourism site proposed by the Mangrove Foundation. The preliminary discussion was done with the forest department to know about the tourism potential of the area, and their views were listed to decide the line of action to carry out the study.

6.1 Site ranking

After discussion with the forest department about the potential sites following is the potential sites listed by them:

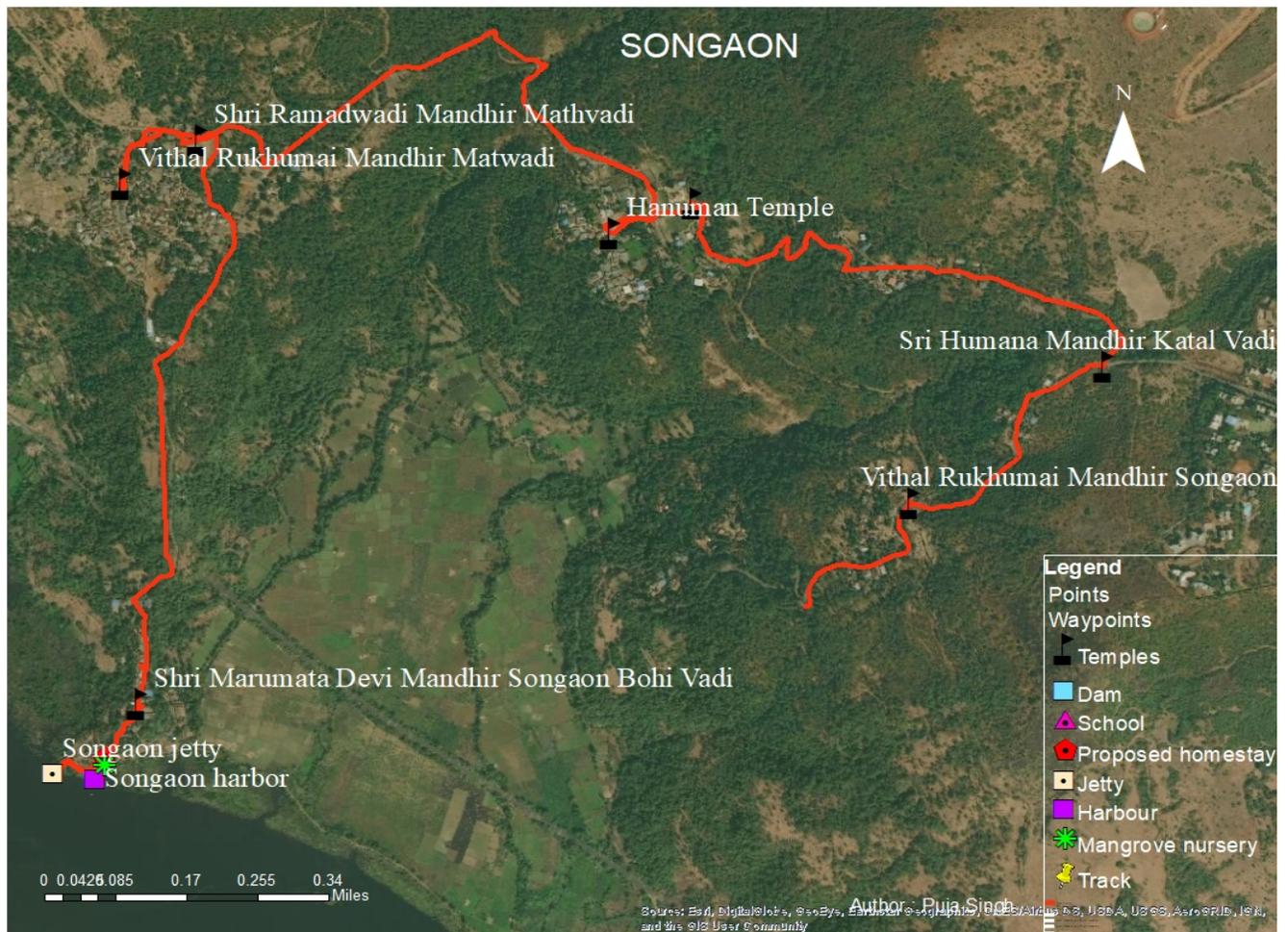
- Islands near the village where crocodile resting was seen. These sites also good for bird watching
- Mangrove nursery at the Vashishtiriverbank near the village
- Scenic view of Vashishti river
- Sunset view from the village
- Waterfall and dam site.
- Temples in the Songaon village: One major temple of the village and five other small temples in the village.
- Parshuram temple on the highway which is a known pilgrim site

The route map of the Songaon village along with all the potential tourist attractions sites and schools was prepared during the field survey, the below-shown map was made by tracking the routes with Gis essential mobile app in the village and later using that track route data the final map shown above was made in Arc GIS.

The islands are undoubtedly one of the most critical sites from an ecotourism point of view. There are newplaces which are equally important and have sound potential. Some of these sites are :

- Dam: During the monsoon season, the dam leads to a beautiful waterfall that can as be used as an ecotourism site.

- Waterfall: The waterfall in the village is active allround the year and can, therefore, be an amazing tourism site.
- The village also has a wonderful viewpoint on the hilltop from where the whole village can be seen.
- As we can see in the map of Songaon village shown above there are several numbers of temples, these temples add the cultural value to the village and this cultural factor can also be clubbed with the natural aspect and help develop well-balanced ecotourism for Songaon.



Map 6-1 Songaon village map with potential sites

Once the potential site was listed, site surveys were conducted, photo documentation was done and their location was recorded, these sites were ranked on a scale of most potential to least

potential based upon the biodiversity value, scenic value, and connectivity, proximity to the homestay, tourist attraction and cultural value.

Table 6-1 Site ranking table

Ranking of potential Ecotourism site								
		0-3		Low				
		4-7		Moderate				
		8-10		High				
Name of sites	Biodiversity value	Scenic value	Connectivity	Proximity to homestay	Tourist attraction	Cultural value	Total	Ranking
Islands	10	10	10	8	10	4	52	1
Nature trail	9	9	10	9	8	0	45	2
Mangrove nursery	9	9	10	9	9	0	46	3
Pandav ke kuve	8	8	8	8	4	8	44	4
Waterfall	8	10	7	4	9	5	43	5
Dam	8	10	7	5	9	1	40	6
View point	9	10	7	5	8	0	39	7
Marumata devi temple	2	3	8	8	8	9	38	8
Songaon devi temple	3	2	6	5	5	8	29	9
Parshuram temple	3	2	1	1	2	8	17	10

The table given above shows that the island is considered to have the most potential because of the presence of rare mangroves, ideal crocodile habitats, birds and mangroves, being an island the habitat was also comparatively less disturbed. The proximity to homestay and mangrove nursery are plus points of the site. In the ecotourism development plan, the islands have the most potential sites and mark as an essential landmark for the Songaon village because the island is the habitat of the crocodiles and birds. This was the major attraction of the village; it will also be the critical driver of employment activities (boating) for the local community.

Other than the islands, nature trails and mangrove nursery, which is around 5 minutes' walk from homestay were also vital sites. Pandavkekhuv, waterfall, and dam located 5 km far from homestay are also the places which have good tourism potential but are still unexplored by tourist, and hence if promoted, these sites could be new additions which will help attract tourist to the village.

6.2 Community mapping

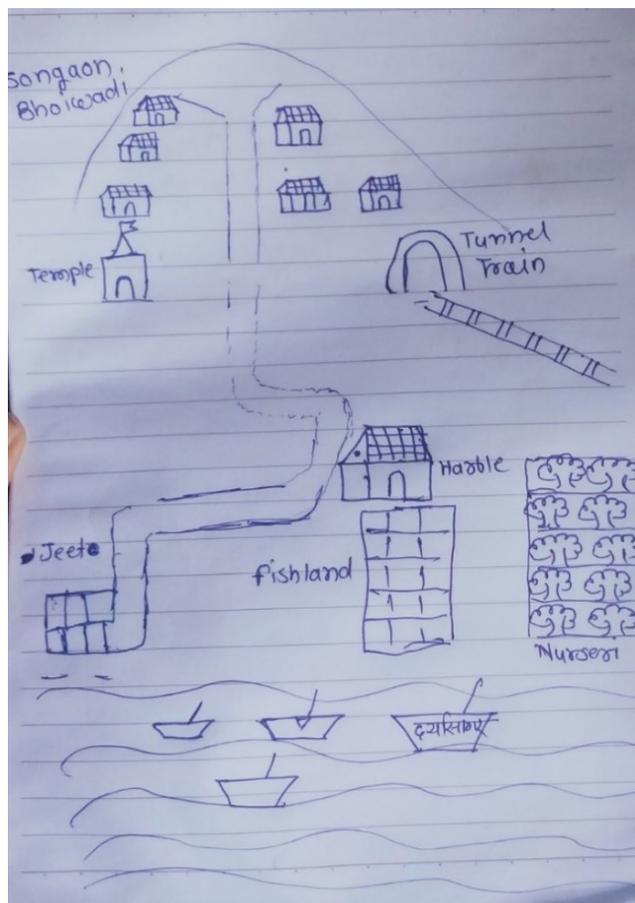


Plate 6-2 Map made with the help of local community

Plate 6-1 The locals helping in community mapping activity



To understand the local community's understanding of their landscape, community mapping was done. The people from the fisher folks are the people who are involved in tourism activity. Therefore to understand their idea for tourism development, themapping was done.

On the map, they have described good roads that can easily be connected to the jetty from where the boating activity can be done.

The map also represented that mangrove nursery was an integrated part of their village

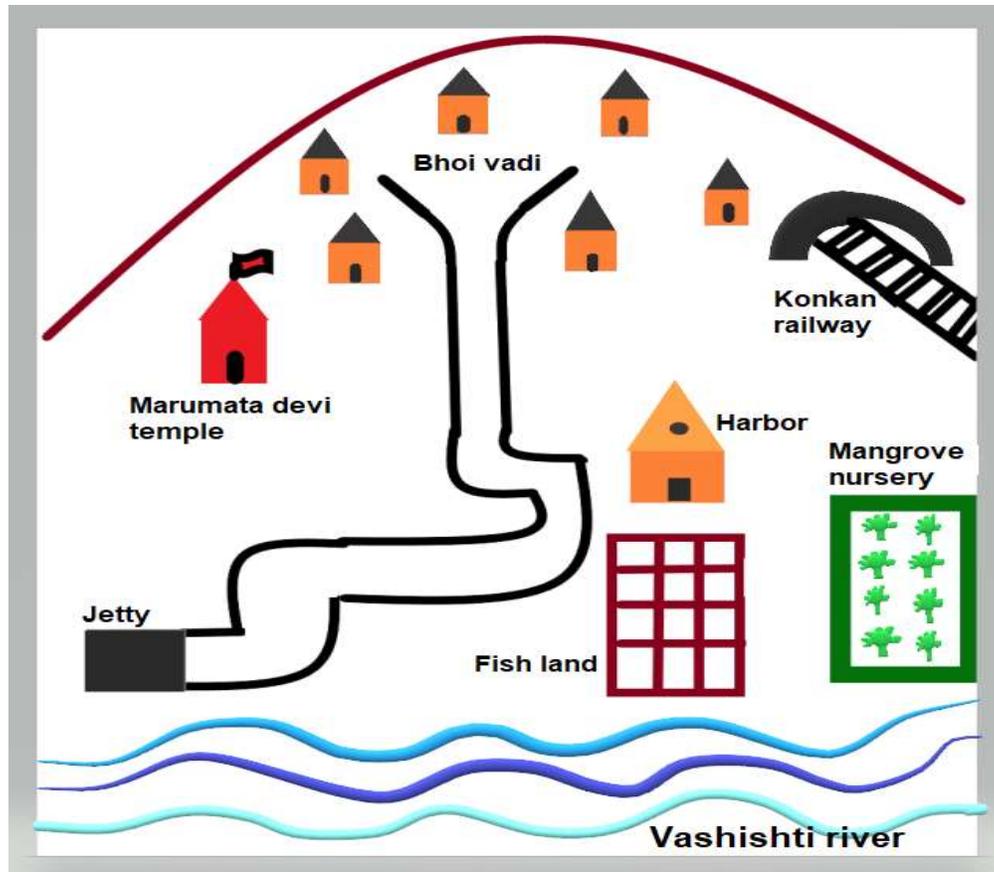


Plate 6-3 Community map recreated in paint 3D

The community mapping done in Songaon helped in understanding the needs of the locals and their attachments to the biodiversity.

The fishland shown in the above map represents the floor where the fishing catch is kept. The presence of fishland shows that fishing and its catch is an important part of their village.

The temple shows their cultural attachment and the hill at the back describes the landscape of the village.

6.3 Picture elicitation test (PET)

To assess the knowledge of the local people about the biodiversity picture elicitation test (PET) was done. The villagers and boatmen were asked to show the sites they felt had good biodiversity and would act as a tourist attraction. The places showed by them during this exercise were :

- Birds on the island
- Crocodiles basking area
- Mangrove nursery
- Sunset view from Jetty
- Mangroves present on either side of the jetty
- View of Dam
- Waterfall



Mangrove nursery



Island



Sunset view from jetty



Mangroves at the jetty

Plate 6-4 Images captured by the locals during the PET



Map 6-2 Map showing the boating track route

The above map shows the boating route. The route showed on the map was used by the village boatmen. The boating begins from the harbor of the Songaon village and ends there as well. The route is 6.8 km long and was covered in an hour.

The map shown above has a long route that begins from the harbor of Songaon village. In the map, there is an island that has been encircled by the track route; it lies in between the mangrove islands and Pandav ke khuve. This small island is a half-submerged landmass having a good bird population, also lots of crocodiles can be seen basking here. Since this island is rich in bird diversity and an excellent site to observe the crocodiles, it can be used for boating activity.

The next exciting thing “Pandav ke Khuve” the five pits which are believed to be sacred. These pits are in the centre of the islands; these pits can be clubbed with the boating activity as an added attraction site.

6.4 School visit



Plate 6-5 Students of J.P Prathamick adarshaya shala Songon, Marathwadi.

The younger generations are going to be the main pillars of any future development plan and hence while doing the study in the village, a visit was made to the J.P Prathamick adarshaya shala Songon, Marathwadi. Here the students of 1st to 8th standard were addressed regarding the biodiversity of the village and the importance of conserving it.

The questions about their village were asked like, what do they like about this village and also are they aware of why mangrove plantation is done in their village and why it is important to conserve the mangroves.

Most of them were aware of the plantation but were clueless about the reason behind it.

Therefore, the importance of mangroves plantation, mangroves association with fish and crocodile, need for conservation of the rare mangrove species (*Kandeliacandel*) and how crocodiles play such a major role in the food cycle and help in maintaining a healthy ecosystem was explained to the students.

6.5. Current tourism facilities



Plate 6-6 Diesel boat currently used for boating activities

Currently, only boating activity is available in the village and that too in a small motorboat running on diesel which can hardly occupy 5-6 people. Also, among the two boatmen, only one was able to identify birds and the mangrove species, which he had learned during the guide training program conducted by mangrove foundation in the previous year.

Table 6-2 Money currently earned by the local people from boating activities

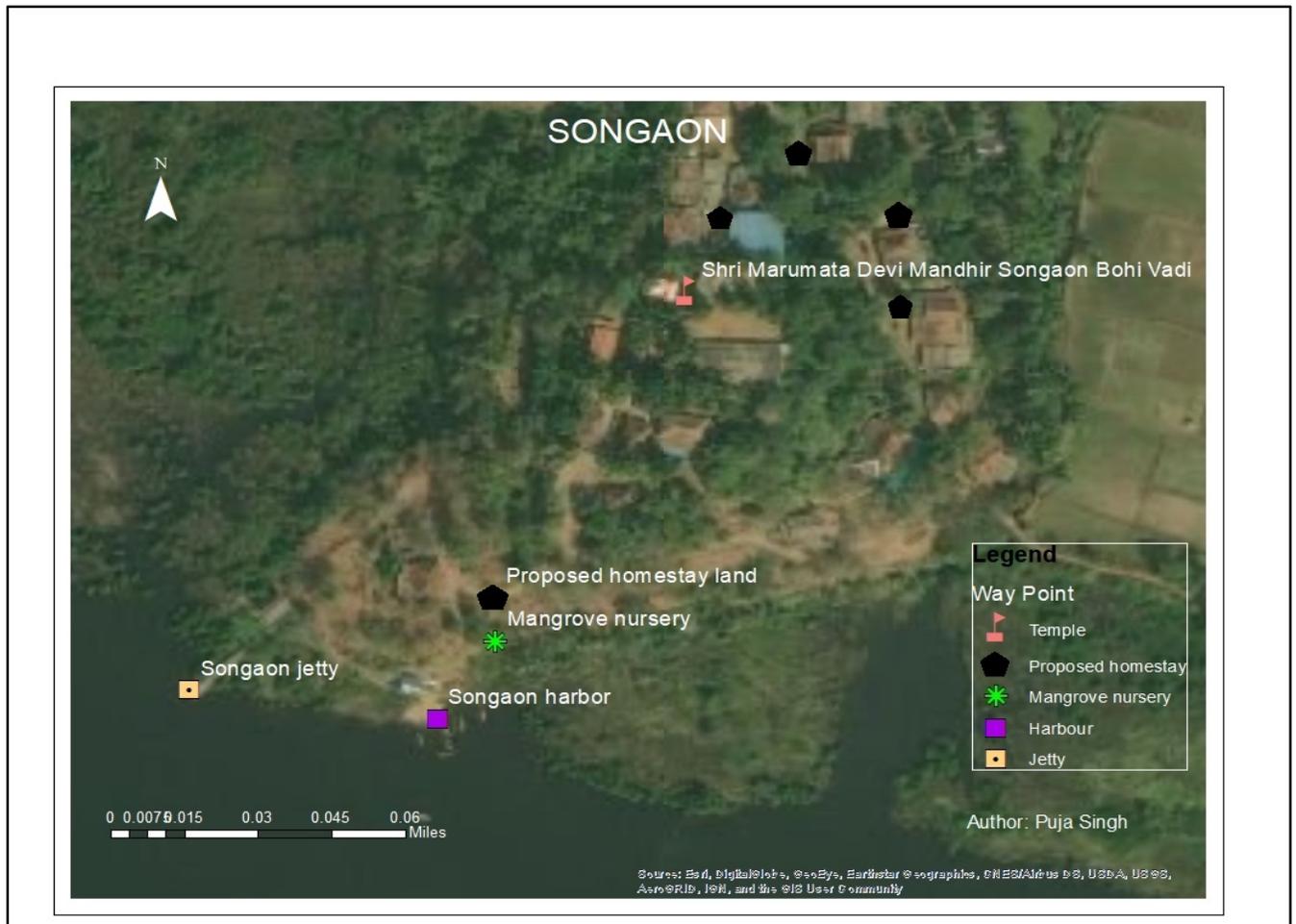
Maximum no. of tourist in one month	Money charged for a group of 5 tourists for boating around the island	Maximum money boatmen can earn monthly from boating activities in a month
70 approx.	Rs. 500-1000	Rs. 14,000 approx.

Mangrove foundation had conducted a training program for the locals, but due to no follow-up, the locals are not able to recollect their learnings. Therefore now it's essential for the locals to come up with activities that will help them learn the names of mangrove species and birds. They also need more equipped boats which can give them the right livelihood from boating activities. The livelihood from boating is directly related to the ecosystem, and if they make a right livelihood from boating activity their sense of responsibility towards the conservation of mangrove and bird species will increase in the coming years.

6.6 Homestay

The present scenario of the homestay facility in Songaon was found to be a moderate stage. Some of the villagers are willing for a homestay, but of most, they are still not very agreed to this concept. There was a group of men and women who were trained for the nature guide program by mangrove foundation the previous year. The men's will be further trained for boating activities and the women's for catering.

The main hindrance to the home stay facility was that villagers believe they currently lack resources and manpower to full fill the tourist demands. Hence the majority of villagers were not ready for doing a homestay in the village. The following maps show the location of 4 households that are ready for a homestay in the village.



Map 6-3 Map showing the location of homestay along with tourist sites

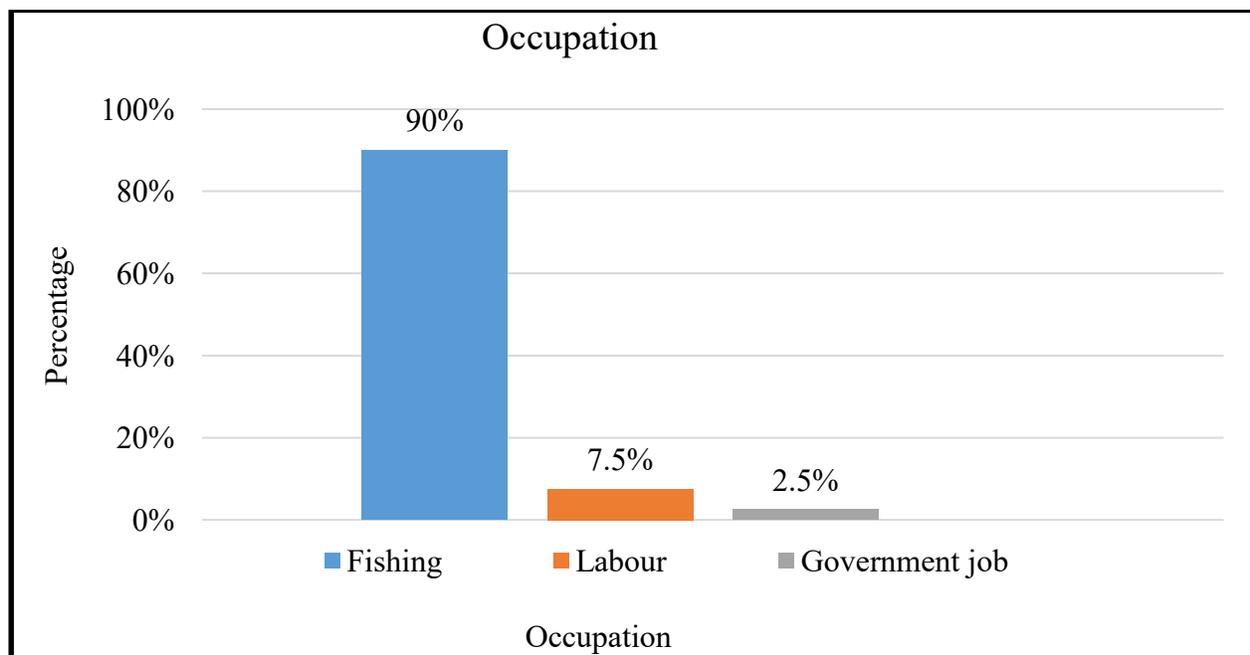
6.7 Analysis of villagers interview

The total population of the village: 667

No. of people interviewed: 120

The reason to interview only 120 people is that the ecotourism development plan is mainly for the fishermen folks because these peoples are directly associated with the tourism sites. They are familiar with the boating and boating routes.

- **Occupation of villagers**



Graph 6-1 The occupation of villagers

Among the 120 people interviewed, 90% of people are involved in fishing activities, and hence they are directly dependent on the ecosystem services of mangrove.

Therefore, having a large community of fishermen's makes it convenient to develop an ecotourism activity.

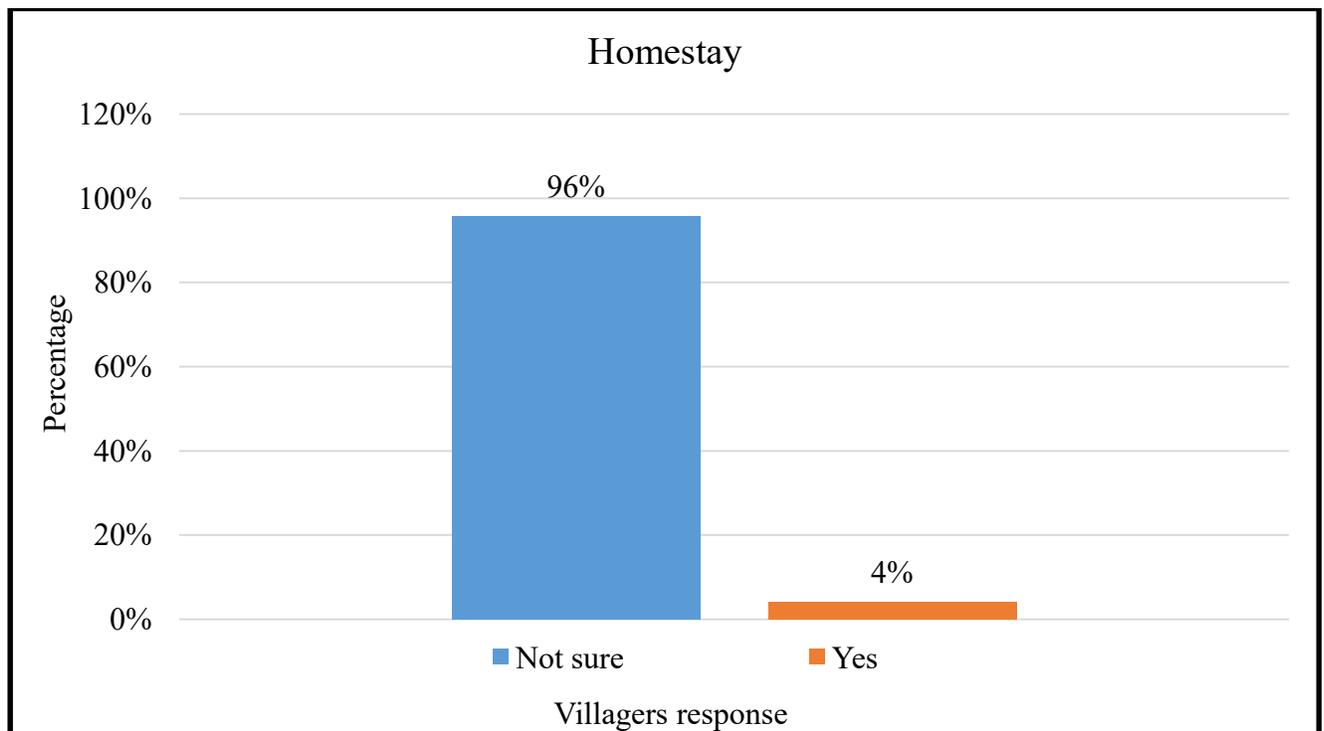
- **Homestay by villagers**

Homestay facilities by local for the tourist plays a very crucial role in the ecotourism, the homestay provides the local with an alternative income opportunity.

Among the 120 people interviewed, 96% of villagers were not sure about doing a homestay. Some declined on personal reasons while others on lack of resources and manpower.

Only 4% of villagers were agreed to do a homestay.

Lack of homestay facilities will be a significant issue in the upcoming years; therefore, the villagers must be made more aware of the benefits of the homestay.



Graph 6-2 Villager's response on homestay

6.8 Analysis of tourist interviews

▪ Connectivity

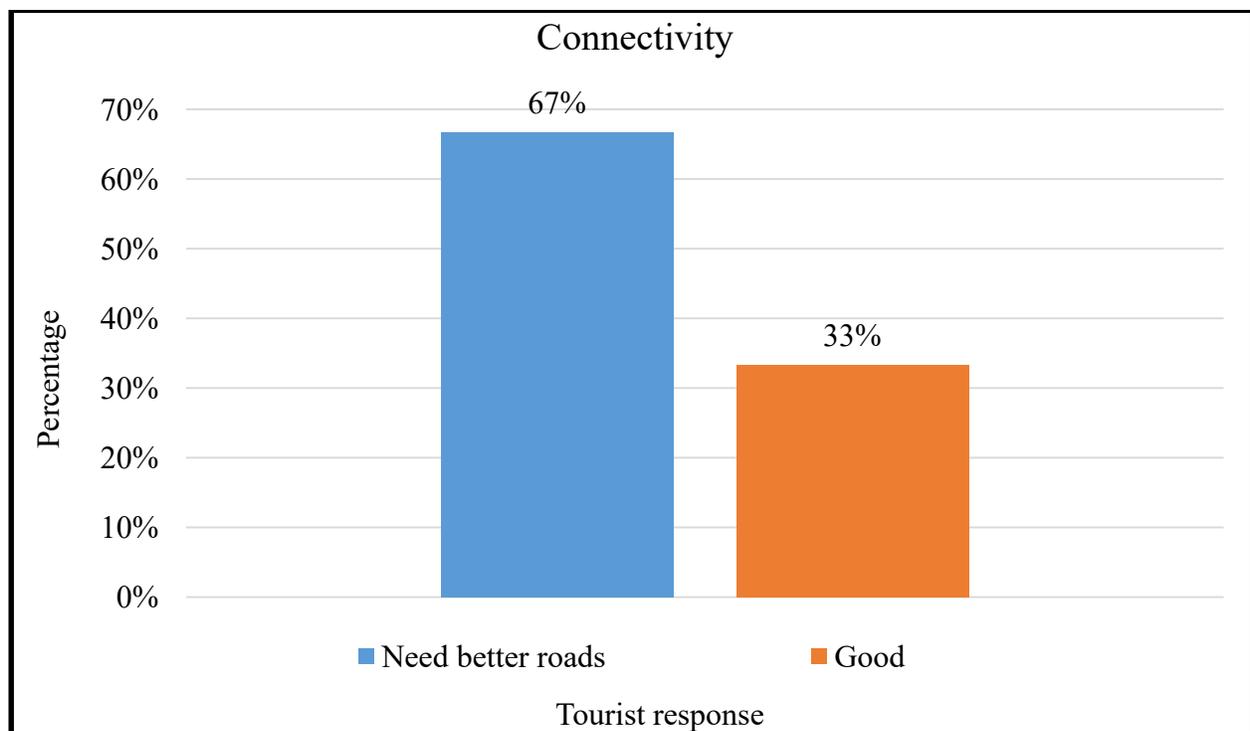
Total no. of tourist interviewed = 30

Only 30 people could be interviewed due to the low flow of tourist in the village and no data collection in the monsoon season (flooding of the study area)

Connectivity is one of the major requirements of tourism. Roads are the main means of connectivity to Songaon.

Among the 30 tourist interviews, 67 % of them responded that better roads are needed, and 33 % of them said that roads were good.

Better connectivity is essential for tourism development. Therefore, better roads should be constructed in the village.



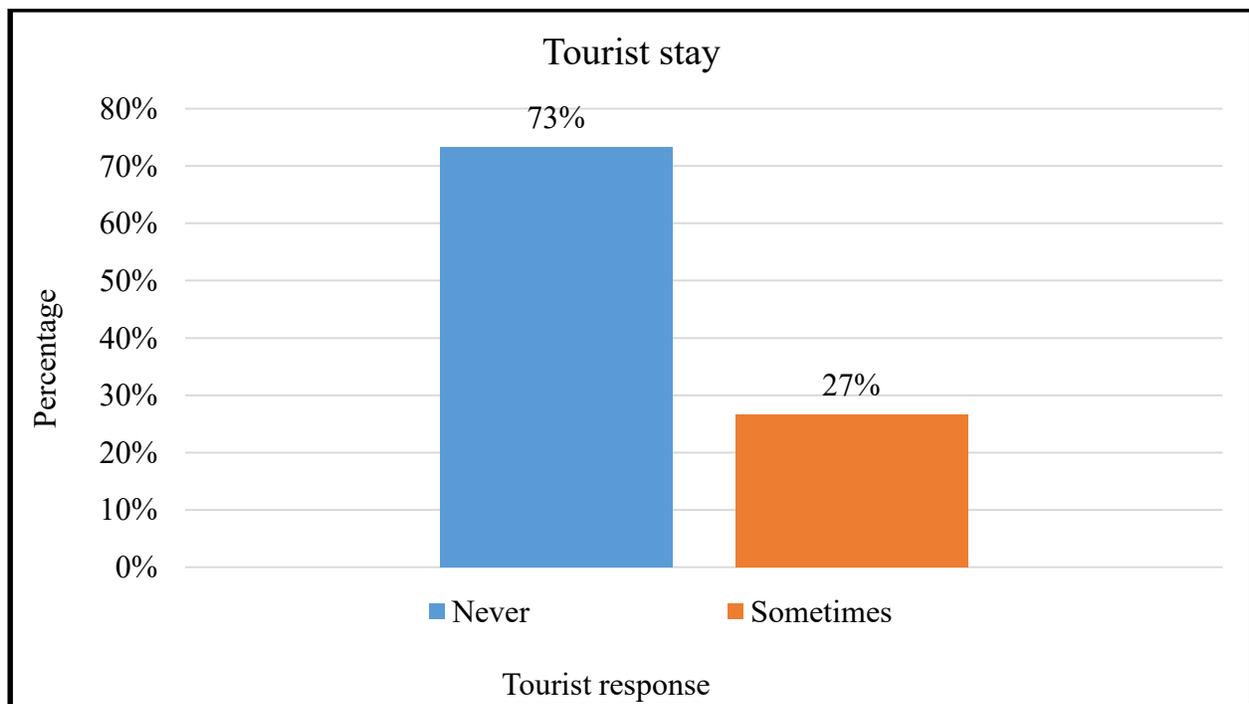
Graph 6-3 Connectivity of the village from the tourist point of view

- **Tourist stay in the village**

The homestay in the village would happen only if the tourist is willing to stay.

Among the 30 people interviewed 73% of them said that they had never stayed in the village, whereas 27% of them said they sometimes stay in the village.

As few tourists like to stay back, it is vital to have homestay facilities because a homestay will encourage the other tourist to stay in the village.



Graph 6-4 The tourist staying back in the village

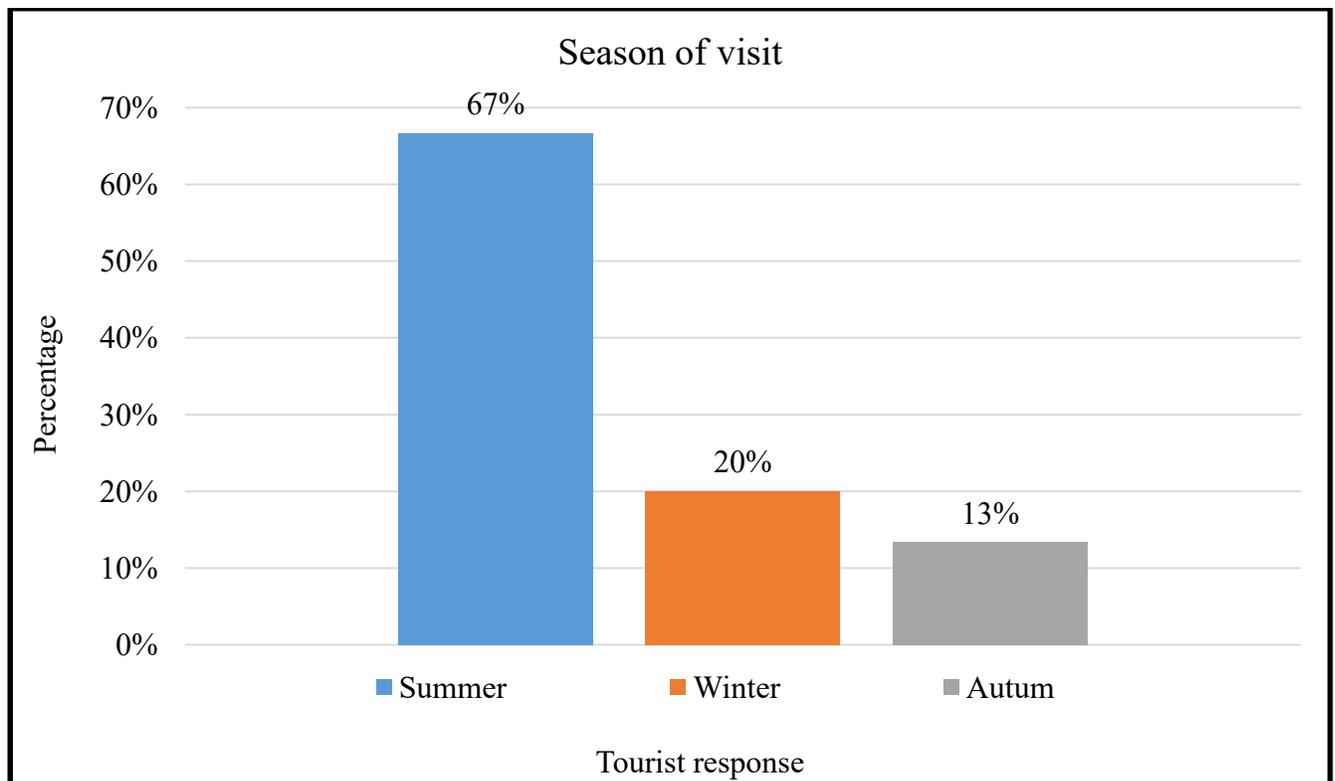
- **Season of tourist visit**

The season of the tourist visit helps us to determine the tourism plan.

Among the 30 people interviewed the 67 % of people preferred to visit the village in summer seasons only, while 20 % of them visited in the winter season also and only 13 % in the autumn season.

The 67 % tourist interest in the summer season is a clear reflection of the fact that during the summer season the boating activities are at peak levels.

This analysis clearly shows the importance of boating activities in the village.



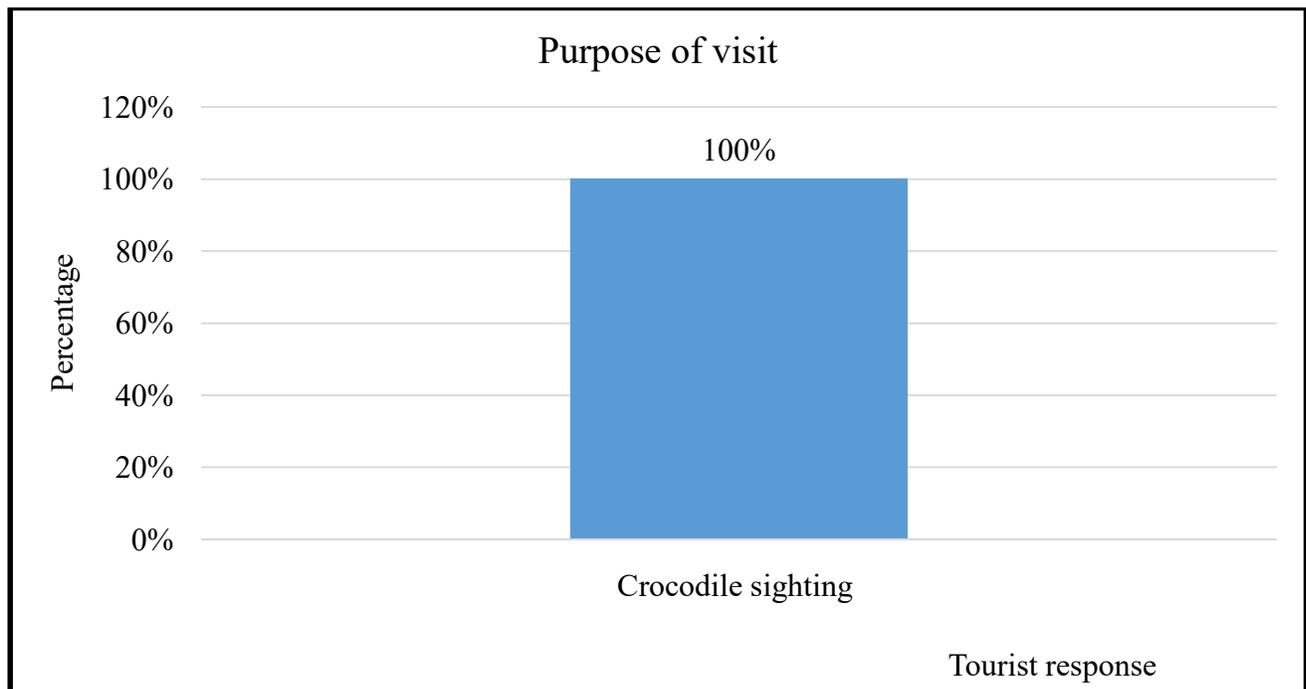
Graph 6-5 Season of tourist visit

- **The major purpose of tourist visit**

The purpose of a tourist visit helps us to understand tourist interest.

Among the 30 people interview, it was found that all of the tourist major purposes of the visit were crocodile siting.

Therefore, crocodile siting has to be an essential part of the ecotourism development plan.



Graph 6-6 Tourist purpose of visit

6.9 Tourism potential in Songaon

Table 6-3 Ecotourism potential

Calculating the potential of Songaon as an ecotourism site		
Scores : 0-3 = Low , 4-7 = Moderate , 8-10 = High		
S.no.	Factors	Score
1	Boating activities	7
2	Homestay	3
3	Connectivity	4
4	Scenic view	8
5	Tourist flow	7
6	Cultural value	8
7	Biodiversity	9
8	Community willigness for tourism	6
10	Proposed development plans for toursim	4
Total		56

Tourist potential ranking scale	
10-30%	Low potential
30-60%	Moderate potential
60-100%	High potential

Maximum score of site = 100
 Total score of sites = 56
 Percentage of all sites = 56%

Therefore Songaon has moderate potential to be developed as an ecotourism site

To know about the ecotourism potential of Songaon, a calculation of potential was done.

On a score of 0-10, various factors were scored, and the total score obtained was divided by the maximum score to calculate the percentage of potential.

Upon the calculations, it is found out that the percentage of ecotourism potential in Songaon is 56% which on the scale comes for moderated/medium potential. The reason Songaon has moderate potential is because lots of basic essential developmental activities which are needed for ecotourism are still missing, all though Songaon has a good biodiversity and lots of tourist sites there still has to be some more basic development like the poor road connectivity and little more local community willingness (especially for homestay facility) so that Songaon can fully act as an ecotourism sites.

6.10 Biodiversity study

i. Identifying the major species of mangrove by visual observation and mangrove handbook

- a. Narrow-leaved Kandelia (*Kandeliacandel*)
- b. Grey mangrove (*Avicennia marina*)
- c. Sonneratia mangrove (*Sonneratiaapetala*)
- d. Milky mangrove (*Excoecariaagallocha*)
- e. Indian mangrove (*Avicennia officinalis*)

ii. Other mangrove associated plants

- a. Sea holly (*Acanthus ilicifolius*)
- b. Mangrove fern (*Acrostichumaureum*)
- c. Pongamiapinnata (*Leguminosae*)
- d. Common derris (*Derris trifoliata*)
- e. Mango-pine (*Barringtoniaacutangular*)

iii. Crocodile's habitat information from the forest department and villagers

Marshy area of mangroves mainly on the shore area of the islands is where the crocodile (*Crocodyluspalustris*) habitat and breed.

iv. Birds study in the village and island

Oriental turtle dove (<i>Streptopelia Orientalis</i>)
Little cormorant (<i>Microcarboniger</i>)
Great egret (<i>Ardea alba</i>)
Grey-headed swamphen(<i>Porphyriopoliocephalus</i>)
Grey heron (<i>Ardeacinerea</i>)
Oriental dwarf kingfisher (<i>Ceyxerithaca</i>)
Crested hawk-eagle (<i>Nisaetuscirrhatus</i>)
Hornbill (<i>Bucerotidae</i>)
Vigors's Sunbird (<i>Aethopygavigorsii</i>)
Barn owl (<i>Tyto alba</i>)
Brown-headed Barbet (<i>Megalaimazeylanica</i>)
Tickells blue flycatcher (<i>Cyornistickelliae</i>)
Indian eagle-owl (Bubo bengalensis)
Large Asian koel (Eudynamysscolopaceus)
Indian blackbird (Turdussimillimus)
Black-shouldered kite (<i>Elanusaxillaris</i>)
White-breasted kingfisher (<i>Halcyon smyrnensis</i>)
Red-whiskered bulbul (<i>Pycnonotusjocosus</i>)
Black-hooded oriole (<i>Oriolusxanthornus</i>)
Eurasian collared dove (<i>Streptopeliadecaocto</i>)
Red-collared dove (<i>Streptopeliatranquebarica</i>)
Spotted dove (<i>Streptopeliachinensis</i>)
Asian emerald dove (<i>Chalcophapsindica</i>)
Grey fronted green pigeon (<i>Treronaffinis</i>)
Orange-headed thrush (<i>Geokichlacitrina</i>)
Jungle myna(<i>Acridotheresfuscus</i>)
Greater coucal(<i>CentropusSinensis</i>)
Pied Cuckoo(<i>Clamatorjacobins</i>)
Gray bellied cuckoo(<i>Cacomantis passerines</i>)

White-breasted Waterhen(<i>Amaurornisphoenicurus</i>)
Yellow wattled lapwing (<i>Vanellusmalabaricus</i>)
Red-wattled lapwing (<i>Vanellusindicus</i>)
Crested serpent eagle (<i>Spilornischeela</i>)
Orange minivet (<i>Pericrocotusflammeus</i>)
Malabar pied hornbill(<i>Anthracoceroscoronatus</i>)
Black-backed dwarf kingfisher (<i>Ceyxerithaca</i>)
White-throated kingfisher (<i>Halcyon smyrnensis</i>)
Green bee-eater (<i>Meropsorientalis</i>)
Common Iora(<i>Aegithinatiphia</i>)
White-cheeked Barbet (<i>Megalaimaviridis</i>)
Greater flameback (<i>Chrysocolaptesguttacristatus</i>)
Black-rumped flameback (<i>Dinopiumbenghalense</i>)
Vernal hanging parrot (<i>Loriculusvernalis</i>)
Indian pitta (<i>Pitta brachyura</i>)
Small minivet (<i>Pericrocotuscinnamomeus</i>)
Black-naped monarch (<i>Hypothymisazurea</i>)
Indian yellow tit (<i>Machlolophusaplonotus</i>)
Tickell's blue flycatcher (<i>Cyornistickelliea</i>)
Purple-rumped sunbird (<i>Leptocomazeylanica</i>)
White-rumpedmunia(<i>Lonchurastriata</i>)
Pale-billed flowerpecker(<i>Dicaeumerythrorhynchos</i>)
White-rumpedShama(<i>Copsychusmalabaricus</i>)
Common tailorbird (<i>Orthotomussutorius</i>)
Ashy Prinia(<i>Priniasocialis</i>)
Gloden-fronted leafbird(<i>Chloropsisaurifrons</i>)
Jerdon's leafbird(<i>Chloropsisjerdoni</i>)
Oriental magpie robin (<i>Copsychussaularis</i>)
Reference: eBird

6.11 Ecotourism plan

Based upon all the data collection and assessment, the following is the ecotourism plan made from the whole study. The plan consists of most of the potential sites (islands, dam, and waterfall) it also has two recommended sites (nature trail, trekking, and rappelling). The plan is made into two parts

- 1) One day plan
- 2) Two days plan with one-night homestay

Table 6-4 Proposed ecotourism plan for Songaon

Proposed Ecotourism plan for Songaon				
One day ecotourism plan				
Representative time slots			Activites	Duration of activites
9:00 AM	To	11:00 AM	Boating	2 hours
11:00 AM	To	12:00 Noon	Interpretation center	1 hour
12:00 Noon	To	13:00 PM	Nature trail visit	1 hour
13:00 PM	To	14:00 PM	Lunch at homestay	1 hour
14:00 PM	To	14:30 PM	Travelling to the sites	Half an hour
14:30 PM	To	15:30 PM	Visit to dam and waterfall	1 hour
15:30 PM	To	16:30 PM	Trekking	1 hour
16:30 PM	To	17:00 PM	Return to homestay	Half an hour
17:00 PM	To	17:30 PM	Tea and snacks at homestay	Half an hour
17:30 PM	To	17:45 PM	Arriving at jetty	15 minutes
17:45 PM	To	18:30 PM	Sunset view and bird watching at jetty	45 minutes
18:30 PM	Departure			

Proposed Ecotourism plan for Songaon

Two day plan with one night homestay

Day 1

Representative time slots			Activites	Duration of activites
9:00 AM	To	11:00 AM	Boating	2 hours
11:00 AM	To	12:00 Noon	Interpretation center	1 hour
12:00 Noon	To	13:00 PM	Nature trail visit	1 hour
13:00 PM	To	14:00 PM	Lunch at homestay	1 hour
14:00 PM	To	14:30 PM	Travelling	Half an hour
14:30 PM	To	15:30 PM	Visit to dam and waterfall	1 hour
15:30 PM	To	16:30 PM	Visiting the temples	1 hour
16:30 PM	To	17:30 PM	Trekking	2 hours
17:30 PM	To	18:00 PM	Return to homestay	Half an hour
18:00 PM	To	18.30 PM	Tea and snacks at homestay	Half an hour
18.30 PM	To	18.45 PM	Arriving at jetty	15 minutes
18.45 PM	To	19:45 PM	Sunset view and bird watching from jetty	Half an hour
19:45 PM	To	20:00 PM	Return to homestay	15 minutes
20:00 PM	To	21:00 PM	Dinner	1 hour
21:00 PM	To	21:15 PM	Arrival at stargazing site	15 minutes
21:15 PM	To	22:00 PM	Stargazing	45 minutes
22:00 PM	To	22:15 PM	Back to homestay	15 minutes

Day 2

9:00 AM	To	10:00 AM	Breakfast and tea	1 hour
10:00 AM	To	10:30 AM	Travelling to site	Half an hour
10:30 AM	To	12:00 Noon	Rappelling	1 and half hour
12:00 Noon	To	12:30 Noon	Liesture time	Half an hour
12:30 Noon	To	13:00 PM	Returning to homestay	Half an hour
13:00 PM	To	14:00 PM	Lunch at homestay	1 hour
14:30 PM	Departure			Activa

Chapter 7: Discussion

7 Discussion

The above-found results give us a clear representation that for developing a proposed ecotourism plan, it is crucial to study the minor details and then decide which all elements can be included for planning. The present study uses several methods for the assessment of the data. An proposed ecotourism plan development requires lots of factors. For a successful ecotourism development in any place, lots of original work has to be done, and if any of the factors are missing, it can collapse the whole model. Therefore every factor was studied and explained separately and finding of all these factors together was used to develop the proposed ecotourism plan. Katherine (2008) also developed an ecotourism plan for Panama. The plan made by the author was driven by the policies of the US government, which ensures, that the tourism industry should expand and generate good revenue for the country along with the conservation of natural habitats. The paper focuses on the development of an ecotourism plan, which ensures that natural and historic conservation is carried out along with the economic development of the local community. In the current study also the development of a proposed ecotourism plan for Songaon village was necessary for the conservation of the natural habitat of mangroves and crocodiles along with the economic development of the local community. However, the current study is not focused for the market rise of the tourism industry or revenue generation instead prime focus is on biodiversity conservation and local developments. Both the studies were aligned for developing an ecotourism plan which targeted similar goals but contradicted on the prime motive of plan development, the previous study was driven by policies, and the current study is driven by conservation.

In the current study picture elicitation test (PET) was used to understand the local people's knowledge about their biodiversity. During the PET, the local people were asked to click photos of the places they felt had functional biodiversity. Picture elicitation test (PET) is a new but vital tool to understand the local people's knowledge and their understanding about biodiversity. Katarzyna (2017) had also used a similar technique for his study. The author presented the result in a logical model format because he was trying to understand the problems faced by the locals during the tourism in Bruges. Whereas in the present study same model was used to understand the local people knowledge of their surrounding biodiversity and how they can relate the biodiversity to tourism. The only point where both the studies differed from each other was the

aim of the study. The author used the method to make the tour guides aware of potential tourism sites and in the current study the method was used to understand the local community knowledge of biodiversity. ((what about the knowledge of people- you are not talking about what is pre biodiv knowledge- you are just talking about the method and references- no analysis is talked)

Community mapping has been earlier used to understand the local people knowledge about their landscape and their development needs of the local community. In the current study, community mapping was used to understand how the local community sees their village. Carol Warren (2003) had also used community mapping as a tool for understanding the local's knowledge about their landscape. The results of community mapping were used by the author to make the local community aware of their lands. In the current study, also, community mapping has been done to understand the perception of the local community about their landscape and biodiversity. The author in the previous study used the result for awareness purpose, but in the current study, the results of community mapping will be used to understand the local community knowledge. Therefore, even after using the similar methods both studies differ on the application purpose of the result.

The site ranking tables are outcomes of potential sites scored upon the various factors essential for tourism. All the sites are scored on the individual parameters and their total sum decides their ranking. The potential tourism sites are identified and mapped to give a visual representation. Ishwar Dhama (2014) had ranked the potential sites based upon the relative weights of ecotourism criteria for tourism purpose. Similarly, in the current study, all the potential sites after identification were scored on several essential factors for tourism and ranking were allotted to these sites. Later all the sites were mapped. Therefore except for the scoring criteria, methods and results were similar in both the studies.

Biodiversity and its conservation play a crucial role in ecotourism development; the prime objective of doing ecotourism is to conserve the biodiversity and develop the local community. Therefore to conserve the biological diversity of the Songaon ecotourism development project is planned. Glen T. Hvenegaard (2002) had explained how biodiversity could be protected if a good ecotourism plan is developed and implemented. The study shows that if each factor of ecotourism is adequately balanced in the plan, then biological conservation will never be an

issue. In the current study, the same purpose of conserving biodiversity through ecotourism development has used. In the previous study, the plan was made for ecotourism development to evaluate the biodiversity, but in this current study, the proposed ecotourism plan development and achieving biological diversity conservation through it has been used. The local community is the backbone of the whole eco-tourism program, and therefore their involvement is mandatory in each step of plan development. If the ecotourism development plan is made without the involvement of the local community, it will surely be a failure in the later phases. Vern C. Vincent, William Thompson (2002) had explained that the local community is the drivers of the whole eco-tourism project and hence their presence in the development of proposed ecotourism plan plays a crucial role in the success of the plan. In the current study also it was found out that the ecotourism project is totally dependent upon the local community because they are the prime members who run the program and therefore, to ensure that the ecotourism is aligned by the sustainable ecotourism model local community participation was involved at each step of proposed ecotourism plan development. Sensitizing the local community people and the younger generations about the importance of conservation and linkage of the conservation to ecotourism was also a crucial part of proposed ecotourism plan development.

Necessary tourism facilities play an essential role in enhancing the tourist flow and lack of tourism facilities results in low tourist flow. Therefore, the current tourism facilities needs to be improved, and the essential development activities to be done before the ecotourism project begins in Songaon. Homestay facilities are a boom for both tourists as well as locals. Homestay provides the tourist with an opportunity to know about the local community and their culture and at the same time help the local earn from the food and bedding facilities provided to the tourist. Homestay also ensures that the cultural morals and ethics of local community are conserved. In the homestay facilities when tourist stays in the local's houses they are obliged to behave in an ethical manner and this tourist behavior plays a very crucial role in mitigating the tourism impact on the cultural ethics of the local community. Rosazman Hussin, Velan Kunjarama (2017) had explained that homestay directly involves the development of the rural community. Homestay facilities benefits the local community by providing them with excellent alternative income opportunities, but also a focus should be given to the tourist satisfaction in the homestay program. In the current study also the homestay facilities in Songaon are being developed to enhance the local community development.

Where is your programme?

Chapter 8: Conclusion and recommendations

8 Conclusion

Songaon village has rich biological diversity, and the area has rare species of mangrove, marsh crocodiles and great scenic beauty. The results of data analysis clearly show that Songaon has the potential to act as an ecotourism site. The crocodiles which are the major attraction of tourism in Songaon need to have alternative. Other sites should also be included for ecotourism purposes. Other than the crocodiles, there are also dam, waterfall, rare mangroves species, and functional bird diversity.

Currently, the local community is willing to have ecotourism in their village; however, they are not comfortable with a homestay program because of their constraints. In the current situation, they must be made aware of the benefits of the homestay. The local community need to understand that homestay is beneficial for them, and it is better to have homestay than lounge or hotels. Therefore, it's essential that proper capacity building program and awareness about homestay benefits for the local community is done. They must know conserving the area will bring them benefits by providing livelihood. Along with awareness, it's important that the local people are aware of the tourism activities, how the activities are performed, how to interact with tourists, what are going to be the demands of tourism, etc. Local community are the leaders of ecotourism, and hence their understanding of tourism functioning is going to determine the success of the project.

As ecotourism involved both the environment and the local community, the community must be more aware of the environment, and this thing is currently missing at Songaon. The local community is aware of their biodiversity and know it well; also, they were trained for nature guides, but still, they are not skilled enough for running an ecotourism project. Therefore it's necessary that the local community are now given a one-day training program about the functioning of ecotourism, also at the end of the training camp, one group of 5-6 people are made who will be conducting a weekly follow up program for all the others. Some essential developments, like good homestay facilities, tour guides, better connectivity, need to be done, without these necessary facilities, no plan can be implemented in the village. Currently, the tourist facilities in the village are at minimum levels and therefore, significant development has to be done before starting any ecotourism activities.

8.1 Challenges in eco-tourism:

1. One of the rising threats in the present scenario is sand mining, there are no. of vessels which creates water pollution. Sand mining has to be done at the deltas not inside the river, but the workers and owners are exploiting this regulation. They perform the sand mining at the riverine due to which the river beds are sinking and submerging the vegetation of mangrove. Causing severe damage to the ecology of the place.
2. Connectivity to the village is also an issue because the road connecting the village and highway is half-constructed and not an ideal road for traveling.
3. Littering done by the tourist: accumulation of solid waste especially plastic waste.
4. Seasonal dependency: boating activities cannot occur during monsoon season and hence this is a major hindrance.
5. Lack of infrastructure: currently the village does not have the infrastructure to support the stay facilities of tourists.

Overcoming these challenges is extremely necessary and hence during the final development plan design these challenges have to be considered and the ecotourism development plan has to be designed in a way so that these challenges are reduced to the least.

8.2 Recommendations

Songaon has the potential to act as an ecotourism site, but there are few things which are essential before starting ecotourism activities. Here are some recommendations from my side which will help to develop Songaon as a good ecotourism site:

- Crocodiles are the prime interest of tourists as well as villagers, therefore, I feel more natural places like a waterfall, dam, nature trail, mangrove nursery, and a viewpoint from hill should be used as an attraction site and make villagers and tourist aware about it.
- The jetty which gives the closest access to mangrove can be extended and act as a beginning point of nature trail which comprises of the mangrove nursery, mudflats and also bird watching site. The nature trail will be a walkable distance of 10-15 minutes. It gives the tourist a good exposure of the biodiversity and bird watching.
- The homestay option is very limited but in the homestay location maps, we can see that there are other households that are very near to the harbor and nursery and can ideally be used for homestay facility for the tourist.
- The northern part of the island has barren land which can be used for setting an interpretation center. This interpretation center which provides the tourist information about the village, mangroves, crocodiles, birds, mangrove nursery and mudflats.
- The villagers who will be extensively involved in ecotourism activities need to have a constant follow-up within their community so that they will be well skilled and would be able to run the ecotourism activities in their village without any help from outside.
- Adventure tourism like rock climbing, rappelling, trekking can also be done at the village.



Map 8-1 Nature trail route



Plate 8-1 Land for interpretation center on the island

8.3 Photo gallery

Plate 8-2 Tourist sites in and around Songaon village



SongaonHarbour



Songaon jetty



Mangrove nursery



Vashishti River



Sunset point (at jetty)



Island inhabited by crocodile and birds



Marumata Devi temple



Songaon Devi temple



Parshuram temple

Plate 8-3 Mangroves and mangroves associated plants



Narrow-leaved Kandelia
(Kandeliacandel)



Grey mangrove
(Avicennia marina)



Sea holly
(Acanthus ilicifolius)



Mangrove fern
(Acrostichumaureum)

Chapter 9: Bibliography and annexure

9 Bibliography

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Annexure

9.1 Questionnaires

The total population of the village: 667

No. of people interviewed: 120

i. Responses from the villagers

1) What is their main occupation?

Fishing is the main occupation in Songaon, agriculture practices were used to take places but due to lack of fertile soil and clean water for irrigation, these practices had been stopped and now they are fully dependent on fishing.

2) Is there monthly income sufficient for their family?

No, with the decline of fish catch and loss of agriculture actives. It's very difficult for them to meet their domestic and social financial needs.

3) Is any other alternative for a better job?

No, after the agricultural actives had been stopped the only alternative left for them is to work as labor in the nearby industries of MIDC.

4) Have they heard about the nature guide training program?

Yes

5) Why they did not join it?

The present situation in the village is not in favor to attain promotional training activities. Due to lack of income opportunities, many villagers have moved to cities, and others work as labour in the nearby industries of MIDC, and that is why they were unable to attend the training program.

**ii. Responses from the villagers who were trained
(For ecotourism by mangrove foundation)**

1) The month when they received training?

January 2019

2) What was the training mainly about?

The training was given to them by diving into 3 groups:

A. **catering** this mainly consisted of ladies

B. **boating** the men's were briefed about the boating activities

C. **guide:** people were taught about the various mangrove species and other birds which were found there

3) Why did they attend the training?

In the beginning, they were unsure how well this will go, but when the villagers came to know that this could help them financially and also make their place accessible, they agreed to it.

4) Was the training helpful to them in any way?

Yes, the training was beneficial to the villagers. It made them aware of their surroundings, and they came to know the benefits of mangrove. Also, they were made aware that their place can become a tourist attraction which will help them to earn and have a consistent income source.

5) Where they already aware of the things they were taught?

No, the villagers did not know what the usefulness of these mangroves; they considered it to be an ordinary tree and use its woods as fuelwood.

6) Did their perspective towards the surrounding change after this training program?

Yes, after the training program, their perspective changed, the mangroves which they used to consider as the regular trees they started working towards its conservation.

7) Do they try to conserve it?

Yes, once they were made aware of the mangroves and there benefits they started working towards its conservation. They used to stop people from using its woods as fuel and also requested the sand miners to not remove the silt from the riverine bank as this was causing the soil to erode and eventually leading to the mangroves submerging in the river.

8) Would they like to work for the conservation of biodiversity?

After knowing that the biodiversity of their area plays such an important role and also can help them both ecologically and economically, they do want to work for it and help it conserve as much as they can.

9) What places do tourists visit?

Tourists mainly come to visit the islands, to see the birds, and crocodiles. Other famous attraction for tourist is an ancient temple (Parshuram Temple) which holds a historical significance and is an excellent attraction for the tourist as well. It's situated around 8.5 km away from Songaon.

10) Do they know that their place is popular for tourist visit?

The venturing of tourist boats in the river is a common sight for the villagers, during the summers and winters lots of tourists visit their area. They informed me that the tourist boat which does the boating is named "crocodile safari" because the main attraction lies in the crocodile siting.

11) What is their thought about tourism?

During the interaction with the villagers, they said that when they visited the Gowalkot fort they were so surprised to see so many tourists visiting that area because the villagers did not find any such interesting thing instead their village is more beautiful and had a lot of things to offer.

12) Will they like people coming into their area?

Yes, they like people coming to their place as they feel it helps others to understand how beautiful their place is and also help them earn through it.

13) Are they aware of ecotourism?

No, ecotourism was a new word for them; they had never heard about it. After I explained to them they like the idea though.

iii. Responses from the tourist

Total number of tourist interviewed = 30

1) Which season of the year they mostly like to visit?

During the summer seasons, tourists visit these villages to enjoy the scenic beauty, and during the winter seasons, bird watchers come and enjoy the view of migratory birds

2) Do they stay in the village?

No, the tourist who visits the village is very less in number. They visit during morning or evening for boating and return to Chiplun or Gowalkot fort.

3) What is their major reason for the visit?

The major reason for the visit is crocodile sighting, bird watching, and boating.

4) How do they feel is the connectivity to the village?

According to the villagers, the connectivity to the village is good. There is a road from the highway leading to the village. Also, the waterways give direct and easy access to the village from Chiplun as well as the Gowalkot fort. Therefore connectivity is not an issue at all

5) Where they mostly stay during their visits?

Most of the tourists stay at lounges in Chiplun.