

# **Geographical analysis of environmental impact on tourism in Ranthambore National Park**

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## **Abstract**

*This research paper is based on the physical environment of Ranthambore. It is necessary to discuss about the geographical environment of the study area as they play an important role not only in the cultural life of the people but also in tourism development.*

*The geographical background will discuss the location of the research area, topography, climatic conditions, drainage patterns, soil and vegetation. These geographical conditions are determining factors for the socio-economic life of the people and the tourism environment. The geographical position of Ranthambore is very positive for tourism. Therefore, in the first part we will discuss about the physical environment of the research areas and later on the environmental impact of tourist activities at tourist destinations..*

**Keywords :-** *Geographical Background of Ranthambore, Impact of Tourism on Physical Environment, Positive & Negative Impact of Tourism on Physical Environment, Conservation and Protection of Natural Environment, Use and Promote Natural Environment as a Economic Resource, Kind of Tourist Activities which Leads to Problem for Natural Environment, solution, The Effects of Tourism on Tiger Conservation and Conclusion.*

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## **I. Introduction :-**

If tourism phenomenon is to be studied in any area, then it becomes important to know about the impact of tourism on the environment of that particular area. In this research paper we discussed in detail about the impact of tourist structure, tourist flow trend in Ranthambore on the environment.

Now while studying the data related to tourist inflow, seasonal trend of tourists, we came to the conclusion that every year a large number of tourists visit Ranthambore. Only during the Covid-19 period, there was a decline in the data and this was due to the impact of the pandemic and was quite normal. So, we can say that many efforts are made by the government and private sector to serve the large number of visitors in both the research areas. The influx of tourists during their visit also affects the research area in many ways. The level of impact basically depends on several factors such as the number of tourists visiting, their duration of stay, mode of interaction, purpose of their visit, choice of accommodation and other activities. However the form and level of impact also depends on the supply side of tourism such as how guides behave with tourists, how hotels, travel agents etc. behave with tourists, how hotels manage their activities while serving tourists. Do much more.

If we look at the impact of tourism on the environment and the place, we come to know that two types of impacts can be seen – positive impact and negative impact. For proper development of tourism in the research area, positive impacts have to be encouraged and negative impacts have to be minimized.

In this **Research Paper** we will discuss about various tourist activities which affect the environment directly or indirectly. The main focus of this paper is to discuss about various tourist activities and their impact on the physical environment and site. And the objective of studying about the impact of tourism on physical environment and research areas is to know about the various negative impacts on the environment and to control these undesirable effects on the environment and to suggest for sustainable measurement tourism development in the research areas.

## **II. Objective :-**

1. To analyze the geographical environment of the study area.
2. To study the impacts of tourism on the physical environment in Ranthambore National Park.
3. To present solutions to environmental problems caused by tourism in the study area.

**Hypothesis :-**

1. Tourism is having positive and negative impacts on the physical environment of the study area.

**Collection of data :-**

Primary and secondary data have been used in the presented research paper. Primary data information was obtained from the respondents by making a questionnaire. Secondary information has been obtained from the Department of Tourism and Environment and used.

**Ranthambore (Study Area )**

Ranthambore is also included in main tourist area of Rajasthan. Ranthambore is a small town lies in Sawai Madhopur district and in eastern plain of Rajasthan. national park in Rajasthan, India, with an area of 1,334 km<sup>2</sup> (515 sq mi). It is bounded to the north by the Banas River and to the south by the Chambal River. It is named after the historic Ranthambore Fort, which lies within the park. Ranthambore National Park was established as Sawai Madhopur Game Sanctuary in 1955, initially covering an area of 282 km<sup>2</sup> (109 sq mi). It was declared one of the Project Tiger reserves in 1973 and became a national park on 1 November 1980. In 1984, the adjacent forests were declared the Sawai Man Singh Sanctuary and Keladevi Sanctuary. In 1992, the Tiger Reserve was expanded to include the adjoining Keladevi Sanctuary in the north and Sawai Mansingh Sanctuary to the south along with other forests. Economic valuation of the tiger reserve estimated that its flow benefits are worth 8.3 billion rupees (0.56 lakh/hectare) annually. Gene-pool protection services (7.11 billion), provisioning of water to the neighbouring region (115 million) and provisioning of habitat and refugia for wildlife (182 million) were some of the important services that emanated from the tiger reserve. Other services included nutrient cycling (34 million) and sequestration of carbon (69 million)



**Geographical Background**

**Location**

Ranthambore is located in Sawai Madhopur district which lies south eastern region of Rajasthan. The geographical location is between 25°45' to 26°41' north latitudes and 75°59' to 77° east longitudes surrounded by Dausa district in north, Karauli district in north east, Kota and Bundi district with border of Madhya Pradesh in south, Tonk district in west and Jaipur district in north-west direction. Sawai Madhopur district covers the total Geographical area of 4498 square kilometers.



### **Physiography**

The area of Sawai Madhopur district is partly plain and partly undulating hill terrain. The plain part is covered by light and sandy soil which is fertile hills and broken ground found in south and south east part of the district. This is rugged region enclosing the valley part of Chambal. In the north western and southern part of district lies in the Aravalli hills. Height from MSL is lies between 450 to 600 meters. ‘Bhairon’ (527 meters MSL) is highest peak of north western Aravalli hills which lies in Bamanwas tehsil. Another notable peak is ‘utgir’ lies in south of the district. The Gangapur sub-division part is plain with few scattered hillocks.



### **Climate**

The climate of the district is considered as ‘dry’ with short rainy season. The season from December to March is winter and March end to third week of June lies the summer season. The rainy season comes from last June to September. Average rainfall is 62.28 cm. The daily maximum temperature is 40oC and minimum temperature is about 3oC (January). During the monsoon season relative humidity is 60% while rest of the year



is dry. Average temperature varies by 19.2oC / 34.6oF. Highest relative humidity in the year is in August which is 77.50% and lowest found April which is 20.19%. Highest Rainy day is in August which is 19.30 days, and lowest in November (0.90 days).

### **Drainage**

The Drainage System of Sawai Madhopur includes the river like Chambal, Morel, and Banas.

**Moral** - It flows through the town of Mittarpura, Piplda, Jastana, Shayempura and Rorawad of Sawai Madhopur. River Dhund, Kankrauli and Kalisil are important tributaries of Morel. Total catchment area is approximately 5491 square km.

**Chambal** - Also known as Charmwati River total length in Rajasthan is 376 Kms.

**Banas** - Originates from Khmnor hills of Aravali (Rajsamand district) from originate places it flows in north eastern Mewar and meets Chambal in the Rameshwar village. It flows in Dubi, Shyampura, Rorawal, Bagroli and Padra towns of Sawai Madhopur.



### **Soil**

Soil Structure here is affected by rocks of pre combination period. Old alluvial soil is found in Bamanwas, Bauli region. In mountainous region of lithosol and rigosol soil are found. New alluvial soil is found in Gangapur, Melrana, Barwara areas. Red and Yellow Soil are found in western part of district which is rich in iron but lack of nitrogen and bio carbonic material.

### **Natural Vegetation**

Natural vegetation of the district includes trees like neem Azedarach indica), Beri (Ziziphus jujuba), Dhok (Anogiessus pendula), Aranja (Acacia lencopholoca), Tendu (Diospyros melanoxylon), Girjan (Linea caromaandelica), Salar (Boswellia serrata), Khirmi (Wrightia tomentose), Suntha (Buhinia recemosa), Khair (Acacia catechur), Jamun (Syzygium cumini), Bamboo (Dhandracalamus btricius), pila (Saluadora oleodes) Hingot (Balanites oegyoptica) etc.

Herbs and grass includes Andhijhara (*Achvranthus aspora*), polda (*Apludamutica*), Kali Lamp (*Hetropocomcontortus*) and lampla (*Aristida*).

### **Wild life**

Ranthambore National Park harbours Bengal tiger, Indian leopard, caracal, jungle cat, rusty-spotted cat, nilgai, blackbuck, chinkara, chousingha, wild boar, chital, sambar, Indian muntjac, striped hyena, dhole, Indian wolf, Bengal fox, Indian jackal, leopard cat, Asian palm civet, Indian grey mongoose, ruddy mongoose, long-eared hedgehog, Northern palm squirrel, Indian porcupine, Indian hare, lesser bandicoot rat, honey badger, Indian flying fox, greater false vampire bat, Indian gerbil, Indian pangolin, sloth bear, southern plains gray langur, rhesus macaque, mugger crocodile. The sanctuary is home to a wide variety of trees, plants, birds and reptiles, as well as one of the largest banyan trees in India. Ranthambore is known for its large tiger population. During the past few years, there has been a decline in the tiger population in Ranthambore due to poaching and other reasons. The number of tigers was 25 in 2005 and 48 in 2013 and 62 in 2014. As of 2022, there were 65 tigers in Ranthambore National Park.



### **Impact of Tourism on Physical Environment**

Physical Environment of any area includes relief features (mountain, hills, plateau, and plain) drainage system (river and other water bodies), with flora and fauna. These physical features of any region also act as an attraction, for the tourist.

In our study areas, the Thar Desert, desert environment, sand dunes, unique climate of Ranthambore is included under favorite tourists' spots. While the wildlife sanctuary and natural habitat of wild life of Ranthambore is acts as a magnet for tourists. So, these all acts as pull factors of tourism in these research areas.

While serving for tourism environment has its own capacity, natural quality, natural chemical composition and originality and this physical environment is a part of Geography of particular region. So, Geography is always responsible for kind of Human occupation in this way the component of Geography (physical environment) also affects Tourism directly or indirectly.

### **Positive Impact of Tourism on Physical Environment**

Geographical factors like Relief features, climate of host area, vegetation, and water bodies affect the tourism organization and vice versa. Now we will discuss the kind of Impact of Tourism over Environment of Ranthambore.



Any kind of economic activities of Human being is controlled by geographical condition of the area and these economic activities in return also effect the environment in different ways. Here we will discuss the Positive Impact of Tourism over physical or natural environment of research areas: -

### **Conservation and Protection of Natural Environment**

Every Economy in this modern time is paying attention on conservation and protection of Natural Environment this Natural Environment is acts as an attraction for Nature lovers. Today

Tourism based on Natural Environment is at great demand. People want to spend some precious time in Natural Environment because it is a kind of break in the busy modern and technological life. It gives a kind of satisfaction for Tourist who is nature lovers.

In this way Natural Environment is act as earning source for Tourism department. The economic return from tourists can be used to protect the Natural Environment in many ways. So, in this way Tourism is responsible for protection of natural environment.

### **Use and Promote Natural Environment as a Economic Resource**

For using our Natural Environment as Resources to support economy tourism is a best way. Sometimes you don't have to do much change in environment and use as it is for tourist who wants to experience real Natural beauty. In this way Natural Environment in its original form can support economy through tourism. Now a days rural tourism, mountain tourism ecotourism, etc. are in great demand.

#### **1. Protection of wild life**

For developing tourism, the wild life is also protected through wild life sanctuary, National parks etc. The financial support and income earned by tourists can be use to protect wild life.

This is a universal truth that every coin has its two faces, so every situation can also see in different perspective. Above explained point only discuss about positive impact of tourism on physical environment, now we will have to analyze the negative impact of tourism over physical environment of Research areas.

So, in this way the Geographical or physical environment affect tourism and vice versa.

So, to know about compatibility of development of natural Resources and Tourism is very important because in today modern world to adopt the industry like tourism is necessary for every economy and protection of physical environment is another important aim of the economy. For this we asked question to tourists who visited the Ranthambore and local residents of both the research areas. Question and the responses obtained from local residents and tourists as follows: -



- Do you believe that Natural Resources and Physical Environment and Tourism can be compatible?

**Table 1 : Responses from tourists and local residents**

	Ranthambore			
	Tourist		Local Residents	
	No.	%	No.	%
Yes	54	77.142	40	88.89
No	10	14.285	5	11.11
Can't say	6	8.572	-	-
Total	70	100	45	100

Source: - Survey conducted 2022

Almost above 77.142 % of tourist are in favor of ‘Yes’ that Natural resources protection physical environment and tourism can be compatible. Few were in favor of ‘No’ 14.285 % and can’t say 8.572 %

Almost above 88.89 % of local residents are in favor of ‘Yes’ that Natural resources protection physical environment and local residents can be compatible. Few were in favor of ‘No’ 11.11 % and can’t say 0 %.

So, there is demand of Modern economy and objectives of every Nation to protect physical environment as well as develop tourism also. Both should go hand by hand or parallel.

**Negative Impact of Tourism on Physical Environment**

Before further discussion we will go through one table, where it is mentioned that how different type of tourist activities leads to environmental degradation or negative impact over physical environment.

**Table 2 : Tourism Activities and Environmental Degradation**

Environment Components	Impact of Tourism	Tourist Activities
Vegetation and Wildlife	Reproduction disorder	Bird Watching
	Loss or decimation of animals	Illegal hunting. Memento made by animal’s body part. Animal foods. Overcrowded natural places.
	Vegetation Lost	Development of Tourism infrastructure Tourist activities in forest.
Pollution	Noise Pollution	Vehicles Traffic Jam Music/party
	Air Pollution	Vehicles used by tourist
	Water Pollution	Boating and different amusement activities of tourists in Lakes, Rivers, Water bodies.
Erosion	Erosion of Soil	Tourist activities deforestation for infrastructures
	Landslide	Cutting of trees
	Forest Fire	Irresponsible tourist activities of Tourists

Source: - Survey conducted 2022

So, there are different tourist activities that became cause for environmental degradation. Now we will discuss some kind of tourist activities which became problem for physical environment of host areas.

### **Kind of Tourist Activities which Leads to Problem for Natural Environment**

#### **1. Mass Tourism:**

While Serving tourist physical Environment has also its own Capacity, If Number of visitors increases in particular area ultimately leads to more pressure over physical environment and also responsible for its depletion.

#### **2. Transport System:**

For progress of every economic activity proper transport system plays a vital role. In tourism different kind of transport viz air, railways, road, needs to develop for better assessment of tourist places. Developed transport system is also responsible for creating different kinds of pollution like noise, water air, etc. Number of amusement activities in water bodies also create water pollution like boating swimming etc.

#### **3. Lack of Proper Sewage System:**

Hotels, Restaurants use more water in order to serve tourists, sewage system is not proper and this leads to water pollution.

#### **4. Amusement Activities:**

Parties, Loud music, Kite festivals and many more activities always create noise pollution and harmful for birds and wild life.

#### **5. Problem of Garbage Disposal:**

Due to mass tourism problem of Garbage is became serious. There is lack of proper waste disposal system. This also leads to problem for environment.

#### **6. Development of Infrastructure:**

To serve more tourist development in terms of construction work is needed and this became more pressure over economic system as a well as on other available resources.

So, above mention are some of tourism activities which are resulted in depletion of physical environment of visited area. Now next we are going to discuss about what kind of impact of Tourism on physical Environment of research area Ranthambore we observed.

### **If yes, what kind of negative effect you observed For Ranthambore responses are as under:**

1. Responses from local residents:
  - Pollution
  - Westernization
  - Traffic Jam
2. Responses from tourists:
  - Big camps on sand dunes create pollution.
  - Crowd
  - Water of water and energy.

### **For Ranthambore responses are as under:**

1. Responses from local residents:
  - Competition among guides



- Environmental pollution
  - Traffic
2. Responses from tourists:
- Pollution
  - Traffic jam
  - Honking of vehicles
  - Garbage

So, this kind of question is better for our observation and research where people respond in their own way.

**solution :-**

It's not just local communities that live in tourist destinations that are feeling the negative effects of tourism. As tourists ourselves, many of us prefer to visit places that are clean, not too crowded, and safe. We also usually want to preserve local cultures, traditions, religions, and buildings.

The World Tourism Organization and the United Nations Environment Program suggested twelve main goals for sustainable tourism in 2005. These will help to demonstrate the ways in which sustainable tourism can provide a solution to some of the global challenges facing the industry today:

1. **Economic Viability:** To make sure that tourism destinations and businesses are viable, competitive, and able to achieve long-term success.
2. **Local Prosperity:** To ensure that tourism activities help local communities thrive economically and retain a large amount of the economic contribution.
3. **Employment Quality:** To increase the number of local jobs created in the tourism industry and ensure that the pay and working conditions are fair, safe and offered to workers without discrimination.
4. **Social Equity:** To ensure that tourism increases the amount of economic and social benefits being distributed across local communities, improving all areas of life.
5. **Visitor Fulfillment:** To create a safe and fulfilling holiday experience for tourists without discrimination based on race, gender, sexuality, disability or other.
6. **Local Control:** To empower local communities to have a role in planning and decision-making regarding tourism in their neighbourhoods.
7. **Community Wellbeing:** To improve the quality of life and wellbeing of local communities, ensuring they have access to resources and are not disrespected or exploited in the name of tourism.
8. **Cultural Richness:** To respect the cultural heritage, traditions, authenticity and uniqueness of host communities.
9. **Physical Integrity:** To look after all landscapes, whether urban or rural, and ensure that they are not degraded physically or visually as a result of tourism.
10. **Biological Diversity:** To conserve natural areas, wildlife, and unique habitats, protecting them and ensuring they are not damaged.
11. **Resource Efficiency:** To use sustainable and renewable resources when possible in the development and operation of tourism facilities and services.
12. **Environmental Purity :** To protect the land, air and water from pollution, littering and other waste that may come as a result of tourism businesses or visitors.

You can learn more about tourism at our Academy. We are always promoting sustainable tourism. We at Guiders Education encourage our students to organize self-sufficient, sustainable camping trip, choosing sites accessible by train or bike? Or something more wildlife-focused, without damaging the environment.

## **The Effects of Tourism on Tiger Conservation**

Tigers are one of the most magnificent and iconic animals on the planet. They are an apex predator, symbolising power, strength, and grace. However, tigers are also one of the most endangered species in the world, with only around 3,900 individuals left in the wild. Despite significant conservation efforts, the primary threat to tigers remains habitat loss, poaching, and the illegal wildlife trade. Tourism has emerged as a potentially powerful tool for tiger conservation, which is now particularly referred to as ‘Tiger Tourism.’ But it also has the potential to create new challenges and risks. In this blog, we will examine the positive and negative impacts of tourism on tiger conservation. Before that, let’s discuss a little bit about tiger tourism and tiger conservation in the world, as well as in India.

### **Tiger Conservation :**

Tiger conservation is the set of efforts and strategies aimed at protecting wild tiger populations from the threats that endanger their survival. Tigers are considered to be one of the most iconic and charismatic species on the planet, but they are also one of the most endangered. There are a number of threats to tiger populations, including habitat loss, poaching, and human-wildlife conflict. Tiger conservation efforts aim to address these threats and ensure that tiger populations can recover and thrive.

### **Some of the Key Components of Tiger Conservation Include:**

#### **Tiger Habitat Protection and Restoration**



Tigers need large areas of forest to live and hunt, so protecting and restoring their habitat is crucial to their survival.

#### **Anti-Poaching Efforts**

Poaching is a major threat to tiger populations, as their bones, skin, and other body parts are highly valued in some traditional medicines and as luxury goods. Anti-poaching efforts involve monitoring tiger populations and cracking down on illegal wildlife trade.

#### **Conflict Mitigation**

As human populations grow and encroach on tiger habitat, conflicts between people and tigers can arise. Efforts to mitigate these conflicts can include measures such as relocating problem tigers or providing compensation to people who have lost livestock or crops to tigers.

### **Education and Awareness**

Raising awareness about the importance of tiger conservation and the threats facing tiger populations is key to building support for conservation efforts.

Overall, tiger conservation is a complex and multi-faceted field that requires a range of strategies and approaches to be successful.

### **Improved local conservation policies**

Tourism can generate political pressure for better policies and laws that protect tigers and their habitats. The international community can also apply pressure through boycotts or public pressure campaigns, as was the case with the boycott of tourism to Burma in the 1990s and early 2000s.

So, these are the positive impacts on tiger conservation. Now, the question comes, are there any negative impacts of tourism on tigers and other wildlife? The answer is yes. There are lots. Some of the important reasons are discussed below.

### **Sustainable Ecotourism**

Responsible ecotourism can create incentives for the conservation of tiger habitats by encouraging sustainable land use practices, such as community-based conservation and wildlife-friendly agriculture. Ecotourism can also provide an alternative livelihood for local communities that would otherwise rely on destructive practices like logging, poaching, or mining.

## **III. Conclusion :-**

We discussed all the possible impacts of tourism on the natural environment and sites and also observed the various reactions of tourists and local residents to our questions.

On studying the entire research paper, we find that tourism has positive and negative impacts on the natural environment and research areas, we should control the negative impacts of tourism or reduce these impacts for appropriate tourism development.

The research area has potential for tourism development due to abundance of natural and historical resources for tourism. We must find a way that conservation of the natural environment, protection of tourist sites and development of tourism develop in parallel. So that socio-economic development and security of resources can be possible.

Measures to prevent negative impacts should be taken by the government and private sector as well as all those who are directly or indirectly engaged in the tourism industry. Even tourists visiting research areas must be responsible during their visit. Maintaining the quality of available resources and controlling pollution.

Everyone should make efforts so that the objectives of sustainable tourism development can be achieved.

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