

<https://doi.org/10.48047/AFJBS.6.15.2024.13711-13731>



African Journal of Biological Sciences

Journal homepage: <http://www.afjbs.com>



Research Paper

Open Access

CRITICAL ANALYSIS ON IMPACT OF TOURISM ON ENVIRONMENT: WITH SPECIAL REFERENCE TO SUNDARBAN AND DIGHA OF WEST BENGAL

Kritiman Biswas, Dr. R. N. Yadav

Department of Environmental Science, Mansarovar Global University, Sehore, M.P., India.

Volume 6, Issue 15, Oct 2024

Received: 15 Aug 2024

Accepted: 25 Sep 2024

Published: 21 Oct 2024

doi: [10.48047/AFJBS.6.15.2024.13711-13731](https://doi.org/10.48047/AFJBS.6.15.2024.13711-13731)

ABSTRACT:

Tourism is subject to climate change and emits greenhouse gases (GHG). Accelerating climate action in tourism is crucial for industry resilience. Climate action involves measuring and reducing GHG emissions and improving climate adaptation. One of the biggest detrimental effects of tourism is environmental deterioration. Tourism hotspots, especially in ecologically vulnerable places, often lose habitat to infrastructural expansion. Hotels, resorts, highways, and other tourism amenities can deforest, modify land, deplete natural resources, and damage ecosystems. Resorts have replaced picturesque beaches in Bali, harming marine life and eroding the shoreline. This paper reflects critical analysis on impact of tourism on environment in Digha and Sundarban of West Bengal.

KEYWORDS: Tourism, Population, Tourists, Sundarban , Digha, Chromium, Detoxification, Environment.

I INTRODUCTION:

The fourth most populated state in India is West Bengal, which is situated in the eastern region of the country. It shares borders with three countries: Bhutan, Nepal, and Bangladesh. The estimated population is approximately 10.42 Crores, and it occupies an area of 88,752 sq. km. A number of tourist circuits, including 23 mega circuits, have been designated by the West Bengal government. Dooars, Digha, and others are mega circuits in this state. These mega circuits have received funding from the state for infrastructural initiatives.

Popular beach resort town Digha in West Bengal, India, has seen numerous detrimental environmental repercussions due to tourism, such as:

- Sand digging: The landscape is being eroded every day as sand is excavated.
- Pollution from plastics: Travelers often abandon empty water bottles, snacks, and other single-use plastics.

- Damage to embankments: Cyclones can wreak havoc on coastal embankments.
- Species extinction due to habitat degradation caused by human-caused infrastructure development such as resorts and highways.

Wild flora and fauna of the Sundarbans environment are most threatened by uncontrolled and careless tourists, despite the fact that tourism is greatly valued. There is no other kind of employment available to the locals except farming and fishing. Threats to tiger conservation, rising water salinity, and embankment erosion are just a few of the many issues plaguing the region, making an area-specific strategy and regional plan urgently necessary

The Sundarbans delta is well-known for being home to a wide variety of unique plant and animal species, and for being the biggest mangrove forest reserve on the planet. It provides a means of subsistence for a number of nearby populations. The local flora, honey, and fish caught in the area's many waterways are all highly sought-after commodities. The locals have strong ties to the land, air, water, animals, and flora of the region, all of which have contributed to their heritage and way of life.

The overall objective of the study is to analyse the impact of tourism on the existing environment of Sundarban and Digha circuit of West Bengal state.

Specifically, the study aims to:

- To study the demography (local people) of the area and their interaction with tourists.
- To study the dominant flora and fauna of the study areas.
- To find out the ways and methods whether tourism may be on sustainable basis in West Bengal.

II REVIEW OF LITERATURE:

Lane, B. et al. (2022). Rural tourism started to gain popularity around the world in the late 1970s and early 1980s. Initially, it was considered by many commentators to be a pretty inconsequential pastime that might soon become extinct. But it has turned out to be crucial to the growth of tourism as a whole, paving the way for the invention of completely new types of travel based on quickly expanding niche markets. It has also played a key part in the development of sustainable tourism and is now essential to regional regeneration programmes

in many nations and circumstances. The history of rural tourism is explained in this introduction. Additionally, it analyses the papers included in this special issue. It anticipates potential scenarios for rural tourism in the early decades of the twenty-first century.

Firdaus, F. et al. (2021). The government plays a key role in the development of the tourism industry and that tourism has made a substantial contribution to economic growth. The purpose of this article is to discuss the function of local governments in the growth of rural tourism. The study used a case study in Pujonkidul, an Indonesian tourist town that is rapidly expanding and changing into a rural tourism attraction. A series of in-depth interviews with village administrations and other key players in the development of rural tourism were used to gather the research data. While gathering data in the community, observations and document analysis also took place. The findings of the study indicate that the local government is capable of performing all governmental tasks related to the development of tourism (coordination, planning, regulation and legislation, entrepreneurship, stimulus and promotion, social tourism role and boarder role of interest protection). The fundamental conclusion of this study is that institutional development is a new role for government in the growth of tourism. As a result, the authors contend that the village government can efficiently and locally manage the development of rural tourism through the use of its powers. This study's findings can be applied and expanded in other villages as they work to establish their rural tourism industries. The discussion of villager involvement in the development of rural tourism, which is the fundamental form of rural development difficulties, has been disregarded by this study's limitations. Future study should focus on this restriction.

Roy, M. (2020). Coastal tourism has boosted economic growth and is always a desirable travel destination. However, because of an imbalance between tourist and natural environmental efforts, coastal areas are now vulnerable to deterioration. The only way to address the issue is to develop ecotourism methods that are sustainable. The most important step in attaining sustainability is raising public awareness of the negative effects of uncontrolled mass tourism activities in the area. This study investigates the effects of unplanned tourism on the ecosystem in Digba, a well-known coastal tourist attraction in West Bengal, India. To examine the many impacts of tourism, a SWOT analysis is conducted. In order to improve tourism in Digba, the study assesses the pressures of mass tourism currently in place as well as strategies for implementing sustainable ecotourism practices.

Ghosh, A et al. (2020). The tourism is a path-breaking opportunity for communities all over the globe to generate a living. Tourism has contributed to economic and social welfare by uplifting inter-community relations, increasing employment opportunity and increasing income. On the other hand, it has also increased the price of essential goods and increased pollution world-wide. This paper aims at evaluating the impact of tourism development on the local community and evaluate the difference between the impact and gender perception of the impact. Convenience and snowballing sampling technique has been used for data collection from 100 locals' population residing near Sundarbans Tiger Reserve, West Bengal, India. Descriptive statistics analysis is used to measure the tourism development impacts on the local community. In addition, One-Way MANOVA is used to evaluate the difference between the impact and gender perception of the impact. The finding shows that there is a positive impact of tourism development on job opportunities, infrastructural development, increased income, environment cost, and education development. The finding also depicts that males and females have a statistically significant in all factors except increased income and increased price level.

Anokhin, A. & Kropinova, E. (2020). Due to their ecological and socioeconomic vulnerability, rural areas need special care. The primary tool to ensure a synergistic effect for the development of rural areas can be tourism activities that adhere to the principles and objectives of sustainable development. The study was conducted in the Kaliningrad region of the Russian Federation's Curonian Lagoon, which is a prospective location for rural tourism. These locations' issues and chances for sustainable development are evaluated.

Costa, T. et al. (2020). Tourism exhibits a substantial shift. Consequently, understanding residents' perceptions of its consequences can lead to more effective public policies, plans, decisions, and actions that align with residents' expectations, thereby incorporating these stakeholders and enhancing their engagement in tourist development. This research is currently ongoing. The primary aim is to ascertain the perceptions of Lisbon region locals concerning the effects of tourism. We employed a quantitative methodology to analyze respondents' impressions, utilizing descriptive statistical techniques and non-parametric tests. The findings of this research demonstrate that residents have a favourable disposition toward economic, cultural, social, and environmental impacts. The research also indicates variations in attitudes based on age, gender, and professional occupation.

III RESEARCH METHODOLOGY:

The study is a “Descriptive & Analytical” and is based on “primary and secondary data” collection.

Data has been collected both from primary & secondary sources for investigating the objectives framed for the present study. The secondary sources of data have been collected from the Books, Journals, Annual Reports, Publications, and Manuals and other relevant documents.

Study Areas: Digha and Sundarban of West Bengal

Method of Sampling: Convenience and Judgement Sampling

Target Population: Respondents from local communities in Digha and Sundarban.

Sample Size: 300

Method and Tools & Techniques of Data Collection:

The method includes Survey for collecting primary data.

Collected Data from the respondents were used for analysis and different statistical tools have been applied for data analysis.

IV FLORA AND FAUNA IN SUNDARBAN AND DIGHA:

Flora in Sundarban

The dominant flora of Sundarban is the mangrove. Altogether thirty true mangrove species, thirty mangrove associated plant species (back mangal) and thirty non-mangrove halophytic plant species have so far been identified from Sundarban. There are altogether fifty species of phytoplankton constituted by forty species of diatoms, eight species of dianoflagellates and one species of chlorophyceae and cyanophyceae. Sixteen types of zooplankton have so far recorded from Sundarban. About eighty species of algae adapted to salinity value from 15 to 35 ppt have been recorded from Sundarban. A succession of plant growth depending on the relative height of the land and consequent time of inundation by tidal water could be seen. In the lower intertidal mud flats, the halophytic grass is the pioneer species that rapidly colonises the newly silted up substrate. Floating seeds and seedlings of mangrove plants are arrested in this grass land and are anchored and germinate there. These seedling plants ultimately develop into dense mangrove forests of *Avicennia*, *Sonneratia*, *Rhizophora*,

Ceriops and Bruguiera on these intertidal landforms. Ceriops, Phoenix, Xylocarpeus and Nypa grow on the upper intertidal levels to form ridge forests.

Fauna in Sundarban

The biodiversity is represented by the taxonomic groups. Over 40 mammal species, over 270 bird species, over 45 reptile species, at least 11 amphibian species, over 120 fish species, an unknown number of invertebrates, more than 330 plant species. The Sundarban tiger population is supposed to be the largest surviving tiger population in the world. Estimated number of tigers in the Sundarban is 274 as per 2006 census. The estimates for the deer in this area are 50-80,000, for wild boar 20,000, smooth Indian otter (*Lutra perspicillata*) 20,000 and rhesus monkey (*Macaca mulatta*) 40,000 to 70,000.

The colourful bird life along the waterways includes species such as kingfishers (9 species), raptors (38 species), herons, egrets, storks, sandpipers, whimbrel, curlew, gulls, terns, woodpeckers, barbets, shrikes, drongosa, mynahs, minivets, babblers and many others. Lucky birders may catch a glimpse of masket finfoot (*Heliopais personata*).

Flora in Digha Region:

The Digha-Sankarpur area's small estuaries are home to coastal plants of particular significance. Avicennia has begun to regenerate in the Talseri area next to Digha as a result of the Subarnarekha estuary's eastern extension. Mangal diversity may be found in a similar mini-estuary at Jatra Nala, including the back mangal's *Clerodendron inerme* and the extremely valuable medicinal mangrove *Acanthus illicifolius* thickets, which are rich in morphine. The Digha Mohona, located further east, was formerly a mangrove refuge but is now a sizable aquaculture area. *Avicennia marina*, *A. alba*, *Excoecaria agallocha*, *Clerodendron inerme*, and *Acanthus illicifolius* are still prevalent mangrove species. *Salicornia brachiata*, *Heliotropium currasivicum*, and Sweda marine salt marshes are encountered. Jalda Creek, a smaller estuary to the east, is dominated by salt marshes and sedges (*Fimbristylis* and *Cyperus* species).

Fauna in Digha Region:

According to the zoological classification of the district Purba Medinipur's diverse fauna, there are roughly 68 species of arthropods, including 12 different kinds of crabs, 13 different

kinds of prawns, and 21 different kinds of shrimp that live close to the coast. Fish scientists and fishermen have so far identified 51 different species of fish. There are 17 species of zooplankton, which include small crustaceans called Copepoda, predatory marine worms called Chaetognatha, microscopic and nearmicroscopic pseudo-coelomate animals called Rotifera, and larvae of blue shrimp (meen); 22 species of polychaete, which are a paraphyletic class of annelid marine worms; and 12 species of Actinaria, which are water-dwelling, predatory animals known as Sea Anemones. The coastal islands of Talsari, Sankarpur, Junput, and Nayachar are home to sea cucumbers (Holothuroidea), sea pen (Cnidaria), and lingula (Brachyopoda). According to census data from 2011, there are currently over 48 different kinds of Mollusca found along the Purba Medinipur district's coastline.

Digha-Sankarpur area under Ramnagar Block-I in the western coastal stretch contributes a rich fishery from middle August to middle February of the year. Among fin fish species there are:

Tenulosa ilisa, *Pama pama*, *Setipinna* spp., *Trichiurus* spp., *Harpodon nehereus*, *Coilia* spp., *Ilisha elonhata*, *Sciaenidae*, *Polynemus indicus*, *Chirocentrus dorsal*, Prawns – (*Penaeus monodon*, *Acetes* spp., *Macrobrachium rosenbergii*), *Tachydurus jella*, *Stromateus cinereus*, *Polynemus paradiseus*, *Coilia* spp., etc.

The speciality of Digha-Sankarpur coast is the occurrence of two endangered species viz *Lepidochelys olivacea* the marine turtle and the *Carcinoscorpius rotundicauda* the valuable medicinal invertebrate the “Horse shoes”.

V STATISTICAL ANALYSIS:

Data was coded and handled in a systematic manner and SPSS, Version 26 was applied to analyse the data and accordingly graphs were made to compile the survey information.

Quantitative Research: The collected data were analyzed by statistical methods. For analyzing data through quantitative research, descriptive statistics have been applied as a statistical technique.

Procedure :

The questionnaires were administered among respondents of Digha and Sundarban Region.

The initial phase of any research endeavor is data collection, which provides the raw information necessary to analyse the data.

This part of the paper reflects opinion of the respondents those who are residing in Digha and Sundarban areas.

1 Gender:

Gender as a demographic characteristic, has been the subject of a great deal of research. Compared to females, males demonstrate a lower perception of risk in commercial activities. Men are more likely than women to have a favourable opinion of commercial activities, and this opinion may be closely related to financial involvement. Graph 1 and Table 1 illustrate the proportions of male and female participants in the study's sample, respectively.

Table 1 : Gender of the Respondents

Gender	Numbers of Respondents	Percentage of Respondents (%)
Male	200	67
Female	100	33
Total	300	100

Source : Primary Data , Survey

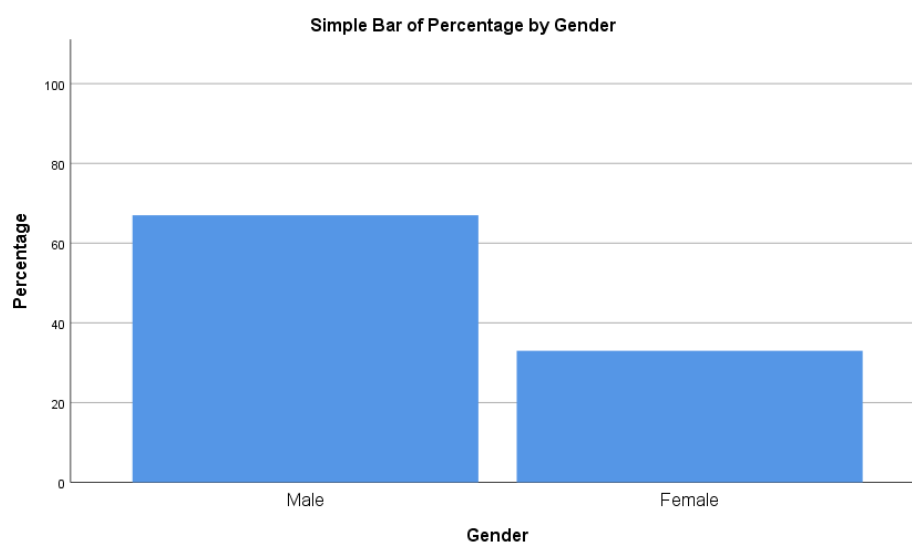


Figure 1 : Gender of the Respondents

It is evident from table 1 and figure 1 that

1. Out of 300 respondents, 200 males and 100 females served as samples in this study. They fall 67% and 33%, respectively. The majority respondents are male.

2. Male respondents are higher as compared to female.

Thus table 1 and figure 1 reflects that the majority are male (i.e. 67 percent).

2 Age Group :

The age distribution of the respondents is illustrated in Table 2 and Figure 2

Table 2 : Age Group

Age Group	Numbers of Respondents	Percentage of Respondents (%)
21-30	45	15
31-40	50	17
41-50	65	22
51-60	88	29
61 and above	52	17
Total	300	100

Source : Primary Data , Survey

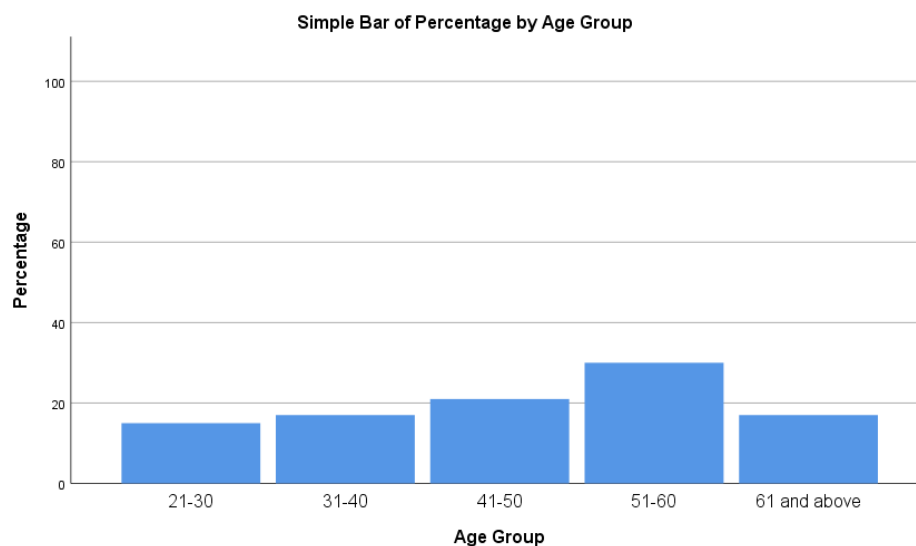


Figure 2 : Age Group

Age range of the participants was divided into five groups: individuals aged 21-30 , 31-40, 41-50, 51-60, and 61 years and above.

It is evident from the table 2 and figure 2 that the most of the respondents belong to age group 41 to 60 Years

3. Area wise division of Respondents:

Table 3 : Area wise division

Area wise division	Numbers of Respondents	Percentage of Respondents(%)
Digha	150	50
Sundarban	150	50
Total	300	100

Source : Primary Data , Survey

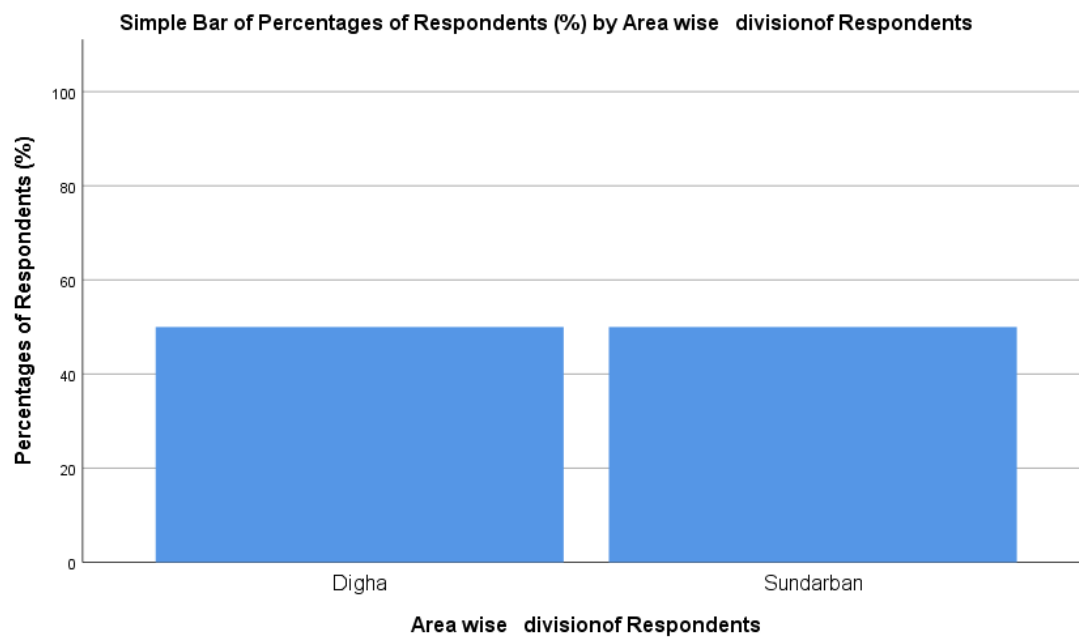


Figure 3 : Area wise division

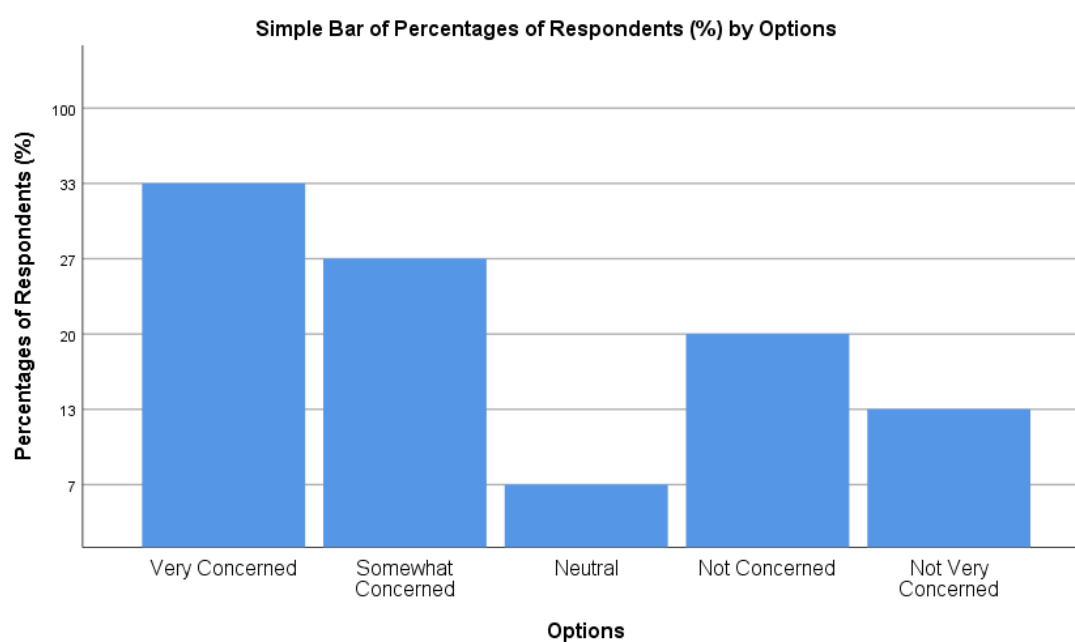
From the table 3 and figure 3 , it is clear that 50% of the respondents belong to Digha and 50% of the total respondents belong to Sundarban areas.

4. Issue Regarding Sustainable Tourism

Table 4 : Sustainable tourism

Options	Numbers of Respondents	Percentages of Respondents (%)
Very Concerned	100	33
Somewhat Concerned	80	27
Neutral	20	7
Not Concerned	60	20
Not Very Concerned	40	13
Total	300	100

Source : Primary Data , Survey

**Figure 4 : Sustainable tourism**

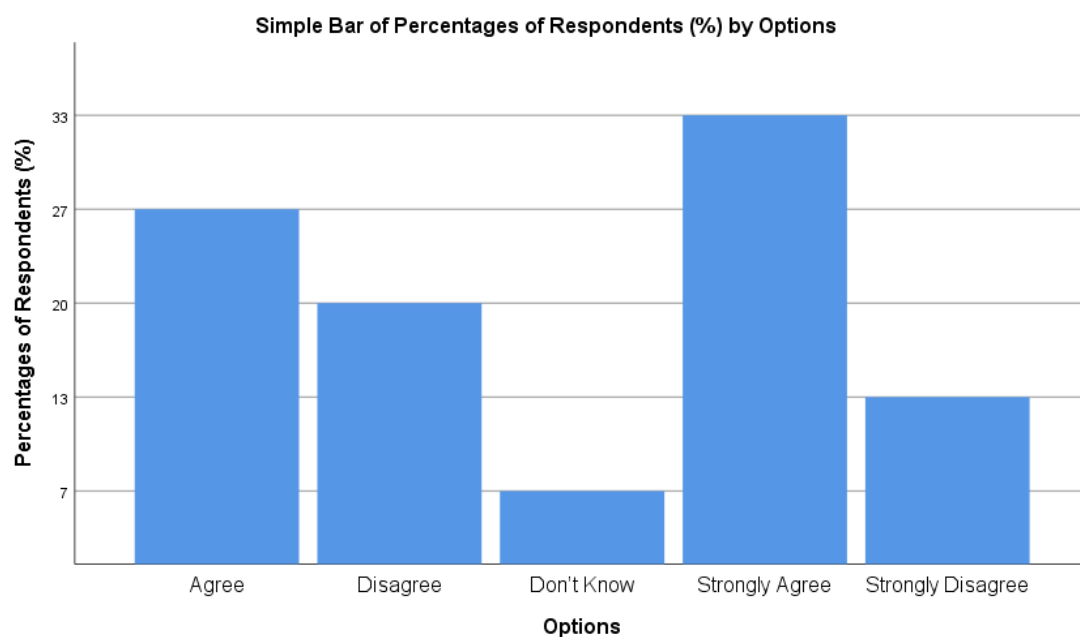
From the table 4 and figure 4, it is clear that 60% of the total respondents are concerned about the term “Sustainable tourism”.

5. Issue Regarding compatibility of natural resource protection and tourism

Table 5 : Compatibility of natural resource protection and tourism

Options	Numbers of Respondents	Percentages of Respondents (%)
Strongly Agree	100	33
Agree	80	27
Don't Know	20	7
Disagree	60	20
Strongly Disagree	40	13
Total	300	100

Source : Primary Data , Survey



Graph 5 : Compatibility of natural resource protection and tourism

From the table 5 and Graph 5, it is clear that 60% of the total respondents are agree regarding the issue of natural resource protection and tourism. 33% of the total respondents are disagree about this issue.

6. Issue Regarding compatibility of protection of local heritage and tourism

Table 6 : Compatibility of natural resource protection and tourism

Options	Numbers of Respondents	Percentages of Respondents (%)
Strongly Agree	100	33
Agree	80	27
Don't Know	20	7
Disagree	60	20
Strongly Disagree	40	13
Total	300	100

Source : Primary Data , Survey

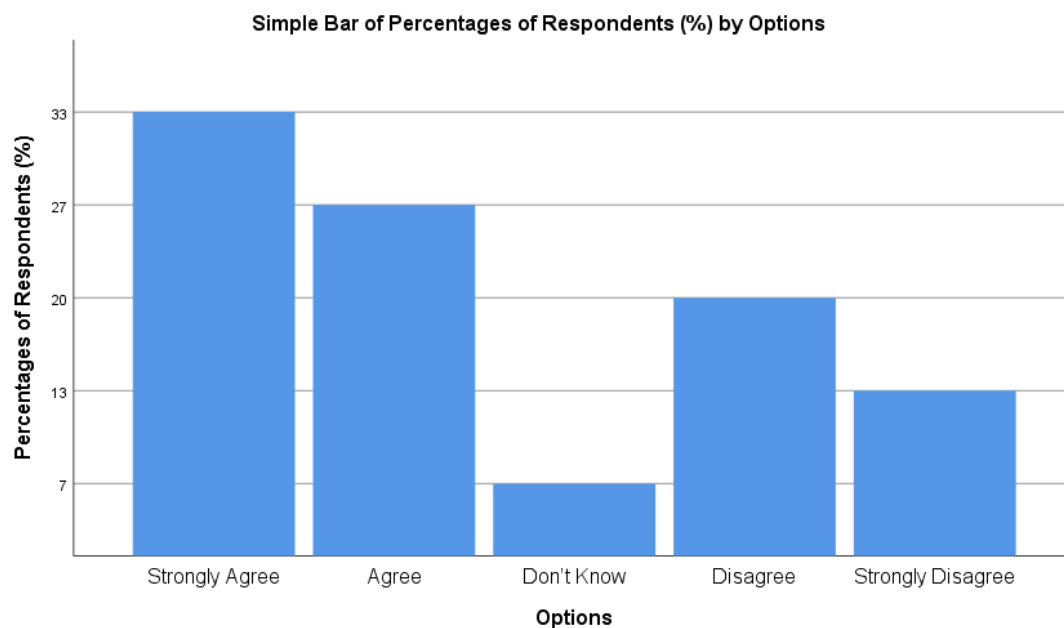


Figure 6 : Compatibility of natural resource protection and tourism

From the table 6 and Graph 6, it is evident that 60% of the total respondents are agree regarding the issue of compatibility of protection of local heritage and tourism. 33% of the total respondents are disagree about this issue.

7. Types of Sustainable Tourism products you prefer

Table 7 : Types of Sustainable Product

Options	Numbers of Respondents	Percentages of Respondents (%)
Eco friendly accommodation	50	17
Nature Conservation activities	90	30
Cultural heritage experiences	30	10
Community based tourism activities	90	30
Sustainable transportation option	40	13
Total	300	100

Source : Primary Data , Survey

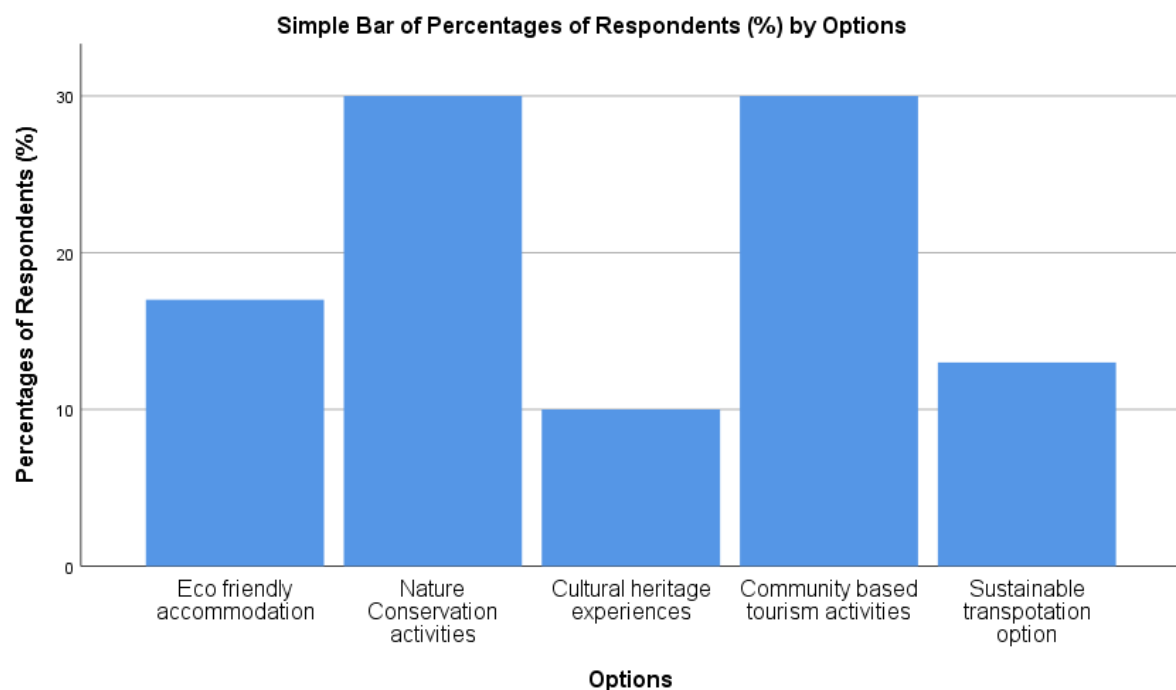


Figure 7 : Types of Sustainable Product

From the table 7 and Figure 7, it is evident that respondents prefer Eco friendly accommodation, Nature Conservation activities, Cultural heritage experiences, Community

based tourism activities and sustainable transportation options, which are the part of sustainable tourism products.

8.Ways tourism can be truly sustainable

Table 8 : Ways tourism can be truly sustainable

Options	Numbers of Respondents	Percentages of Respondents (%)
Fostering environmental conservation	50	17
Supporting local economies	20	7
Preserving cultural heritage	40	13
Educating visitors on sustainability	40	13
Ensuring fair employment practices	25	8
use of environmental resources	45	15
All of the above	80	27
Total	300	100

Source : Primary Data , Survey

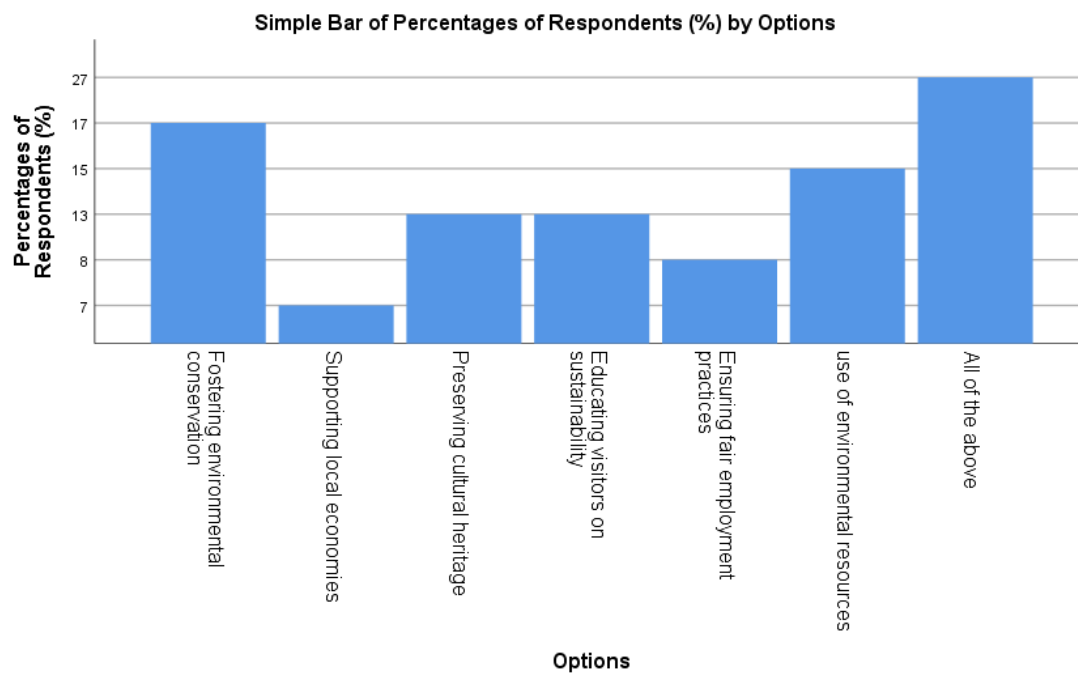


Figure 8 : Ways tourism can be truly sustainable

As per the table 8 and figure 8, it is evident that respondents believe that the fostering

environmental conservation, supporting local economies, preserving cultural heritage, educating visitors on sustainability, ensuring fair employment practices and use of environmental resources are the ways a tourism product can be truly sustainable.

9. Importance of Environmental Practices for achieving sustainable tourism

Table 9 : Importance of Environmental Practices for achieving sustainable tourism

Options	Numbers of Respondents	Percentages of Respondents (%)
Honoring the destination's natural resources	50	17
Application of transportation that reduces its environmental impact	45	15
Preserving the destination's historical and archaeological landmarks	90	30
Reducing the amount of waste produced	30	10
Choosing eco-friendly lodging	40	13
Asking tour operators for written codes of conduct to guarantee protection of the environment in the destination	45	15
Total	300	100

Source : Primary Data , Survey

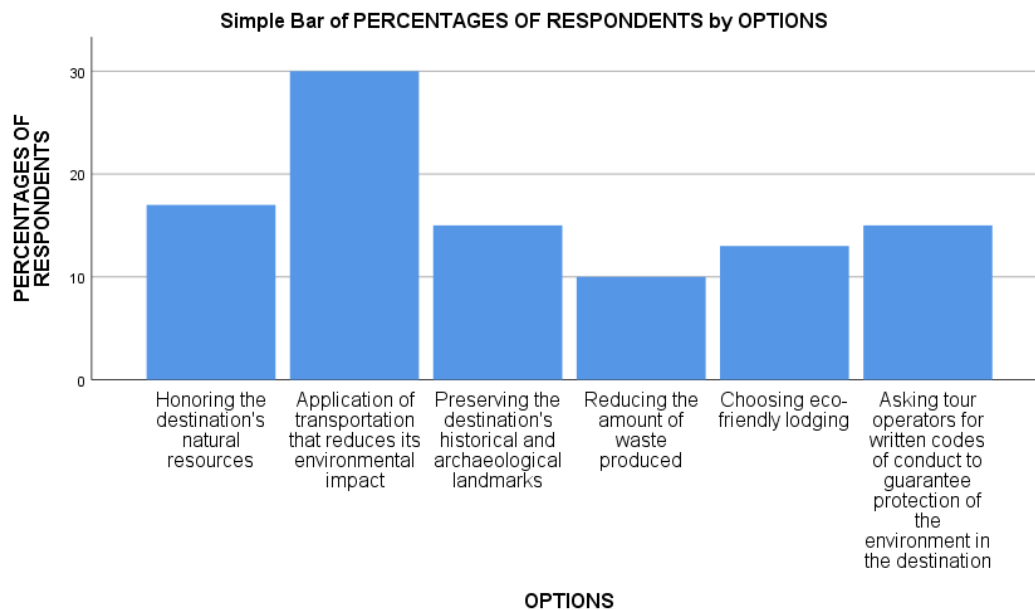


Figure 9 : Importance of Environmental Practices for achieving sustainable tourism

As per the above table 9 and figure 9, it is evident that respondents believe that honoring the destination's “natural resources”(tourist area), application of transportation that reduces its environmental impact, preserving the destination's historical and archaeological landmarks, reducing the amount of waste produced , choosing eco-friendly lodging and asking tour operators for written codes of conduct to guarantee protection of the environment in the destination are the significant environmental practices required for achieving sustainable tourism.

VI FINDINGS OF RESEARCH:

- 50% of the respondents belong to Digha and 50% of the total respondents belong to Sundarban.
- 22% of the total respondents are students, 14% of the total respondents are teachers, 22% of the total respondents are businessmen, 3% of the total respondents are engineers, 39% of the total respondents belong to others category.
- 60% of the total respondents are concerned about the term “Sustainable tourism”
- 60% of the total respondents agree regarding the issue of natural resource protection and tourism. 33% of the total respondents do not agree about this issue.

- 60% of the total respondents agree regarding the issue of compatibility of protection of local heritage and tourism. 33% of the total respondents are not agree about this issue.
- 60% of the total respondents agree regarding the issue of benefit of Community regarding developing a sustainable tourism framework and 33% of the total respondents do not agree with this issue.
- 63% of the total respondents agree regarding the issue of the importance of sustainable tourism in and around your area, and 40% of the total respondents do not agree with this issue.
- 17% of the total respondents believe that Eco friendly accommodation reflects Sustainable Tourism , 30% of the total respondents believe that Nature Conservation activities reflects Sustainable Tourism , 10% of the total respondents believe that Cultural heritage reflects Sustainable Tourism , 30% of the total respondents believe that Community based tourism activities represents Sustainable Tourism , 13% of the total respondents believe that Sustainable tourism option represents Sustainable Tourism.
- 17% of the total respondents believe that Environmental benefit is one of the factor behind choosing Sustainable Tourism , 30% of the total respondents believe that Supporting local communities is one of the factor behind choosing Sustainable Tourism , 30% of the total respondents believe that Preserving local culture is one of the factor behind choosing Sustainable Tourism , 10% of the total respondents believe that Lower ecological footprint is one of the factor behind choosing Sustainable Tourism , 13% of the total respondents believe that Personal fulfillment is one of the factor behind choosing Sustainable Tourism.
- Respondents prefer Eco friendly accommodation, Nature Conservation activities, Cultural heritage experiences, Community based tourism activities and sustainable transportation options, which are the part of sustainable tourism products.
- It is evident that respondents believe that fostering environmental conservation, supporting local economies, preserving cultural heritage, educating visitors on sustainability, ensuring fair employment practices and use of environmental resources are the ways a tourism product can be truly sustainable.

VII CONCLUSIONS:

- In the world at large and in India specifically, the tourism sector is expanding extremely quickly. In the areas where tourists begin and show up, it has resulted in the construction of several facilities. Numerous activities that pertain to the needs of tourists are covered. During their travels, travellers have a lot of interaction with the locals and the land in the region they are visiting.
- The effects of tourism on the environment and the communities where it occurs have come to light more and more during the past 20 years. There was little concern for the detrimental effects that tourism was having on the local environment and the lives of the local population of the Digha and Sundarban.
- Tourism have generated income for businesses and creates a wide range of employment scope in Digha and Sundarban areas.
- As well as generating employment and income, another positive impact of tourism in Sundarban & Digha are improvements in infrastructural facilities, which include road and rail improvements, and improvements in utilities, such as water supply and telecommunications.
- When visiting the Sundarbans and Digha, tourists are more respectful of the local lifestyle and way of life. Local communities have improved their social standing and skill sets as a result of increased tourism. Locals are encouraged to pursue education and training in well-managed tourism initiatives so they can feel involved in the growth of these places. Tourism has contributed for better Environmental planning and Management in Digha & Sundarban areas.
- Tourism also has some negative impacts in Digha & Sundarbans for loss of flora and fauna at the destination.
- Tourism has raised the awareness with regard to environmental protection in Digha and Sundarban areas.
- In ecotourism, the beauty of nature and landscape as well as the diversity of flora and fauna are the main attractions for tourist visits in Digha & Sundarbans. They also contribute largely for maintaining Sustainable tourism.
- The flora and fauna contribute to the economy of the Digha & Sundarbans through tourism. They attract many tourists.

- Though large volume of tourist visits Digha & Sundarbans, it is very challenging for the growth of sustainable tourism in study areas.
- Tourism has helped in creating environmentally sustainable jobs.
- Local people are aware about sustainable tourism.
- Communities of Digha & Sundarbans are benefited from developing sustainable tourism.
- Eco-friendly accommodation, Eco-tours, supporting local communities' Responsible wildlife viewing, Sustainable transportation all are reflected in study areas which are the part of Eco-Tourism.
- When visitor usage exceeds the environment's capacity to accommodate this use within allowable change limitations, tourism has a negative impact. Many natural regions worldwide could be threatened by unregulated conventional tourism. Soil erosion, increased pollution, discharges into the sea, loss of natural habitat, greater pressure on endangered species, and increased susceptibility to forest fires are just a few of the effects that can result from such a massive strain on a region. Water supplies are frequently strained, and local people may be forced to compete for access to vital resources. Tourism development can put pressure on natural resources when it increases consumption in areas where resources are already scarce.

REFERENCES:

- Lane, B., Kastenholz, E., Carneiro, M.J. (2022). Rural Tourism and Sustainability: A Special Issue, Review and Update for the Opening Years of the Twenty-First Century. *Sustainability*, 14, 6070.
- Firdaus, F. et al. (2021). The Role of Local Government on Rural Tourism Development: Case Study of Desa Wisata Pujonkidul, Indonesia. *International Journal of Sustainable Development and Planning*, 16(7), 1299-1307.
- Roy, M. (2020). Coastal Tourism and Environment Issues of Concern and Sustainability: A Case Study in Digha, West Bengal, India. *Journal of Water Pollution & Purification Research*, 7(3), 6-12.
- Anokhin, A. & Kropinova, E. (2020). Principles of sustainable development for rural tourism synergy. *E3S Web of Conferences*. 208, 05017.

Costa, T. et al. (2020). Impacts of Tourism and Residents' Perceptions: A Study in the Regional Tourism Area of Lisbon. *European Journal of Tourism, Hospitality and Recreation*, 10(1), 28-40.

http://www.dmm.gov.in/pdfs/DSR/DSR_of_Purba_Medinipur.pdf

<https://tourism.gov.in/sites/default/files/2022-07/Annual%20Report%202021-22%20%28English%29.pdf>

<https://www.wbtourism.gov.in/>

https://www.bengalglobalsummit.com/pdf/Harnessing_the_Tourism_Potential_of_Bengal.pdf

<https://www.indiastat.com/west-bengal-state/data/tourism/domestic-tourists>

https://sundarbantigerreserve.org/web/pdf/an_report/2021_22_annual_report.pdf

<https://www.wbseps.com/reportpdf/Annual-Administrative-Report-2021-2022.pdf>