

Investigating local community's perception on tourism development in protected areas: A study on Sunderbans Tiger Reserve, India

Ananya Ghosh¹, Pankaj Kumar Tyagi² and Pawan Gupta³

^{1,2}*Amity Institute of Travel and Tourism, Amity University, Uttar Pradesh*

³*Indian Institute of Tourism and Travel Management, Noida, Uttar Pradesh, India*

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ABSTRACT

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 Sunderbans 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.

Key words : Impact of tourism, Tourism development, Local community, Sunderbans Tiger Reserve

Introduction

Tourism industry is multidisciplinary in nature: it is connected with psychology, sociology, economics, and many more. Tourism is defined as movement to a place outside persons typical setting and staying there more than 24 hours but less than one year for the purpose of leisure, business, etc. excluding the purpose of earning (World Tourism Organization (WTO), 2000). It is one of the fast-growing industries (Ali and Chowdhury, 2008) and making a contribution to economic development for developing as well as developed countries (Baker, 2013). It in-

creases income and employment sources. It provides an opportunity for the local community to engage in development (Beeton, 2006). Tourism has brought many socio-economic benefits to India (Iasija, 2020). Among many tourism forms, tourists are preferring to visit protected areas, to enjoy mother nature in its raw form and it is a great way to skip their hectic life. A protected area is defined as a geographical space which is been identified and managed in order to achieve conservation of nature and provide eco-services in the long term (International Union for Conservation of Nature, 2008). This has benefited the local community the most among

(¹Research Scholar, ²Assistant Professor, ³Associate Professor)

all the stakeholders.

Impacts of Tourism Development

Tourism donates to the economic development of any country; it has become a key to uplift rural areas specifically in developing countries (Reid, 2003). Tourism is an aid to progress their economy for developing countries as products can be created locally (Hasan and Siddique, 2016). Tourism is a vital instrument to improve the economy for even underdeveloped countries (Naylon, 1967). Tourism reduces poverty and boosts economic development, and job creation (Mahony and Zyl, 2002). Communities in rural regions have opted for tourism, to differentiate the economic aspect (Briedenhann and Wickens, 2004). The industry doesn't have only a positive effect, there is some negative affect also. It can damage the culture, society, and ecology of the destination (Sharpley, 2002). It effects majorly on rural rather than urban tourism (Lane, 1994).

Studies are conducted to evaluate the perception of the local community towards the environmental and economic impact of tourism (Aref *et al.*, 2009) and the result of the study concludes a positive perception (Mohammadi *et al.*, 2010). The positive and negative attitude of the local community was recorded towards the impact of tourism development (Eraqi, 2007). A similar study was carried out on the Bangladesh economy focusing on a tourist (Hasan *et al.*, 2013). The major gap in the above studies is that they ignore the impact of tourism development on the local community. Few researches are conducted which not only study the perception as well as evaluate the impact of tourism development on the local community (Hasan & Siddique, 2016).

The theme of this study is to evaluate the impact of tourism development on the local community and identify the difference between the gender perception of the impact on Sunderbans Tiger Reserve, West Bengal, India. The finding will be developed as the means to maximize the impact of tourism development on the local community of Sunderbans Tiger Reserve. The next section presents an overview and layout of the study model. A brief of research methodology is mentioned which is followed by obtaining results and discussions. Final remarks, recommendations, and the scope of future research are stated in the end.

Conceptual Framework

With the help of the literature review, a conceptual

framework is designed to demonstrate the impact of tourism development on various dimensions: Increased Price level, Environment Cost, Cultural Development, Job Opportunity, Increased Income, Infrastructure Development, and Education Development. A seesaw diagram is used to demonstrate the pros and cons of an impact as it is commonly used in the field of management (Sketch Bubble, 2020).

The model is divided into two parts: Rewards and Risks. The reward section focuses on the positive impacts, whereas the risk section focuses on the negative impacts of tourism development on the local community. The plank balancing the impacts has a crucial role in the model, it depicts the severity of the impact. The extreme end of the risk section denotes -1, the extreme end of the reward section denotes 1, and the neutral zone in the middle denotes 0. There are 4 categories under reward section, namely "Job Opportunity", "Infrastructure Development", "Increased Income", and "Education Development". There are 2 categories under risk section, namely "Increased Price Level", and "Environmental Cost". Only 1 category, namely "Cultural Development" is under neutral zone which means it has both positive and negative impacts due to tourism development.

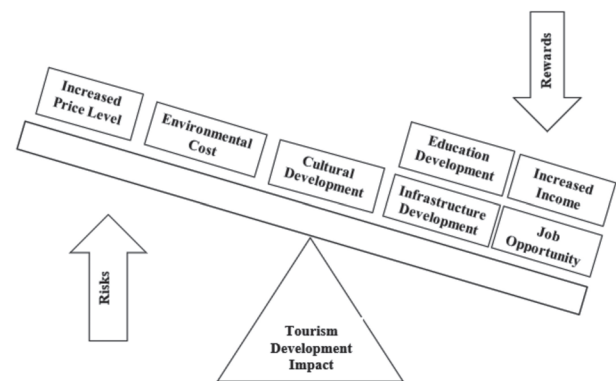


Fig. 2. Conceptual Framework for Impact Model of Tourism Development

Source: Author's Own

Increased Price level: Tourism development increases the price levels in the economy (Tkalec and Vizek, 2016). Tourism sometimes inflates the cost of housing and retail prices in the area which can happen frequently on a seasonal basis (Ardahaey, 2011).

Environmental Cost: Tourism puts massive stress on the local land use which leads to soil erosion, loss

of natural habitat, and increased pollution (The World Counts, 2020). Traffic and Noise pollution, Littering, and sewage pollution has increased due to tourism (Sunlu, 2003).

Cultural Development: Tourism leads to a regeneration of awareness and pride in one's traditions and cultures (Shodhganga, 2020). It also increases gambling, prostitution and organized crime in the area, which results in the erosion of the value system of the indigenes (Holloway, 1985).

Job Opportunity: Tourism provides 11 % of jobs globally (Rifai, 2020). This industry generates job opportunities in both host countries as well as tourists' home countries and has at least created 277 million jobs (Staniūtė, 2020). Tourism has boosted employment prospects all around the globe (Rastogi, 2019). It is able to create more jobs through employment multiplier (Shodhganga, 2020).

Increased Income: Contribution by the tourism industry has enabled every man, woman, and child to become richer (World Travel & Tourism Council, 2005). The industry is often plagued with low wages, in many areas it is the only source of employment for the local population (Shodhganga, 2020).

Infrastructure Development: Tourism acts as a catalyst to the development process by opening up new avenues and rapid expansion in business which will lead to yet more investment in the region (Shodhganga, 2020). These investments improve/ uplifts the condition of the region by better road connectivity, more medical facilities, and so on.

Education Development: Tourism has the potential to advance education and to enhance human capital amongst local populations as it is a vehicle to enhance children and youth awareness about the natural environment within which they live (Novelli and Jones, 2020). The industry can provide incentives to invest in education (UNWTO, 2015).

The model depicts that the reward section is near the surface which means it is heavy than the risk section which implies that the positive impacts of tourism development on the local community outweigh negative impacts.

Materials and Methods

Study Area

West Bengal is an emerging tourism destination (West Bengal Tourism, 2018) which is rich in flora, fauna, culture, historical monuments, beaches, and

mountains (Jana and Tarafder, 2012) which makes it a point of interest for tourists all around the globe. The forest cover 15.32 % of the total geographical area of the state (West Bengal Tourism Ministry of Tourism, Government of India, 2019). Wildlife is one of the most prized possession sources of tourism for West Bengal. The Sunderbans delta is spread over India and Bangladesh. It is a delta of the two great Indian Rivers: The Ganga and The Brahmaputra (World Wide Fund for Nature (WWF), 2019). It was named after the Sundari trees which are found in bulk there (Indian Wildlife Resort, 2019). It is UNESCO World Heritage Site & Biosphere Reserve and also listed on the UNESCO World Network of Biosphere Reserves (Beautiful Bengal, 2019). Sunderbans was established as a tiger reserve in 1973 and is home to 140 plant species and some of the rare animal species in the world (National Tiger Conservation Authority / Project Tiger, 2012-2013 to 2016-2017).

Data Collection

This research paper relied on the findings of data collected from the locals residing in Sajnekhali and Gosaba islands of Sunderbans Tiger Reserve in January 2020. The researcher chooses only two islands as they have the maximum number of tourist accommodation and permit offices. Respondents were selected using convenient and snowballing techniques. The purpose and a brief introduction to the topic were given before filling the questionnaire. A brief interview was also conducted after the completion of the questionnaire regarding the overall summary and recommendations. About 100 questionnaires were distributed and all were correctly filled and returned. 35 statements were grouped under 7 categories, answers were recorded using a five-point Likert scale where: 1 = Strongly Agree, 2 = Agree, 3 = Neutral, 4 = Disagree, and 5 = Strongly Disagree. The statements are positive as well as negative in nature and were retrieved from similar studies (Sawant, 2017) (Shodhganga, 2019) (Surendran and Sekar, 2011) (Stynes, 1999) (Sinha *et al.*, 2012) (Mohammadi *et al.*, 2010) (Zaei and Zaei, 2013) (Rout *et al.*, 2016) (Nayomi and Gnanapala, 2015) (Mensah, 2012).

Data Analysis

IBM Statistical Package for the Social Sciences (SPSS) Version 21 is used to conduct data analysis. Descriptive statistics analysis is used to summarize

the general profile of the local community and measure the tourism development impacts on the local community, One-Way MANOVA is used to evaluate the difference between the impact and gender perception of the impact. Bonferroni adjusted *p*-value is been used to prevent Type 1 Error (Statistics Solutions, 2020). Cronbach's Alpha test was applied to check the reliability of the data (Nunnally & Bernstein, 1994). The reliability factor was found to be 0.729 suggesting that the data is reliable (Statistics Solutions, 2020). The normality Q-Q plot was created in order to graphically evaluate the theoretical distribution of the data. The normality result shows that the points fall about a straight line which means the data is normally distributed (Ford, 2015).

Results and Discussion

Local Community demographic profile

The data was collected from 66.0% males and 34.0% females, the majority of them falling under the age group of 26- 35 years (31%) followed by 36- 45 years (18%). 81% of the local community has a family size of fewer than 5 members and 79% of them are living in the community for more than 25 Years. 62.0% of the local community has less than matriculation education. 23.0% are unemployed followed by 15.0% are boat drivers at Sunderbans Tiger Reserve. The majority of them have less than 1,00,000 (62.0%) annual income and only 1 earning member in the family (65.0%). 75.0% of them are married with child/children.

Impact of Tourism Development on Local Community

To determine the impact of tourism development on the local community of Sunderbans Tiger Reserve, data was collected using the five-point Likert scale. Rated mean scores were computed to measure the tourism development impacts on the local community, the results are presented in Table 1. One-Way MANOVA is used to evaluate the difference between the impact and gender perception of the impact, the results are presented in Table 2.

Job Opportunity

According to Table 1, findings depict a positive impact on job opportunity. There is a significant difference between males and females when considered jointly on the variable's, Wilk's Lambda = .668, F

(4.95) = 11.78, *p* = .000, partial η^2 = .33. ANOVA evaluated at an alpha level of 0.012. There was significant difference between males and females on employment opportunities, *F* (1,98) = 15.23, *p* = .000, partial η^2 = .23, with females (*M*= 2.23) scoring higher than males (*M* = 1.16) and different types of jobs, *F* (1,98) = 30.15, *p* = .000, partial η^2 = .13, with females (*M*= 2.79) scoring higher than males (*M* = 1.71). There was no significance difference between males and females on stability in job, *F* (1,98) = 2.79, *p* = .098, partial η^2 = .02 and demand for labours, *F* (1,98) = .004, *p* = .950, partial η^2 = .000.

Infrastructure Development

According to Table 1, findings depict a positive impact on infrastructure development. There is a significant difference between males and females when considered jointly on the variable's, Wilk's Lambda = .786, *F* (5,94) = 5.10, *p* = .000, partial η^2 = .21. ANOVA evaluated at an alpha level of 0.01. There was significant difference between males and females on investment and spending in the region, *F* (1,98) = 8.89, *p* = .004, partial η^2 = .08, with females (*M*= 2.50) scoring higher than males (*M* = 1.87). There was no significance difference between males and females on infrastructural facilities, *F* (1,98) = .873, *p* = .352, partial η^2 = .009, recreational facilities, *F* (1,98) = 2.02, *p* = .158, partial η^2 = .02, quality of road conditions, *F* (1,98) = .946, *p* = .333, partial η^2 = .01, and strain on public utility and recreational facilities, *F* (1,98) = .185, *p* = .668, partial η^2 = .002.

Increased Income

According to Table 1, findings depict is a positive impact on increased income. There is no significant difference between males and females when considered jointly on the variable's, Wilk's Lambda = .960, *F* (2,97) = 2.03, *p* = .136, partial η^2 = .04. ANOVA evaluated at an alpha level of 0.025. There was no significant difference between males and females on the income of the family, *F* (1,98) = .08, *p* = .77, partial η^2 = .001 and income of the whole community, *F* (1,98) = 1.48, *p* = .22, partial η^2 = .01.

Increased Price Level

According to Table 1, findings depict a positive impact on increased price level. There is no significant difference between males and females when considered jointly on the variable's, Wilk's Lambda = .936, *F* (3,96) = 2.18, *p* = .095, partial η^2 = .06. ANOVA evaluated at an alpha level of 0.016. There was no

significant difference between males and females on the increased price level, $F(1,98) = 4.29$, $p = .04$, partial $\eta^2 = .04$, essential commodities, $F(1,98) = 1.04$, $p = .31$, partial $\eta^2 = .01$, and property prices, $F(1,98) = 3.19$, $p = .07$, partial $\eta^2 = .03$.

Environmental Cost

According to Table 1, findings depict a negative im-

pact on environment cost. There is a significant difference between males and females when considered jointly on the variable's, Wilk's Lambda = .871, $F(4,95) = 3.50$, $p = .010$, partial $\eta^2 = .12$. ANOVA evaluated at an alpha level of 0.012. There was significant difference between males and females on pollution, $F(1,98) = 6.87$, $p = .010$, partial $\eta^2 = .06$, with females ($M = 4.29$) scoring higher than males

Table 1. Impact of Tourism Development on Local Community

S.No.	Statement	N	Mean	Std. Deviation
Job Opportunity				
1	Increased employment opportunities.	100	1.53	1.049
2	Increased stability in job.	100	3.20	1.682
3	Different types of jobs opportunities.	100	2.08	1.405
4	Increased demand for labours.	100	2.40	1.348
Infrastructure Development				
5	Infrastructural facilities.	100	1.56	.686
6	Increased investment.	100	2.09	1.026
7	Increased recreational facilities.	100	4.01	1.243
8	Improved quality of road conditions.	100	1.51	.577
9	Strain on public utility & recreational facilities.	100	3.61	.852
Increased Income				
10	Income of the family.	100	1.71	.832
11	Income of the whole community.	100	1.71	.671
Increased Price Level				
12	Increased the cost of living.	100	1.14	.493
13	Increased prices of essential commodities.	100	1.06	.422
14	Increased property prices.	100	1.15	.609
Environmental Cost				
15	Increased pollution in the region.	100	3.80	1.393
16	Increased illegal practices like smuggling.	100	4.60	.711
17	Overcrowding and congestion in the region.	100	4.41	.889
18	Increased in litter and garbage.	100	4.09	1.190
Cultural Development				
19	Marketing opportunity for the local product.	100	2.97	1.020
20	Increasing social interaction among different groups.	100	1.98	.804
21	Preservation and enhancement of cultural heritage.	100	2.21	.935
22	Understanding among different culture.	100	2.29	.913
23	Saves Lost traditions.	100	2.74	.939
24	Loss of moral values.	100	3.49	1.068
25	Adoption of westernized culture.	100	2.32	1.154
26	Increased crime rate.	100	4.82	.386
27	Increased the drug abuse.	100	4.09	1.464
28	Increased the habit of alcoholism.	100	2.40	1.570
29	Increased prostitution.	100	4.84	.368
30	Increases the mental stress.	100	2.82	1.527
31	Develops social status.	100	1.91	1.065
Education Development				
32	Improved Education facilities.	100	1.28	.753
33	Increased general awareness.	100	1.48	.822
34	Increased educational level.	100	1.53	1.132
35	Change in quality of public education.	100	1.54	1.150

Source: Author's Own

($M = 3.54$). There was no significance difference between males and females on illegal practices like smuggling, $F(1,98) = 3.95$, $p = .04$, partial $n^2 = .03$, overcrowding and congestion, $F(1,98) = .06$, $p = .80$, partial $n^2 = .001$, and litter and garbage, $F(1,98) = .03$, $p = .85$, partial $n^2 = .000$.

Cultural Development

According to Table 1, findings depict a neutral impact on cultural development. There is a significant difference between males and females when considered jointly on the variable's, Wilk's Lambda = .633, $F(13,86) = 3.84$, $p = .000$, partial $n^2 = .36$. ANOVA evaluated at an alpha level of 0.003. There was significant difference between males and females on marketing opportunity, $F(1,98) = 12.18$, $p = .001$, partial $n^2 = .11$ with males ($M = 3.21$) scoring higher than females ($M = 2.50$), preservation and enhancement of cultural heritage, $F(1,98) = 12.56$, $p = .001$, partial $n^2 = .11$ with females ($M = 2.64$) scoring higher than males ($M = 1.98$), generate better understanding among different culture, $F(1,98) = 11.85$, $p = .001$, partial $n^2 = .10$ with females ($M = 2.70$) scoring higher than males ($M = 2.07$). There was no significance difference between males and females on social interaction among different groups, $F(1,98) =$

$.03$, $p = .859$, partial $n^2 = .000$, lost traditions, $F(1,98) = 1.73$, $p = .191$, partial $n^2 = .01$, loss of moral values, $F(1,98) = 2.98$, $p = .087$, partial $n^2 = .03$, adoption of westernized culture, $F(1,98) = 3.34$, $p = .07$, partial $n^2 = .03$, crime rate, $F(1,98) = 2.96$, $p = .08$, partial $n^2 = .02$, drug abuse, $F(1,98) = 3.64$, $p = .059$, partial $n^2 = .03$, alcoholism, $F(1,98) = 1.27$, $p = .261$, partial $n^2 = .01$, prostitution, $F(1,98) = 1.97$, $p = .163$, partial $n^2 = .02$, mental stress, $F(1,98) = 8.09$, $p = .005$, partial $n^2 = .07$, and social status, $F(1,98) = 6.98$, $p = .010$, partial $n^2 = .06$.

Education Development

According to Table 1, finding depict a positive impact on education development for local community of Sunderbans Tiger Reserve, West Bengal, India. There is a significant difference between males and females when considered jointly on the variable's, Wilk's Lambda = .906, $F(4,95) = .246$, $p = .050$, partial $n^2 = .09$. ANOVA evaluated at an alpha level of 0.012. There was no significance difference between males and females on education facilities, $F(1,98) = .481$, $p = .490$, partial $n^2 = .005$, general awareness, $F(1,98) = .007$, $p = .935$, partial $n^2 = .000$, increased educational level, $F(1,98) = 1.263$, $p = .264$, partial $n^2 = .013$, and quality of public education, $F(1,98) =$

Table 2. Summary of hypothesis assessment

Research Questions (RQ) and Hypothesis	Assessment
H1: There is a significant difference between Gender and Job Opportunity	Supported
H2: There is a significant difference between Gender and Infrastructure Development	Supported
H3: There is a significant difference between Gender and Increased Income	Rejected
H4: There is a significant difference between Gender and Increased Price Level	Rejected
H5: There is a significant difference between Gender and Environmental Cost	Supported
H6: There is a significant difference between Gender and Cultural Development	Supported
H7: There is a significant difference between Gender and Education Development	Supported

Source: Author's Own

Table 3. Summary of descriptive analysis for tourism development impact model

Categories	Statement Nature	Score	TestResults	Impact Section	Model Assessment
Job Opportunity	Positive	2.30	Positive	Reward	Supported
Infrastructure Development	Mixed	2.55	Positive	Reward	Supported
Increased Income	Positive	1.71	Positive	Reward	Supported
Increased Price Level	Negative	1.11	Positive	Risk	Supported
Environmental Cost	Negative	4.22	Negative	Reward	Rejected
Cultural Development	Mixed	3.24	Neutral	Neutral	Supported
Education Development	Positive	1.45	Positive	Reward	Supported

Source: Author's Own

.186, $p = .667$, partial $\eta^2 = .002$.

Testing Model

The study uses descriptive analysis to investigate the impact of the 7 categories on the local community of Sunderbans Tiger Reserve, India. This will help to identify if tourism is benefiting or harming the local community and its intensity. The results were obtained from the summated average Likert scale of level measurements which are presented in Table 3.

The result supports 6 out of 7 assessments of the model. One category assessment, namely "environmental cost" is rejected in the case of Sunderbans Tiger Reserve, India. This result is noted to be unique to the study area. Moreover, the tested results are supported by the model.

Conclusion

The paper was to investigate the impacts of tourism development on the local community of Sunderbans Tiger Reserve, India. From the mean score, the study found the tourism development has a positive impact on job opportunities, infrastructure development, increased income, environmental cost, and education development. It was also found that tourism development has a negative impact on the increased price level and a neutral impact on cultural development. Except for environmental cost, the finding corroborates to the findings of earlier similar studies such as (Rout *et al.*, 2016) (Nayomi and Gnanapala, 2015) (Surendran and Sekar, 2011) (Stynes, 1999) (Sinha, Qureshi *et al.*, 2012) (Slavov, 2015) (Hasan and Siddique, 2016) (Kapure *et al.*, 2020).

It has also found that tourism development did not result in increased pollution, increased illegal practices like smuggling, overcrowding, and congestion, and increased litter and garbage in the region which indicates that responsible tourism has been followed in Sunderbans Tiger Reserve, India. Tourist flow in Sunderbans Tiger Reserve is comparably low to other tiger reserves in India, namely Jim Corbett Tiger Reserve, Ranthambore Tiger Reserve, and many more, this can be one of the reasons of low negative impact on the environment of the reserve. Another reason is that fewer number facilities in terms of transport, entertainment, and food, are available for the tourist as compared to other reserves can be resulting in a low negative impact

on the environment of the reserve.

The study also indicated that males and females have a statistically significant in all aspects of tourism development, except increased income and increased price level. This means that males and females have a different perception of the impact of tourism development on the job opportunities, infrastructure development, environmental cost, cultural development, and education development, but they share a similar perception of the impact of tourism development on increased income and increased price level. Among all the 7 categories, only 2 categories have computed low value of standard deviation, namely "increased income" and "increased price level" which means that the study sample size has similar believes on the subject.

Recommendations

To enhance the impact of tourism development on the local community of Sunderbans Tiger Reserve, West Bengal, India, tourism strategies should focus on improving the skills of the local community which will ensure work opportunity, stability in job, and opportunity to make more income. As tourism development generates economic and social benefits, future research can be conducted to explore the measure of dependency or significance of each dependent variable on an independent variable. As for the model, more components can be added in future studies so that the model is acceptable in every local community.

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