

# Residents' Perception Toward Conservation: A Case Study of Sunderbans Tiger Reserve, India

Ananya Ghosh<sup>1</sup>, Parikshit Sharma<sup>1</sup> and Pawan Gupta<sup>2</sup>

<sup>1</sup>*Amity Institute of Travel and Tourism, Amity University, Uttar Pradesh, India*

<sup>2</sup>*Indian Institute of Tourism and Travel Management, Noida, Uttar Pradesh, India*

(Received 14 March, 2021; Accepted 18 May, 2021)

## ABSTRACT

Local Communities are key stakeholders in tourism activities in the protected area. They have the immense knowledge of the surrounding and are well enrooted with the work associated with the land. Over the years, their prominence was identified by the institutional stakeholders for the welfare and prolonged existence of the protected site. Events and seminars are conducted in order to channel knowledge, address their concerns and most importantly, establish a healthy relation. The study aims to evaluate the perception of residents' of Sunderbans Tiger Reserve towards conservation as well as identify if demographic profile of the local community effect their perception. Data were collected from 213 residents' in October - November 2020 with the help of a structured questionnaire collected by convenient sampling method. Descriptive statistics are applied to evaluate the residents' perception and Factor Analysis along with Multivariate Analysis of Variance is applied to identify relationships with demographic characteristics. The study finds a positive residents' perception towards conservation in the study site and statistically significant relation was found between the demographic profile of the local community and their perception.

*Key words* : Residents, Local community, Perception, Conservation, Tourism, Protected areas, Sunderbans Tiger Reserve

## Introduction

Protected Areas are quite a popular destination for tourists' nowadays worldwide (Pacific Asia Travel Association, 2020) as it provides peace in nature's lap from one's hectic lifestyle. 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 (International Union for Conservation of Nature, 2008). With the increase of tourist footfall in protected areas, the volume of tourism impact has also influenced other branches namely, Conservation and Stakeholders. Conservation is now more than ever very important to be taken seriously and continuously be monitored for the welfare of the site (Bell, 2017) and hu-

man beings residing inside or on the boards of the protected areas. Stakeholders of protected areas can be defined as the people or/and organizations that work for or/and affected by work in the protected area.

Three primary staple stakeholders of any protected area are tourists, local communities, and government bodies. Every stakeholder has its own work and contribution to the destination. The term "residents" or "local community" or "locals" refers to the population of people are living in or surrounding the tourism site and their livelihood depends on the destination (Cambridge Business English Dictionary, 2020). Over a period of time, the importance of the local community as a stakeholder has risen in tourism site (Nagarjuna, 2015). The rea-

son for a sudden rise in the importance is because of the discovery of the dependence of the destination longevity and being successful can be achieved by keeping the local community involved (World Travel and Tourism Council, 2018).

Due to the increase of pressure on natural resources, government bodies all over the globe have enforced new conservation measures. The major impact due to change in conservation practices is on local residents as it reduces their access and use of a natural resource (Bennett and Dearden, 2014) which can contribute to the negative conservation attitudes among local residents toward the protected area. As the conservation plans are primarily focusing on conserving valuable forest ecosystems, more researchers are conducted to study the perception of the local residents and tourists in the protected areas.

### **Perception of Local Community towards Conservation**

Local Communities residing outside the protected areas are not included in the conservation planning process, there is a rise in conflicts between community and conservation goals (Dimitrakopoulos *et al.*, 2010). The cause of conflicts is the constraints imposed on land use and natural resource extraction (Szell and Hallett IV, 2013). Restrictions can in terms of access to the protected area, hunting or other such activities (Brandon *et al.*, 2005). This leads to generating negative perceptions toward the protected area (Hulme and Murphree, 2001).

The local community is now part of new strategies of conservation in protected areas as the official's belief that no conservation plan will be successful if local communities are not involved (Yeo-Chang, 2009). Such strategies are named as "community conservation" (Infield and Namara, 2001) or "participatory management" (Dimitrakopoulos *et al.*, 2010). Such measures will reconcile differences between local residents and protected areas (Vodouhe *et al.*, 2010).

Many studies show the positive perception of the local community toward conservation (Mutanga *et al.*, 2015) in protected areas and some have concluded a negative perception of the local community towards conservation (Szell and Hallett IV, 2013) in protected areas. Positive perception is a relief but a negative perception is a big cause of concern that needs to be worked on at the earliest.

The theme of this study is to evaluate the percep-

tion of the local community towards conservation in Sunderbans Tiger Reserve, West Bengal, India. The study also evaluates the correlation between perception and socio-demographic characteristics of the local community. The finding will give a clear picture of the current condition and if required will be a key to improve the perception of the local community towards conservation in Sunderbans Tiger Reserve, West Bengal, India. The next section presents a brief of research methodology is mentioned which is followed by obtaining results and discussions. The conclusion of the research are stated in the end.

## **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. Wildlife is one of the most prized possession sources of tourism for West Bengal. Sunderbans Tiger Reserve (STR) in West Bengal, is one of the famous protected areas for wildlife tourism in India as it is a UNESCO World Heritage Site and Biosphere Reserve (Beautiful Bengal, 2019). The reserve is named after the Sundari trees which are found in bulk there (Indian Wildlife Resort, 2019). It is rich in various plant species and rare animal species in the world (National Tiger Conservation Authority / Project Tiger, 2017).

### **Sampling and data attainment**

This research paper relied on data collected from the local community residing in Bali islands of Sunderbans Tiger Reserve in October – November 2020. Non-probability convenient sampling techniques were used to collect primary data collected from 213 residents. A brief introduction of the research was given before filling the questionnaire. A brief interview was also conducted after the completion of the questionnaire. A structured questionnaire with two sections was used to collect the information. Section A includes the demographic information of respondents and Section B contains statements on conservation. Section B used a five-point Likert scale from strongly disagree to strongly agree. The statements are a mix of both, positive and

negative in nature and they are retrieved from similar studies (Mutanga *et al.*, 2015; Dimitrakopoulos *et al.*, 2010; Infield and Namara, 2001; Szell and Hallett IV, 2013; and Bakri *et al.*, 2014).

## Methods

IBM Statistical Package for the Social Sciences (SPSS) Version 23 is used to conduct data analysis. Initially, the study uses descriptive statistics to observe the background characteristics of the respondents. Later, the summated Likert scale is used to obtain residents' perception of conservation. Mean and Standard deviation scores are calculated to determine the perception. Factor analysis was performed to identify significant statement for further analysis. On the selected significant statements, MANOVA was applied to determine the relationship between socio-demographic factors and perception of the local residents. Cronbach's Alpha test was applied to check the reliability of the data (Nunnally and Bernstein, 1994). The reliability factor of the total data was found to be 0.749 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 and the result shows that the data are normally distributed (Ford, 2015).

## Results and Discussion

The demographic profile of the respondent evident that most of the respondents are male (50.2 percent) and are falling under the age group of 18 – 25 years (29.1 percent) followed by 46 - 55 years (24.4 percent). Most of the respondents had no education (32.9 percent) followed by matriculation (24.9 percent). Majority of them were unemployed (63.4 percent) followed by labour (11.3 percent) and fishing

(9.4 percent) as popular occupation among those who are employed. Most of them had no income (63.4 percent) followed by annual income less than 1,00,000 (31.9 percent).

To study the residents' perception towards conservation, a total of 08 statements were framed and recorded, as represented in Table 1. Table I is showing the residents' perception of conservation in the study site. The statements are representing the mean and standard deviation of scores regarding the aspects of conservation. The highest-level scores are showing toward the statements regarding "Plans and trees should be protected." and "Government authorities have protected that land which is good." whereas lowest level scores in "Government have our support in uplifting the condition of the STR.". The average overall score is 4.77 means that respondents have a positive perception of conservation in the study site.

Before analyzing the significance between resident's perception and their demographic factors, factor analysis is applied to identify significant factors, as represented in Table 2. The significance recorded for KMO test was 0.779 and Bartlett's test was 0.000, which states that the data were suitable for further analysis (Stephanie, What is the Kaiser-Meyer-Olkin (KMO) Test?, 2016) (Miljko, 2017). The significance recorded for Box's test of equality of covariance matrix is greater than 0.05 which states that the variance – covariance matrices are equal across groups (Stephanie, 2018). Only 7 statements out of 10 statements were found significant, hence they are appropriate for further analysis.

To identify relation, Multivariate Analysis of Variance is used in which the Demographic profile (Age, Gender, Education, Occupation and Income) of the local community are treated as the independent variable and significant perception statements as dependent variable, as represented in Table 3.

**Table 1.** Residents' Perception of Conservation

Statements	Mean	SD
Plans and trees should be protected.	4.98	0.136
Wild animals should be protected.	4.83	0.380
Poaching should be punished.	4.87	0.584
Government authorities has protected that land which is good.	4.94	0.231
Tiger reserve has benefited the community.	4.69	0.465
Being part of Sunderbans Tiger Reserve is a great honour.	4.65	0.477
Government have our support in uplifting the condition of the STR.	4.46	0.518

Source: Author

The significance value recorded was less than 0.05 for gender, age, annual income, education and occupation. The result depicts that there is a statistically significant difference between the demographic profile of the local community and their perception towards conservation in Sunderbans Tiger Reserve.

## Conclusion

The findings of the study show a positive perception of the local community towards conservation in Sunderbans Tiger Reserve, West Bengal, India. The result supports the finding of other researches in positive perception of conservation (Mutanga *et al.*, 2015). During interactive session with the local residents, it was established that they have immense sense of understanding of their dependency on the tiger reserve for their livelihood. This sense of understanding can be one of the prime factors for their positive perception towards conservation, as it has supported their families and will always do. As the tigers of the Sunderbans Tiger Reserve are declared man eaters (National Tiger Conservation Authority / Project Tiger, 2017), their positive perception does astonish the research results. The study also shows statistically significance between the demographic profile of the local community and their perception of conservation in Sunderbans Tiger Reserve. The

result supports the finding of other researches (Kapure *et al.*, 2020) (Harun *et al.*, 2019).

Although a positive perception was recorded for conservation, it is very important to maintain the same positive perception of the residents' in the coming years as they are the key stakeholders for the welfare of the crucial protected area. The study collects the perception of a limited number of residents', and one important location was selected for the investigating. This seems to be limited but not the end. Further research can include a larger number of respondents from various protected sites in India to analyze perception.

## Acknowledgment

The research project was conducted with the help of Mr. Biswajit Mandal, Guide at Sunderbans Tiger Reserve, West Bengal, India. Mr. Biswajit Mandal was helpful in introducing to the tourist's and assisting in communication for which we are thankful.

A very special gratitude goes out to the deputy field manager of Sunderbans Tiger Reserve for his help and support by providing me the valuable information related to Sunderbans Tiger Reserve. I am also very grateful to my family for their continuous moral and financial support during the whole research study.

**Table 2.** Factor Analysis

Statements	Eigen Values	Rotated Component
Being part of Sunderbans Tiger Reserve is a great honour.	1.731	0.926
Government have our support in uplifting the condition of the STR.		0.905
Government authorities has protected that land which is good.	1.398	0.839
Wild animals should be protected.	1.071	0.747

Source: Author

**Table 3.** Multivariate Analysis of Variance

Demographic Factor	Factor			P Value	Wilk's Lambda
	Hypothesis difference	Error difference	F Value		
Gender	6.000	162.000	5.743 <sup>b</sup>	0.000	0.825
Age	30.000	650.000	7.451	0.000	0.307
Annual Income	30.000	650.000	7.405	0.000	0.309
Education	24.000	566.361	5.351	0.000	0.490
Occupation	6.000	162.000	16.483 <sup>b</sup>	0.000	0.621

Source: Author

## References

- Cambridge Business English Dictionary. (2020, April 12). *Community*. Retrieved from Cambridge Business English Dictionary: <https://dictionary.cambridge.org/dictionary/english/community>
- Bakri, N. M., Jaafar, M. and Mohamad, D. 2014. Perceptions of Local Communities on the Economic Impacts of Tourism Development in Langkawi, Malaysia. *SHS Web of Conferences* 12 (p. 9). EDP Sciences.
- Beautiful Bengal, 2019. *UNESCO World Heritage Site in West Bengal*. Retrieved from Beautiful Bengal: <https://beautifulbengal.com/unesco-world-heritage-centres-west-bengal.html>
- Bell, A. (2017, June 20). *Top 10 reasons for protected areas*. Retrieved from Ontario Nature: <https://ontarionature.org/top-10-reasons-for-protected-areas/>
- Bennett, N. J. and Dearden, P. 2014. Why local people do not support conservation: Community perceptions of marine protected area livelihood impacts, governance and management in Thailand. *Marine Policy*. 107-116.
- Brandon, K., Gorenflo, L., Rodrigues, A. and Waller, R. 2005. Reconciling biodiversity conservation, people, protected areas, and agricultural suitability in Mexico RID A-5914-2009. *World Development*. 1403-1418.
- Dimitrakopoulos, P. G., Jones, N., Losifides, T., Florokapi, I., Lasda, O. and Paliouras, F. 2010. Local attitudes on protected areas: Evidence from three natural 2000 wetland sites in Greece. *Journal of Environmental Management*. 1847-1854.
- Ford, C. (2015, August 26). *Understanding Q-Q Plots*. Retrieved from Resaerch Dtata Service+Sciences: [data.library.virginia.edu](http://data.library.virginia.edu)
- Harun, R., Chiciudean, G. O., Sirwan, K., Arion, F. H. and Muresan, I. C. 2019. Attitudes and Perceptions of the Local Community towards Sustainable Tourism Development in Kurdistan Regional Government, Iraq. *Sustainability*. 10(9).
- Hulme, D. and Murphree, M. 2001. African wildlife and livelihoods: The promise and performance of community conservation. *David Pilip Publ.* 280-297.
- Indian Wildlife Resort. (2019, May 19). *Sunderbans National Park*. Retrieved from Indian Wildlife Resort: <https://www.indiawildliferesorts.com/national-parks/Sunderbans-national-park.html>
- Infield, M. and Namara, A. 2001. Community attitudes and behavior towards conservation: an assessment of a community conservation program around Lake Mburo National Park, Uganda. *Oryx*. 48-60.
- International Union for Conservation of Nature. (2008). *About Protected Areas*. Retrieved from International Union for Conservation of Nature: [iucn.org](http://iucn.org)
- Jana, N. C. and Tarafder, S. 2012. *West Bengal: Geo-Spatial Issues*. Burdwan: The University of Burdwan, West Bengal.
- Kapure, S., Singh, D. and Gupta, D. K. 2020. *Potential and Strategic Challenges for Ecotourism in Jharkhand: - An Analytical Study of Dalma Wildlife Sanctuary (Jamshedpur)*. Noida: Amity Institute of Travel and Tourism, Amity University Uttar Pradesh, India.
- Lepp, A. 2006. Resident's attitudes towards tourism in Bigodi village, Uganda. *Tourism Management*. 876-885.
- Miljko, L. 2017. November 09. *Exploratory Factor Analysis - KMO and Bartlett's Test*. Retrieved from Statistical Agency: <https://www.statistika.co/index.php/portfolio/303-exploratory-factor-analysis-kmo-and-bartlett-s-test>
- Mutanga, C. N., Vengesayi, S., Gandiwa, E. and Muboko, N. 2015. Community perceptions of wildlife conservation and tourism: a case study of communities adjacent to four protected areas in Zimbabwe. *Tropical Conservation Science*. 564-582.
- Nagarjuna, G. 2015. Local Community Involvement in Tourism: A Content Analysis of Websites of Wildlife Resorts. *Atna - Journal of Tourism Studies*. 13-21.
- National Tiger Conservation Authority / Project Tiger. 2017. *Tiger Conservation Plan - Sunderbans Tiger Reserve 2012-2013 to 2016-2017*. New Delhi: National Tiger Conservation Authority / Project Tiger.
- Nunnally, J. and Bernstein, I. 1994. *Psychometric Theory, 3rd ed.* New York, NY: McGraw-Hill.
- Pacific Asia Travel Association. (2020, April 10). *Nature-Based Tourism*. Retrieved from Pacific Asia Travel Association: <https://sustain.pata.org/sustainable-tourism-online/parks-culture/nature-based-tourism/forms-of-nature-based-tourism/nature-based-tourism/>
- Statistics Solutions. (2020, March 11). *Cronbach's Alpha*. Retrieved from Statistics Solutions: [statisticssolutions.com](http://statisticssolutions.com)
- Stephanie. (2018, March 14). *What is Box's M Test?* Retrieved from Statistics How To: [https://www.statisticshowto.com/boxes-m-test/#:~:text=Box's%20M%20test%20\(also%20called,matrices%20are%20equal%20\(homogeneous\)\)](https://www.statisticshowto.com/boxes-m-test/#:~:text=Box's%20M%20test%20(also%20called,matrices%20are%20equal%20(homogeneous)))
- Stephanie. (2016, May 11). *What is the Kaiser-Meyer-Olkin (KMO) Test?* Retrieved from Statistic How to: <https://www.statisticshowto.com/kaiser-meyer-olkin/#:~:text=KMO%20returns%20values%20between%200,remedial%20action%20should%20be%20taken>
- Szell, A. B. and Hallett IV, L. F. 2013. Attitudes and Perceptions of Local Residents and Tourists toward the Protected. *International Journal of Humanities and Social Science*. 18-34.
- Vodouhe, F., Coulibaly, O., Adegbidi, A. and Sinsin, B. 2010. Community perception of biodiversity conservation within protected areas in Benin. *Forest Policy and Economics*. 505-512.

West Bengal Tourism. 2018. *West Bengal - at a glance*. Kolkata : West Bengal Tourism.

World Travel & Tourism Council. (2018, June 22). *Communities are key to sustainable tourism development*. Retrieved from World Travel & Tourism Council: [https://medium.com/@WTTC/communities-are-](https://medium.com/@WTTC/communities-are-key-to-sustainable-tourism-development-925fbb7528f9)

[key-to-sustainable-tourism-development-925fbb7528f9](https://medium.com/@WTTC/communities-are-key-to-sustainable-tourism-development-925fbb7528f9)

Yeo-Chang, Y. 2009. Use of forest resources, traditional forest related knowledge and livelihood of forest dependent communities: cases in South Korea. *Forest Ecology and Management*. 2027-2034.

