IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

Prospects And Challenges Of Tourism Affecting Firm Performance With The Moderating Effect Of Environmental Munificence: A Study On Sundarbans Tourism Business

[1]Gopinath Dey, BBA & MBA, Business Administration Discipline, Khulna University, Khulna 9208, Bangladesh

[2] Md. Enamul Haque, Associate Professor, Business Administration Discipline, Khulna University, Khulna 9208, Bangladesh

Abstract: The Sundarbans, being a phenomenal UNESCO World Heritage Site, is not only an exceptional ecological wonder but also a fundamental and central point of interest for tourism in the picturesque nation of Bangladesh. This study dives deep into how the prospects (economic growth, social enrichment, and natural resource benefits) and challenges (infrastructure gaps, security concerns, and management hurdles) shape the performance of tour operators while uncovering the surprising role of environmental munificence (the forest's abundant yet unpredictable resources) in tipping the scales.

Through a comprehensive survey of 70 tour operators in Khulna, this research uncovers critical insights. While the Sundarbans offers promising economic, social, and natural resource advantages, these prospects only moderately enhance business performance. In contrast, challenges such as weak infrastructure, security risks, and management gaps exert a stronger influence, often hindering growth. Surprisingly, the Sundarbans' abundant environmental munificence, though a key attraction, do little to amplify the positive effects of tourism opportunities. Worse, when combined with existing challenges, they further strain firm performance. Findings reveal that while tourism opportunities including economic benefits, social impacts, and natural resource potential positively influence firm performance, their effect is relatively modest. Conversely, challenges such as inadequate infrastructure, security concerns, and management issues demonstrate a more substantial impact on business outcomes. Notably, the study highlights how the Sundarbans' distinctive environmental munificence play a complex moderating role: they slightly enhance the positive effects of tourism opportunities but significantly exacerbate the negative consequences of existing challenges.

These insights offer practical value for tourism operators and policymakers working to balance economic development with environmental conservation in this ecologically sensitive region. The study contributes to academic literature by introducing empirical evidence about tourism dynamics in mangrove ecosystems and demonstrating how environmental factors can simultaneously enable and constrain business performance.

Index Terms *- Sundarbans, Tourism, Prospects, Challenges, Performance, Munificence.*

1.1 Introduction:

The Sundarbans, a World Heritage Site recognized by the United Nations Educational, Scientific and Cultural Organization (UNESCO), is the world's largest mangrove forest and a unique tourism destination, considering its rich, unique biodiversity, scenic beauty, and the presence of friendly host communities and livelihood groups *(Alam, 2010)*. On the other hand, though it has plenty of potential, tourism has not flourished well in this destination, and it has been reported that there is a decreasing number of foreign tourists, causing a sharp decline in tourism revenue *(Chakrabortty, 2017)*. The mangrove vegetation, spotted deer, tigers, crocodiles, and various bird species make the Sundarbans an appealing destination for such visits, and ecotourism is

considered one of the most feasible and promising developments for the region *(Hussain, 1994)*. As of now, the Sundarbans is considered a significant tourism destination in Bangladesh. According to the Forest Department, around 100,000 tourists, including 2% foreign visitors, visit the forest annually *(USDA Resources, 2020)*. The Sundarbans supports the majority of the economic activity in the southern region of Bangladesh. Tourism has the potential to contribute to the economy as a self-sustaining conservation process, which could further act as a protective mechanism for the Sundarbans. Approximately 3.5 million people living around the Sundarbans Reserve Forest (SRF) are directly or indirectly dependent on the ecosystem services provided by this forest *(Giri, 2008)*. On a global scale, tourism often reaches and exceeds sustainable limits of growth with little warning, planning, or response from relevant stakeholders. If tourism is not properly planned and managed, it can harm the destination's environment, create social and cultural conflicts, and alienate the communities that host tourism *(UNWTO, 2007)*. On the other hand, well-managed destinations have a high likelihood of integrating 'smart growth' into their tourism economy. Effective management of the tourism economy at any destination level not only contributes positively to enhancing the visitors' experience but also improves available opportunities and protects the environment, while ensuring the interests of the host community and businesses operating within it *(England, Visit, 2015)*. There are many prospects in the Sundarbans tourism business that help enhance firm performance. On the other hand, there are several challenges that hinder the expansion of tourism in the Sundarbans. Both the prospects and challenges are influenced by the unique environment of the Sundarbans.

1.2 Background:

With the increasing interest in ecotourism and outdoor recreation, forests have become an increasingly essential component of the tourism industry *(Kuvan, 2005)*. In the Sundarbans of Bangladesh, ecotourism manages the area and helps ensure an attractive natural environment for the wildlife inhabitants *(Salam, 2000)*. The concept of ecotourism is closely related to several other forms of tourism, such as wildlife tourism and adventure tourism. Various researchers describe ecotourism as a more sustainable alternative to mass tourism. Some scholars even attempt to present ecotourism as responsible tourism *(Russell, 2004)*. Ecotourism, characterized as mindful travel to natural areas that preserves the environment and improves the well-being of local people, has attracted the attention of various stakeholders both as an economically viable recreational activity and as a means of conservation and development *(Das, 2011)*. Low-impact nature tourism contributes to the conservation of species and habitats both directly, through a commitment to preservation, and indirectly, by providing income to local communities that enables them to value and protect their wildlife heritage areas as a source of livelihood *(Goodwin, 1996)*. Ecotourism directly creates jobs for local people and generates a range of benefits such as tourist guiding, housekeeping, infrastructure development, poverty reduction, and improvement of the standard of living. These are some of the indirect effects of developing ecotourism in a particular area. In addition to these benefits, local people can earn income through various types of local businesses *(Nushrat Nahida Afroz, 2017)*. Nature-based tourism can play a vital role in achieving sustainability in protected forests and in conserving world heritage sites. Additionally, the community, national economy, and local economic conditions all play important roles in the development of tourism *(Salam, 2000)*. Various factors, such as complex travel systems, health and safety concerns, negative perceptions, and untrained service providers and services, contribute to the challenges faced by the tourism sector. Strong political commitment and less restrictive regulations can remove significant barriers to boosting the tourism industry in the South Asian region *(Rasul, 2009)*. 'Tourism infrastructure' includes broad categories such as physical structures (e.g., hotels, motels, water supply, transportation, and communication), cultural facilities (e.g., traditions, heritage, local arts, music and dance, fairs, festivals), service systems (e.g., banking and insurance offices, travel agencies, community experts), and administrative institutions (e.g., rule of law, customs and immigration) *(Jovanović, 2016)*.

1.3 Research Question:

The main question of this study is:

“Do the prospects and challenges of tourism in the Sundarbans affect the firm performance of Sundarbans tourism businesses?”

To support this, the following questions are posed:

Is there a relationship between the prospects of tourism in the Sundarbans and the firm performance of Sundarbans tourism businesses, considering the moderating effect of environmental munificence on the prospects?

Is there a relationship between the challenges of tourism in the Sundarbans and the firm performance of Sundarbans tourism businesses, considering the moderating effect of environmental munificence on the challenges?

1.4 Purpose of the Study:

This study aims to explore the performance of tourism firms in the Sundarbans from the perspective of both prospects and challenges. First, it seeks to identify the prospects of tourism in the Sundarbans that help tourism firms enhance their business operations. Second, it aims to uncover the challenges that hinder the growth and exploration of tourism businesses in the region. Finally, considering the unique ecosystem of the Sundarbans, the study examines how the environmental conditions referred to as environmental munificence moderate the relationship between prospects, challenges, and the performance of tourism firms in the Sundarbans.

1.5 Rationale of the study:

Many studies have been conducted on various aspects of ecotourism in the context of the Sundarbans mangrove forest. However, research specifically examining the prospects and challenges of tourism, with environmental munificence as a moderating factor, remains very limited. The unique ecosystem of the Sundarbans influences the prospects and intensifies the challenges of tourism in the region. This study aims to identify which factors prospects or challenges have a greater impact on the development of ecotourism in the Sundarbans. It seeks to explore how the prospects and challenges of tourism affect the performance of tourism firms, considering the moderating effect of environmental munificence, which is distinct to the Sundarbans ecosystem.

2.0 LITERATURE REVIEW:

2.1 Sundarbans Tourism:

The travel industry has become an incredible source of foreign exchange earnings in Bangladesh. It is playing a significant role in creating business opportunities on a large scale. Bangladesh has now become a new tourist destination on the map of the world. The tourism sector in Bangladesh has been gradually growing since the mid-nineties until now (Md. Alauddin, 2014).

Mangroves are a unique type of ecosystem found in intertidal areas. Due to their fascinating natural conditions, they offer a wide range of outdoor recreational opportunities. Typically, mangroves can attract a large number of tourists and serve as a source of income through both domestic and international tourism. In many countries, tourism in mangrove environments has been developed. The income generated through eco-tourism from one hectare in a wildlife sanctuary in Kenya far exceeds even the most optimistic projected return from agriculture. There is also evidence that the economic benefits derived from forest-based eco-tourism surpass the income gained from timber harvesting. It is important to note that the conservation of forests especially mangroves can be highly beneficial to tourism if properly planned (Rahman, 2007).

In the 2012–13 fiscal year, the total number of domestic and foreign visitors to the Sundarbans was over 1.16 lakh. The number of visitors declined to 75,742 the following year. Although there has since been an overall increase to more than 1.22 lakh visitors in the 2016–17 fiscal year, this rise is not reflected in revenue. This is because the number of international tourists who are required to pay more to visit the Sundarbans and therefore bring greater economic benefit has continued to decline (Partha Chakrabortty, Andrew Eagle, 2017).

Apart from resource extraction, developing tourism in the Sundarbans without proper facilities can pose a significant threat to the natural environment, especially considering future growth. Allowing uncontrolled tourism activities without assessing the carrying capacity puts pressure on certain areas of the Sundarbans (SBCP, 2002).

The Sundarbans represent an enchanting mystery. It is home to the Royal Bengal Tiger and provides a peaceful and relaxing escape from the population density of Bangladesh. Every year, countless people visit this extraordinary forest. However, most of them lack proper knowledge about eco-tourism, and their actions often harm the environment in many ways. Noise pollution is one such issue. Many visitors prefer to enjoy loud music, which can disrupt the calm and serene atmosphere. The development of eco-tourism in the Sundarbans should be given top priority by both the Forest Department and the Sundarbans Biodiversity Conservation Project (Rahman, 2007).

Katka is an eye-catching and tranquil island located in the north-western part of the Sundarbans. It is an excellent and favorable spot where visitors can enjoy birdwatching, wildlife especially sightings of the Royal Bengal Tiger and deer boating through small creeks and canals, and walking through the forest. One can also enjoy swimming and sunbathing on Katka's secluded white sand beach.

Kachikhali is a roaming and breeding ground for the Royal Bengal Tiger and is also known as "Tiger Point." There is a Forest Department resort available for tourists. Visitors spend their time walking around Tiger Point, the Katka-Kachikhali beach, and visiting Egg Island or Dimer Char, a small island close to Kachikhali.
Nilkamal is a beautiful place along the Bay of Bengal. The World Heritage plaque was unveiled at Hiron Point of Nilkamal. The combined beauty of the sea and green mangroves at Nilkamal is sure to attract visitors, especially from the watchtower at Keorasuthi, another popular spot. Thousands of spotted deer, birds, and occasionally a Royal Bengal Tiger can be seen from the tower.
Dublar Char is an island famous for fish drying during the winter months of November to February. It is also well-known for the religious festival of the Hindu community, popularly known as “Rashmela,” which takes place at the end of November. Visitors come here to witness the life of fishermen and their unique fish drying practices (Rahman, 2007).

2.2 Prospects of Tourism:

2.2.1 Economic Prospects:

The travel industry, particularly ecotourism, has a significant impact on both the economic and social aspects, especially in rural communities and their regions. Ecotourism directly creates jobs for local people and generates a range of benefits such as guiding tourists and providing housekeeping services. Infrastructure development, poverty reduction, and improvement in the standard of living are some of the indirect effects of developing ecotourism in a particular area. In addition to all these benefits, local people can also generate income through various types of local businesses (Mahmud, 2017).
On the other hand, numerous indirect jobs are being created through the development of ecotourism. Additionally, the establishment of hotels and restaurants is expanding, and with the growth of these facilities, the demand for skilled workers such as servers, cleaners, suppliers, sweepers, chefs, interpreters, guides, and tour operators is increasing significantly. The transportation sector is also developing alongside the growth of ecotourism (WTTC, 2015).
In short, it can be said that the ecotourism sector has a considerable impact on a country's economy. According to a report by WTTC (2015), the travel industry contributed nearly BDT 296.6 billion to the GDP in 2014, and it is projected to contribute BDT 566.3 billion in 2025. Furthermore, in terms of direct employment, approximately 1,984,000 jobs were created in the tourism sector, and employment is expected to increase by 2.1% by the year 2025 (WTTC, 2015).

2.2.2 Social Prospects:

The expansion of ecotourism also brings changes in social status and class. The emergence of ecotourism and sports tourism in recent decades has had a notable social impact on communities. Entrepreneurs especially women entrepreneurs in local areas—are among the major beneficiaries of the growing demand for ecotourism. With the growth of ecotourism, traditional clothing, local cuisines, and customized crafts and goods are becoming increasingly popular. Local people are earning additional income due to the rising demand in the tourism sector, and the tendency to migrate is decreasing, which also contributes positively to the national economy (Mahmud, 2017).
In addition to economic and environmental impacts, tourism can also have social effects. There are no permanent residents inside the Sundarbans, although around 1,000,000 people earn their livelihood by collecting honey, palm leaves, cutting grass and wood, and catching and drying fish (FAO/UNDP). Apart from the fishermen who live in temporary huts on Dublar Char, most reside in boats and can be trained to work as forest guides (M. Abdus Salam, 2000).

2.2.3 Natural Resources Prospects:

Ecotourism directly benefits the local residents. With the expansion of ecotourism destinations, natural areas are preserved, and wildlife, local heritage, and natural beauty are protected. Visitors are also attracted to these natural sites. Although ecotourism has many positive effects, there are some drawbacks as well. In most cases, the employment created by ecotourism is seasonal, and during the off-season, people involved in this sector seek alternative work. Additionally, the behavior of some tourists can sometimes harm the social fabric of the local communities, and the destruction of nature by visitors disrupts the natural balance (Mahmud, 2017).

2.3 Challenges of Tourism:

2.3.1 Infrastructure Challenges:

Poor quality in a transportation system such as unreasonable costs and long, uncomfortable journeys may cause tourists to change their preferences regarding their desired destination. Besides transportation, accommodation is also crucial in the tourism industry, as the quality and standard of lodging are significant factors influencing the level of tourism development in a destination (Gunasekaran, 2012).
It would require investment in infrastructure such as boat wharfs, small hotels, local roads, and observation shelters on islands where tigers are found. Thirdly, it would need a purposeful and long-term program to train

and employ local people knowledgeable about the forest and its wildlife, whether they have previously lived there legally or worked there illegally. Again, there are many examples of these approaches elsewhere, including guided wildlife watches, remote ecosystems, and the transformation of poachers into guides and gamekeepers (Buckley, 2010)

2.3.2 Security Challenges:

The key factor emphasized by travel agencies when planning itineraries for visiting the Sundarbans is having the opportunity to see the Royal Bengal Tiger. It is a major highlight of the trip; however, there are many other things to see as well.

As a traveler, knowing the basic safety aspects for the Sundarbans will be helpful for you. Therefore, let me outline below the various things to watch out for in the Sundarbans along with their safety levels (wayfare, 2019).

We had neither a guard for security nor a guide for our visit to the Sundarbans," says Mahasin Molla from Rajshahi. "The Forest Department demanded an additional fee for guards, and we could not afford it. So when we entered the forest, we were apprehensive."

"We all enjoyed the beauty of the Sundarbans, but some people on the trip fainted," says visitor Mithun from Jhenidah. "There weren't enough places to rest. It was definitely not a comfortable experience (Partha Chakrabortty, Andrew Eagle, 2017).

2.3.3 Orientation:

The management in the Sundarbans has limited guidelines for the proper administration of tourists and their satisfaction, as well as for protecting biodiversity, wildlife habitats, and socio-cultural conflicts. To address these needs, the objective of this study was set to effectively develop and manage tourism in the Sundarbans using sustainable methods to ensure a great visitor experience while managing the impact of tourism on the Sundarbans' environment and the host community (Amin, 2018).

Besides topics related to recreation, tourism, accommodation, and training, health and safety issues, climate and environment, and the current management policies of the Sundarbans were also included to provide as much relevant information as possible, considering resource limitations (Md. Wasiul Islam, 2015).

2.4 Environmental Munificence:

The shortage or abundance of essential resources required by organizations operating in a given environment is referred to as environmental capacity (Castrogiovanni, 1991). The resources available in a given environment affect the survival and growth of businesses operating there, as well as the ability of new businesses to enter the market (Randolph, 1984). The importance of ecological dynamism is highlighted in the carrying capacity perspective; however, this viewpoint overlooks a fundamental ecological attribute namely, environmental resilience. (Bowman, 2009).

2.5 Firm performance:

A firm's effectiveness is usually measured by financial data, technological capabilities, employee satisfaction, customer satisfaction, and so on. In most cases, financial information is considered the primary indicator of firm performance if it is readily available. It is easier to obtain financial information from companies listed on the stock market because they are required to publish their annual reports publicly. However, there are many firms that are not publicly listed but operate within growing industries. They may not be obligated to publish their annual reports openly. Nevertheless, many of these companies submit their financial documents to financial institutions when applying for loans or funding (Tushman, 1986).

2.4 Theoretical framework and Proposed Hypothesis:

From the literature review, two factors (or variables) were identified and combined to form the research model, as shown in Figure 1. These factors are the prospects and challenges of tourism in the Sundarbans. Additionally, a moderating factor environmental munificence affects the relationship between prospects and challenges

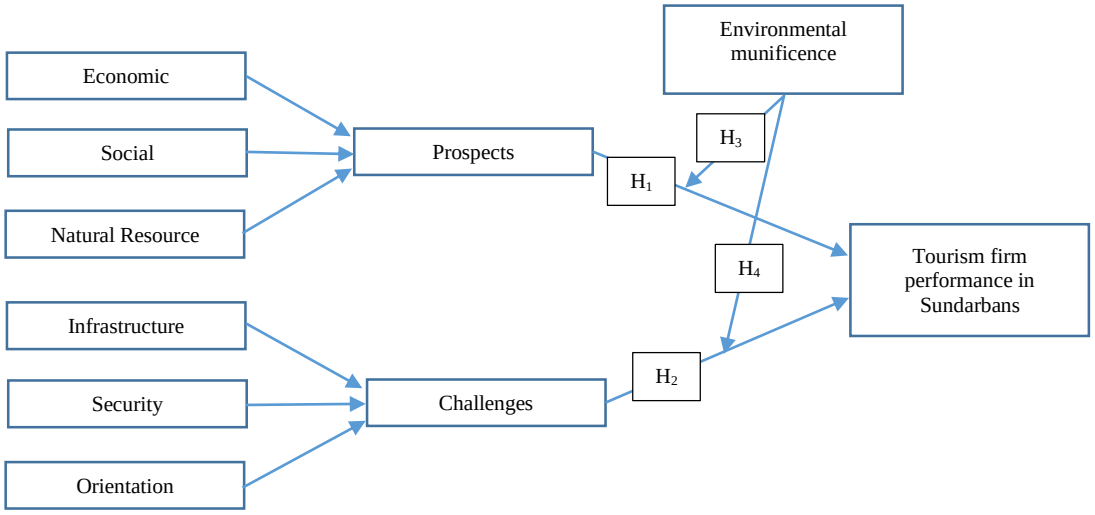

Figure 1 Theoretical Framework

Proposed Hypothesis:

H1: There is a significant positive relationship between the prospects of Sundarbans tourism and tourism firm performance in the Sundarbans.

H2: There is a significant negative relationship between the challenges of Sundarbans tourism and tourism firm performance in the Sundarbans.

H3: Environmental munificence positively moderates the relationship between the prospects of Sundarbans tourism and tourism firm performance in the Sundarbans.

H4: Environmental munificence negatively moderates the relationship between the challenges of Sundarbans tourism and tourism firm performance in the Sundarbans.

3.0 Methodology:

Methodology is important as it provides a clear understanding of the specific research. It outlines the design and approach for conducting the study (Catherine Marshall, 2008). Research design helps to organize data logically through systematic data collection and facilitates answering the research questions (YIN, 2013)

3.1 Research Method

A study can be conducted using qualitative methods, quantitative methods, or a combination of both (Malhotra, 1994). In a study, a researcher can choose any of these approaches depending on the research topic and the preferred method of investigation. This research follows a quantitative methodology because quantitative research primarily relies on numerical data and statistical analysis (Boris Blumberg, 2015). The quantitative method has several advantages. It allows for quick evaluation and clearly shows the agreements and disagreements among respondents (Steudel, 2003). On the other hand, the qualitative method helps to gain in-depth understanding of the research topic.

In this study, a quantitative research technique is used, which is particularly useful for examining relationships among variables and testing hypotheses (Castro, 2010). For the quantitative research, a 5-point Likert scale was used to collect data from the respondents.

3.3 Method of Survey

A pilot survey was conducted before the final survey using a preliminary questionnaire to identify any gaps and weaknesses. The tentative questionnaire was sent to 15 tour operators. After analyzing the feedback, it was confirmed that the questionnaire was ready for the final survey.

3.4 Unit of Analysis and Population

Population refers to the group of entities relevant to a particular study. This study focuses on the performance of firms operating tours in the Sundarbans, considering prospects and challenges. Therefore, the population of this study consists of Sundarbans tour operating firms.

3.5 Place and Target Group of the Research:

Firms operating tours in the Sundarbans are mainly located in Khulna city. There are 72 registered tour operating firms in Khulna, and this study primarily targeted those firms.

3.5 Definitions of Variables, Indicators and Constructs:

This study primarily focuses on identifying the factors affecting firm performance in Sundarbans tourism. As shown in Figure 1, prospects and challenges are the independent factors, with environmental munificence serving as a moderating factor. Firm performance is the dependent variable.

3.5 Sampling Technique and sample size:

A sample is a subset of a population, and it must be representative of that population. If the sample is selected incorrectly, it can negatively impact the data collection method, research design, and even the measurement tools used for variables (Lawrence, 2003)

A non-probability sampling technique was used for this study because it is less time-consuming and more cost-effective compared to various probability sampling methods (Lawrence, 2003). In a non-probability sampling method, the process of finding and selecting respondents is not based on known probabilities (Boris Blumberg, 2015). Convenience sampling technique was used because it is the least rigorous method and involves selecting respondents who are readily available to the researcher (Marshall, 1996). Snowball sampling was also used because it helps to identify respondents more easily.

The population consists of tour operating firms in the Sundarbans, all of which are located in Khulna. This study successfully gained access to 70 out of the 72 firms, covering approximately 97% of the population.

3.6 Data Collection Method:

Primary data was collected from 70 respondents using a field research questionnaire designed for this purpose. The questions were measured on a five-point Likert scale, ranging from 1 to 5. Both dependent and independent variables were assessed using this scale. Data collection took place in appropriate locations, and the questionnaire was written in English.

The questionnaire served as the main tool for data collection and was administered through both online surveys and face-to-face interviews.

3.7 Data Analysis

The collected quantitative data was organized and prepared for analysis using the Statistical Package for Social Sciences (SPSS) software and SmartPLS. Descriptive and inferential analyses were conducted on the data, with descriptive statistics used to summarize the general characteristics of the sample, variables, and indicators. Based on the collected data, inferential analysis will be applied at a later stage to identify correlations and regressions among the variables.

4.0 Primary Data Analysis:

4.1 Outer Loading model:

According to (Hair, 2013), a cutoff value of 0.5 is considered significant. In this study, the outer loading analysis showed that all item loadings exceeded the suggested threshold of 0.5. Since all items meet this criterion, there is no need to modify the model.

	Challenges * Munificence	Challenges_	Environmental Munificence	Firm Performance	Prospects	Prospects * Munificence
Challenges_ * Environmental Munificence	**1.325**					
EM1			**0.852**			
EM2			**0.854**			
EM3			**0.851**			
EM4			**0.894**			
EM5			**0.802**			
EM6			**0.842**			
EconP					**0.860**	
FP1				**0.799**		
FP2				**0.802**		
FP3				**0.756**		
FP4				**0.790**		
FP5				**0.829**		

FP6				**0.712**		
InfC		**0.894**				
NatP					**0.873**	
OriC		**0.759**				
Prospects * Environmental Munificence						**1.830**
SecC		**0.940**				
SocP					**0.822**	

Table 1 Outer Loading of Model

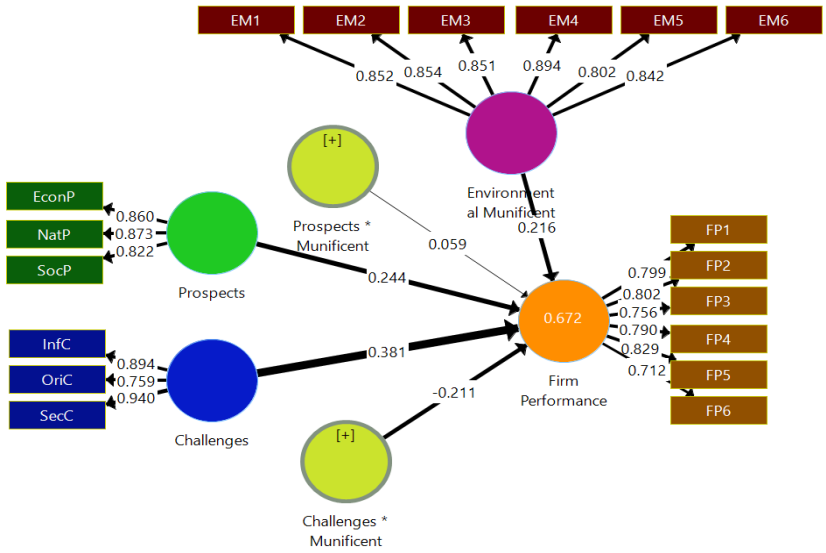

Figure 2 SmartPLS Algorithm Loading Model.

4.2 Reliability and validity:

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Challenges_	**0.832**	**0.855**	**0.900**	**0.752**
Environmental Munificence	**0.923**	**0.927**	**0.940**	**0.722**
Firm Performance	**0.873**	**0.876**	**0.904**	**0.612**
Prospects	**0.812**	**0.824**	**0.888**	**0.726**

Table 2 Construct Reliability and Validity

From the table it can be seen that the composite reliability value ranged from 0.940 to 0.888 which is above than the suggested value of 0.7 (Hair, 2013). The AVE ranged from 0.752 to 0.612 and the Cronbach's alpha ranged from 0.923 to 0.812.

From the table it is clear that all the data using in the model are reliable. Because Cronbach Alpha, CR and AVE values are above than the cut off value.

4.3 Discriminant Validity:

	Challenges	Firm Performance	Prospects
Challenges	0.867		
Firm Performance	0.721	0.782	
Prospects	0.610	0.667	0.852

Table 3 Discriminant validity.

Discriminant validity is crucial for conducting latent variable analysis. It refers to the extent to which one latent variable is distinct from other latent variables. The rows show that each item has a higher loading on its own variable than on any other variable, and these loadings decrease accordingly. The columns also indicate that each variable loads highest on its own items. Therefore, it can be concluded that the discriminant validity of the model has been achieved. However, in this table, three variables are not well discriminated from each other.

5. Result and Discussion:

5.1 Basic Information:

5.1.1 Years of operation:

Tourist firms belong to different categories based on their years of operation, as shown in Table 4 and the accompanying figure. Most respondents, about 31.4% (22 firms), have been operating for 10–15 years. Another significant group consists of firms operating for 15–20 years, accounting for 27.1% (19 firms). Firms in the 20–25 years category make up 17.1% of respondents. Those with 5–10 years of operation represent 12.9%, while the smallest group, operating for 1–5 years, comprises 11.4% (8 firms).

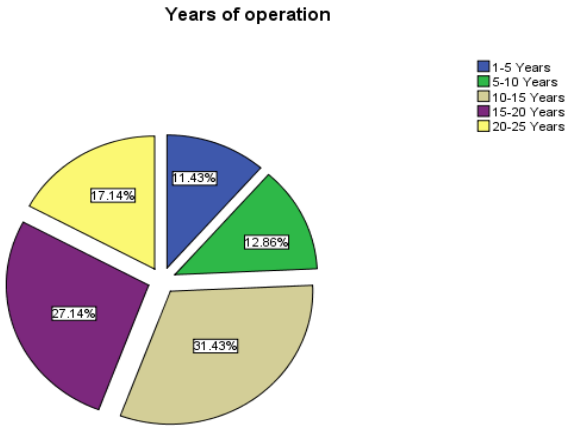

Figure 3 Years of operation

5.1.2 Yearly tourist operate:

Here in table 5, 21 tourist firm responds they operate 2500-3000 tourists every year. Next 20 firms handle 2000-2500 tourists and 20 firms handle 1500-2000 tourists every year. Here also 7 firm handle 1000-1500 tourists and only 2 firms handle 500-1000 tourists in a year.

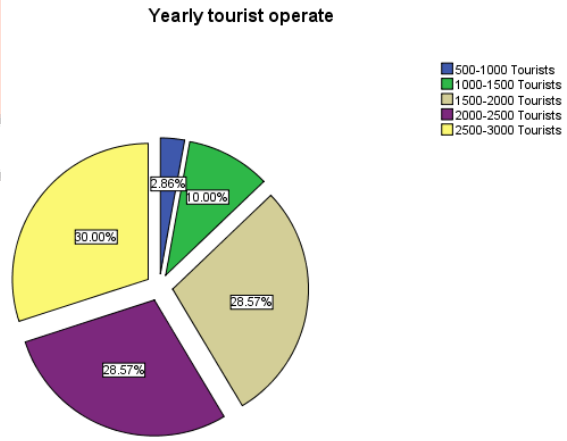

Figure 4 Yearly tourist operate

5.2 Inferential Analysis:

	Challenges * Munificence	Challenges	Firm Performance	Prospects	Prospects * Munificence
Challenges * Munificence			-0.211		
Challenges			0.381		
Firm Performance					
Prospects			0.244		
Prospects * Munificence			0.059		

Table 4 Path Analysis

	R Square	R Square Adjusted
Firm Performance	0.672	0.646

Table 5 R Square Value

From Table 6 and Table 7, the β value and the R-squared value are shown. The R-squared value ranges from 0 to 1. The higher the value, the more accurate the model. But an R-squared value below 0.80 is recommended, as a value above 0.80 indicates possible multi-collinearity in the structural model. On the other hand, as a rule of thumb, an R-squared value of 0.75, 0.50, and 0.25 indicates substantial, moderate, and weak, respectively. It can be said that the β value between prospects and firm performance is 0.244. That means the prospects factor positively affects firm performance. Then, the β value between challenges and firm performance is 0.381, which also means challenges positively affect firm performance.

When the moderating factor environmental munificence affects prospects to influence firm performance, the β value is 0.059, which means prospects along with environmental munificence positively affect firm performance.

But when the moderating factor environmental munificence affects challenges to influence firm performance, the β value is -0.211, which means challenges along with environmental munificence negatively affect firm performance.

In Table 7, the R-squared value is shown as 0.672, or 67.2 percent. This means that a one-unit change in the independent variables can explain 67.2 percent of the variation in firm performance. Therefore, the independent variables prospects and challenges and the moderating variable, environmental munificence, have a moderate effect on firm performance.

	Challenges * Munificence	Challenges	Firm Performance	Prospects	Prospects * Munificence
Challenges * Munificence			0.023		
Challenges			**0.240**		
Firm Performance					
Prospects			0.089		
Prospects * Munificence			**0.004**		

Table 6 Effect Size:

Effect size is the correlation between two variables. It shows the total effect that an independent variable has on a dependent variable. Effect size complements hypothesis testing. Effect size is divided into different categories: values of $f^2 \geq 0.02$, $f^2 \geq 0.15$, and $f^2 \geq 0.35$ indicate small, medium, and large effects, respectively (Cohen, 1988).

Here, the effect size between prospects and firm performance is 0.089, which means it has a small effect. The effect size between challenges and firm performance is 0.240, indicating a medium effect. The moderating factor prospects along with environmental munificence has a very low effect on firm performance, with an effect size value of 0.004. Lastly, challenges along with environmental munificence also have a small effect on firm performance, with an effect size value of 0.0023.

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values	Hypothesis supported/ Not Supported
Prospects -> Firm Performance	0.244	0.238	0.118	2.072	**0.042**	**H_1 Supported**
Challenges -> Firm Performance	0.381	0.367	0.105	3.615	**0.001**	**H_2 Supported**
Prospects * Munificence -> Firm Performance	0.059	0.001	0.187	0.312	**0.756**	**H_3 Not Supported**
Challenges * Munificence -> Firm Performance	-0.211	-0.189	0.222	0.950	**0.345**	**H_4 Not Supported**

Table 7 Bootstrapping Results for Hypothesis Testing:

H_1: There is a significant positive relationship between the prospects of Sundarbans tourism and tourism firm performance in the Sundarbans.

According to the quantitative analysis, if the p-value is lower than 0.05, the hypothesis is supported. Here, the p-value is 0.042, which means the hypothesis is confirmed. A positive β value of 0.184 was found, supporting the hypothesis; however, the p-value associated with β is 0.244. Additionally, the f^2 value is 0.089, indicating a small effect between the prospects of Sundarbans tourism and tourism firm performance.

Therefore, it is clear that the prospects of Sundarbans tourism have an effect on tourism firm performance in the Sundarbans. Indicators of these prospects such as economic, social, and natural resources influence the mentality of firm owners to expand their businesses.

H_2: There is a significant negative relationship between the challenges of Sundarbans tourism and tourism firm performance in the Sundarbans.

The data analysis shows a p-value of 0.001, which is below 0.005, indicating that the hypothesis is supported. A positive β value of 0.381 was found, and the hypothesis is supported in this case, as the associated p-value is 0.042. The f^2 value is 0.240, which indicates a medium effect between the challenges of Sundarbans tourism and tourism firm performance.

It is clear that the challenges of Sundarbans tourism negatively affect tourism firm performance in the region. Challenge factors such as infrastructure, security, and orientation impact business performance. While some respondents mentioned that there is no security issue in Sundarbans tourism, others pointed out that poor infrastructure and lack of proper orientation negatively affect business performance.

H_3: There is a significant positive relationship between the prospects of Sundarbans tourism, with the moderating factor environmental munificence, and tourism firm performance in the Sundarbans.

However, the p-value for this relationship is 0.756, which is much higher than the threshold of 0.05. Therefore, this hypothesis is not supported. Although the β value is positive at 0.059, the high p-value indicates that the relationship is not statistically significant. Additionally, the f^2 value for this moderating effect is 0.004, suggesting a very low effect on firm performance in Sundarbans tourism.

This means that when environmental munificence moderates the relationship between the prospects of Sundarbans tourism and firm performance, it does not have a significant impact.

H_4: There is a significant negative relationship between the challenges of Sundarbans tourism, with the moderating factor environmental munificence, and tourism firm performance in the Sundarbans.

This is the final hypothesis: the relationship between the challenges of Sundarbans tourism, moderated by environmental munificence, and tourism firm performance. The p-value found from the analysis is 0.345, which is higher than the standard threshold of 0.05. Although the β value is -0.211, indicating a negative relationship, the high p-value means the hypothesis is not supported. The f^2 value for this moderating effect is 0.023, indicating a very low effect on firm performance in Sundarbans tourism.

This means that when environmental munificence moderates the relationship between the challenges of Sundarbans tourism and firm performance, the impact is not statistically significant. The analysis found a negative but insignificant relationship with firm performance.

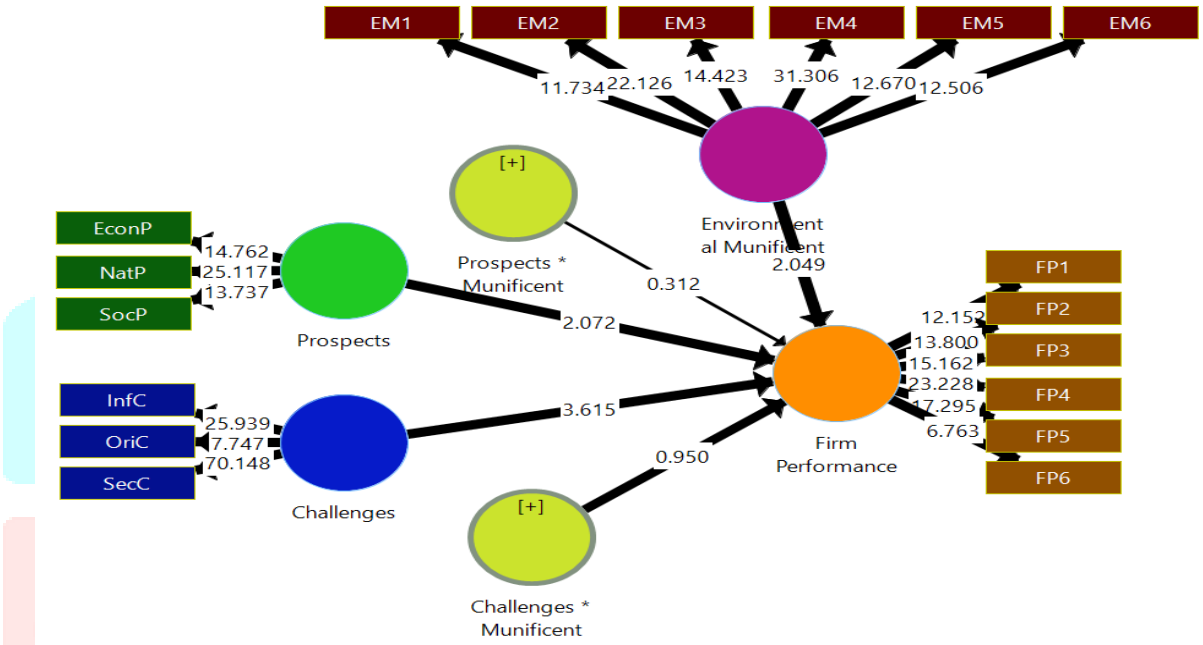

Figure 5 Bootstrapping Results Model:

6.0: Conclusion:

6.1 Conclusion:

The Sundarbans is the world's largest and most iconic mangrove forest. People from all over the world come to experience its beauty and spend quality time in its unique, biodiverse ecosystem. As a result, the tourism business in the Sundarbans is growing day by day. However, tourism firms constantly face both prospects and challenges in conducting business in this region.

This study focuses on two main factors prospects and challenges of Sundarbans tourism that affect the performance of tourism firms. It also considers a moderating factor: environmental munificence, which influences both prospects and challenges. The "prospects" factor includes sub-factors such as economic, social, and natural resources, while the "challenges" factor includes infrastructure, security, and orientation.

After analyzing the data collected from respondents, the study found that prospects have a small positive contribution to firm performance in Sundarbans tourism. In contrast, challenges have a moderate negative effect on firm performance. Security and infrastructure were identified as major concerns for operating tourism businesses in the Sundarbans.

When environmental munificence is combined with prospects, it does not significantly enhance firm performance. However, when environmental munificence interacts with challenges, it negatively impacts firm performance. Therefore, this study concludes that both challenges alone and challenges moderated by environmental munificence significantly affect the performance of tourism firms in the Sundarbans.

The findings of this study are particularly relevant to key stakeholders, especially tour operators currently operating in the Sundarbans region or those planning to enter the tourism sector there. The insights can guide strategic decision-making and business planning amid environmental and operational challenges.

Furthermore, this research contributes to academic literature by offering a foundation for future studies involving a broader set of variables and contextual factors. It also serves as a valuable resource for policymakers and legal authorities, who can use the results to implement supportive regulations and development initiatives aimed at enhancing the sustainability and performance of tourism enterprises in the Sundarbans.

REFERENCES

Alam, M. F. (2010). Forest-based tourism in Bangladesh: Status, problems, and prospects. *Tourismos: An International Multidisciplinary Journal of Tourism*, 163-172.

Amin, M. R. (2018, August). Sustainable Tourism Development in Sundarbans, Bangladesh (A World Heritage Site): Issues and Actions. *Journal of Business Studies*.

Boris Blumberg, D. R. (2015). *Business Research Methods.* McGraw-Hill Education.

Bowman, C. (2009). Dynamic Capabilities: An Exploration of How Firms Renew Their Resource Base. *British Journal of Management*.

Buckley, R. C. (2010). Conservation tourism. Wallingford: CABI.

Castro, K. &. (2010). A Methodology for Conducting Integrative Mixed Methods Research and Data Analysis. *Journal of Mixed Methods Research*.

Castrogiovanni, G. J. (1991). Environmental Munificence: A Theoretical Assessment. *The Academy of Management Review, Vol. 16,*.

Catherine Marshall, G. B. (2008). *Designing Qualitative Research.* SAGE Publications.

Chakrabortty, P. &. (2017, December 12). Sundarbans tourism in disarray. Retrieved from https://www.thedailystar.net/country/sundarbans-tourism-disarray-1503697

Cohen. (1988). *Statistical Power Analysis for the Behavioral Sciences.* Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

Das, S. (2011). Ecotourism, Sustainable Development and the Indian State. *Economic and Political Weekly, 46(37)*, pp. 60-67.

England, Visit. (2015). Destination Management Resources. Retrieved from https://www.visitbritain.org/destination-management-resources

Giri, C. Z. (2008). Mangrove forest distributions and dynamics (19752005) of the tsunami-affected region of Asia. *Journal of Biogeography*, 518-128. doi:https://doi.org/10.1111/j.1365-2699.2007.01806.x

Goodwin, H. (1996). In pursuit of ecotourism. *Biodiversity & Conservation, 5(3)*, 277-291.

Guest, G. (2015). Mixed Methods Research. *Research Gate*, 585.

Guilford, A. F. (2016). Model templates for PROCESS for SPSS and SAS. 1-15.

Gunasekaran, N. &. (2012). Factors of influence in choosing alternative accommodation: A study with reference to Pondicherry, a coastal heritage town. *Procedia-Social and Behavioral Sciences*, 1127-1132.

Hair, J. A. (2013). Multivariate Data Analysis with Readings. *Journal of Marketing Research*, 437.

Hussain, J. a. (1994). Mangroves of the Sundarbans, Bangladesh. *IUCN*, 22-23.

Jovanović, S. &. (2016). Infrastructure as important determinant of tourism development in the countries of Southeast Europe. *Ecoforum Journal, , 5(1)*, 288-294.

Kuvan, Y. (2005). The use of forests for the purpose of tourism: The case of Belek tourism center in Turkey. *Journal of Environmental Management, 75(3)*, 263-274. doi:doi:https://doi.org/10.1016/j.jenvman.2005.01.003

Lawrence, N. W. (2003). *Social research methods: Qualitative and quantitative approaches.* Allyn and Bacon.

M. Abdus Salam, L. G. (2000). Eco-tourism to protect the reserve mangrove forest the Sundarbans and its flora and fauna. *Published in: Anatolia, 11*, 55-66.

Mahmud, M. S. (2017, May). Analyzing The Problem And Prospects Of Ecotourism: A Review On Bangladesh. *Journal of Business and Management, 3*, 59-65.

Malhotra, N. (1994). Marketing Research: An Applied Orientation. *Journal of Marketing Research*, 137.

Marshall, M. N. (1996). Sampling for qualitative research. *Family Practice*.

Md. Alauddin, M. G. (2014). Tourism in Bangladesh: A Prospects Analysis. *Information and Knowledge Management, 4*.

Md. Wasiul Islam, M. N. (2015). Conservation of the Sundarbans through Community–based Ecotourism: an inspiration to facilitate governance in the Protected Areas of Bangladesh . *XIV WORLD FORESTRY CONGRESS*.

Nushrat Nahida Afroz, M. S. (2017, May). Analyzing The Problem And Prospects Of Ecotourism: A Review On Bangladesh. *Journal of Business and Management, 19*, 59-65.

Partha Chakrabortty, Andrew Eagle. (2017). *The Daily star*. Retrieved from https://www.thedailystar.net/country/sundarbans-tourism-disarray-1503697

Rahman, M. A. (2007, August 17). *The Daily Star.* Retrieved from https://www.thedailystar.net/news-detail-322

Randolph, W. &. (1984). The Congruence Perspective of Organization Design: A Conceptual Model and Multivariate Research Approach. *The Academy of Management Review*, 114.

Rasul, G. &. (2009). Prospects and Problems in Promoting Tourism in South Asia A Regional Perspective. *South Asia Economic Journal, 10(1),* 187-207.

Russell, A. &. (2004). Irresponsible Ecotourism. *Anthropology Today, 20(3),* pp. 1-2.

Salam, M. A. (2000). Eco-tourism to Protect the Reserve Mangrove Forest the Sundarbans. *Anatolia, 11(1),* 56-66. doi:doi: 10.1080/13032917.2000.9686983

SBCP. (2002). Tourism, Recreation and Ecotourism Management Plan for the Sundarbans. *Sundarban Biodiversity Conservation Project, Government of Bangladesh/Asian Development Bank/GEF/Government of the Netherland.*

Steudel, Y. a. (2003). Complementary Use of Qualitative and Quantitative Cultural Assessment Methods. *Original Research Method*.

Tushman, M. &. (1986). Organizing for Innovation. *California Management Review*, 65-89.

UNWTO. (2007). A Practical Guide to Tourism Destination Management.

USDA Resources, U. S. (2020). Strengths, weaknesses opportunities, & threats (SWOT) of tourism in the Sundarbans reserve forest. In Integrated protected area co-management (IPAC).

wayfare, B. (2019). *Is sudarbans safe for travellers: a personal guide for man vs wild.* Kolkata. Retrieved from https://www.budgetwayfarers.com/is-sundarban-safe/

WTTC, T. W. (2015). Travel & Tourism Economic Impact.

YIN, R. K. (2013). *Case study research: Design and methods.* Sage publications.