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Sustainable Tourism Development in India: An Exploratory Research on Sustainability of Delhi Tourism

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ABSTRACT

This research paper explores the economic, environmental, and socio-cultural sustainability of Delhi tourism from the perspective of tourists. Primary research was conducted among tourists based on a structured questionnaire at various tourist places across Delhi. This research paper used exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and structural equation modelling (SEM) for examining and analysing the sustainability of tourism. The research findings on environmental pressure (EP) validate that tourism has been exerting huge pressure on the environment. The environment management (EM) system adopted by the tourism industry has failed in mitigating the adverse impacts of tourism and achieving environmental sustainability. The findings about economic empowerment (EP) prove that tourism has failed to achieve economic sustainability by empowering the local community. The destination governance (DG) mechanisms are directly contributing to the sustainability of tourist places. However, the findings on socio-cultural pressure (SP) fail to substantiate the argument that tourism is putting huge pressure on socio-cultural sustainability. Thus, tourism development in Delhi is not conducive to achieving environmental, economic, and social sustainability. Hence, the government should adopt proactive measures to mitigate the adverse impacts of tourism on the environment and economy integrating local communities while formulating and implementing tourism plans and programmes.

Key Words: Development and Growth. Natural Resources, Renewable, and non-renewable Energy, Environmental Impact, Noise Pollution, Sustainability.

INTRODUCTION

Tourism is an engine of inclusive economic growth. Tourism plays an important role in the socio-economic development of nations by contributing precious foreign exchange, generating employment, helping infrastructure development, alleviating poverty, preserving natural and socio-cultural heritage, and maintaining peace and stability in the destinations. However, the inconsiderate tourism development brings about disastrous implications on the economy, society, and environment. The massive growth of tourism and the concentration of tourist activities in certain destinations imposed perceptible stress and strain on local society and resources [1,2]. The adverse environmental impacts of tourism are the deterioration of environmental quality, depletion of natural resources, and destruction of biodiversity, and the ecological equilibrium of destinations [3-5]. The economic impact associated with tourism is the leakage effect, which restricts the local communities from holding and retaining the gains

from tourism [6]. The demonstration effect, acculturation, increasing crime and prostitution, health hazards, displacement of communities, general host irritation, and commercialization of culture are the adverse social and cultural impacts associated with tourism [7]. The residents of the destinations have had to absorb cultural shocks with discernible social and economic dimensions. Indiscriminate tourism development has led to confrontation and struggle with the local community that is striving to maintain its distinct culture and heritage. The absence of fiscal policy and lack of concerns about the local community in tourism plans and programs have led to dissatisfaction among local communities towards tourism. Hence, the reaction and resistance of stakeholders against mass tourism are more organized in all tourist destinations. The tourism industry has recognized the adverse impacts of tourism on the environment, economy and society focused attention on making tourism more sustainable [8].

Sustainable tourism is the most comprehensive approach to achieve sustainable development by mitigating the adverse impacts of tourism. Sustainable tourism is defined as "tourism development that meets the needs of present tourists and host regions while protecting and enhancing opportunities for the future. It is envisaged as leading to management of all resources in such a way that economic, social, and aesthetic needs can be fulfilled while maintaining cultural integrity, essential ecological processes, and biological diversity and life support systems" UNWTO [9]. Sustainability assimilates the economic, environmental, and socio-cultural characteristics of tourism development. "Sustainable tourism development requires the informed participation of all relevant stakeholders as well as strong political leadership to ensure wide participation and consensus-building. However, achieving sustainable tourism is a continuous process and it requires constant monitoring of impacts and introduces preventive and corrective measures whenever necessary" UNWTO [10].

Tourism development in India is passing through a critical path. Lopsided planning and haphazard implementation of tourism plans have brought a plethora of problems and issues, which challenge the economic, social, and environmental existence of the destinations. National Tourism Policy, Incredible India campaigns, Millennium Development Goals (MDG), Bharat Dharshan and Atithi Devo Bhava campaign, Swadesh Darshan and PRASAD, Ecotourism Guidelines, and Sustainable Tourism Criteria for India and Indicators for Tour Operators and the Accommodation Sector (STCI) are the manifestations of sustainable tourism development in India. Tourism involves a complex and dynamic interaction between destinations and various stakeholders representing contradicting and conflicting interests, which exerts a profound impact on the economy, ecology, and society. This complex interaction has widened the horizons of tourism management as a discipline and has also opened new vista and dimension to the research that can lead to better destination management for achieving social, economic, and ecological sustainability. The principles of sustainable tourism have been introduced and implemented in India for more than two decades. However, there are a limited number of studies conducted to evaluate various dimensions of planning and implementation of sustainable tourism. Thus, there is a wide gap in the empirical literature on sustainable tourism. This study is a humble beginning to bridge the gap between the theoretical knowledge and empirical evidence on sustainable tourism development in India.

Delhi has been recognized as the model sustainable heritage tourism of India. The tourism industry is an important segment of Delhi's economy and the government has integrated

sustainable tourism as a developmental strategy to achieve faster, sustainable, and more inclusive growth. The main objectives of the research paper are: -

- To examine the economic, environmental, and socio-cultural impacts of tourism from the perspective of tourists.
- To explore how far tourism development has helped Delhi to accomplish economic, environmental, and socio-cultural sustainability.

Exploratory research was conducted for appraising the sustainability of tourism based on a questionnaire survey conducted at various tourist places across Delhi. This research paper has used exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and structural equation modelling (SEM) for examining and analysing the sustainability of Delhi Tourism.

This paper is organized as follows. In section 2 provides a discussion on previous researches on sustainable tourism development. Section 3, materials and methods describe the sample, methods, and materials adopted for measuring the variables and analysing the data and interpretation of the results. Section 4, results and discussion, examines the data structure and empirically testing and verifying the research hypothesis using descriptive statistics, exploratory factor analysis, and structural equation modelling. Section 5, Conclusion, concludes the research paper and discusses future directions for research.

REVIEW OF LITERATURE

The impact of tourism is classified into three categories, economic environmental, and socio-cultural. Tourism development brings both positive and negative impacts on the economy, environment, and society. The economic benefits derived from tourism contribute to overall socio-economic development and accelerated growth in the economy [11]. The positive impacts of tourism are the improvement in the living standard, generation of employment, reduction in mass poverty, improvement in infrastructure and recreational facilities, and increase in domestic and foreign investment. However, tourism increases the cost of living, inflates the prices of goods and services, and escalates the value of housing and properties. Tourism provides huge employment opportunities to all sections of society that improves their living standard and quality life [11,12]. Vellas [13] suggests that tourism is an effective mechanism for underdeveloped and developing economies, which reduces eternal poverty and improves the living standard of the resident community. The infrastructure development for catering tourism is not only beneficial to local communities but also supporting many productive activities in the host country [14].

Tourism is a seasonal business for many destinations and those who are completely dependent on tourism may face the problem of unemployment or under-employment during off-seasons [3,15]. During peak seasons, the increase in tourism activities shoots up the prices of goods and services, which is a big disadvantage for the local community. “sustainable tourism mitigates the adverse economic impacts and warrants viable, long-term economic operations, providing socio-economic benefits to all stakeholders that are fairly distributed, including stable employment, income-earning opportunities, and social service to host communities, and contributing to poverty alleviation” UNWTO [10].

Tourism has a special relationship with the environment because the natural and cultural environment is intimately associated with tourism. The destinations endowed with beautiful

landscapes, rich biodiversity, unique heritage sites, and vibrant indigenous culture provide destination competitiveness in the tourist markets. The tourism industry devours resources, generates waste, and involves large-scale infrastructure development, which leads to the degradation and devastation of the environment [7]. Water is a precious resource and is being extensively overused by hotels for the personal use of tourists and recreational facilities, which leads to wastage and degradation of water resources [16].

Generally, the concentration of tourism activates around the natural and historical heritage and other public places, create a huge amount of waste in destinations. Littering and accumulation of garbage and the absence of an effective waste management system not only damage and destroys the beauty of the environment but also spreads diseases [17]. The development of tourism infrastructure and excessive concentration of tourism activities are exerting huge pressure on land resources, including vegetation and wildlife [18,19]. The encroachment on public land, the capture of the land of local communities illegally, and blatant violation of rules and regulations regarding the construction of tourism infrastructure by tourism businesses are some of the serious adverse impacts of tourism [17,20,21].

The positive impact of tourism is that the income generated by tourism helps in improving the infrastructural facilities and natural heritage, and preserving historical and cultural heritage, and maintaining public places that attract more tourists [22]. Efficient destination management includes the installation of appropriate mechanisms to address the issues like air pollution, water pollution, and land misuse by changing both the production and consumption patterns of tourism business operators and tourists. Sustainable tourism can be achieved by developing and promoting sustainable transport systems, sewage treatment systems, waste management systems, and the promotion and efficient utilization of non-renewable and renewable energy. The government and tourism industry make aware both community members and tourists about conservation and preservation of the environment.

Tourism helps to conserve and preserve historical and cultural heritage. Socio-culture aspects of tourism are very sensitive because they can become assets or liabilities. Every country maintains and preserves its natural heritage like historical and cultural monuments, arts, and crafts to attract tourists. It also increases knowledge about the host culture, their festivals, music, cuisine, religion, language, etc., which help in renewing cultural pride among the host country [15,23]. The interaction between tourists and the host population involves a learning process in which they understand the culture, ideas, and values of respective countries [24].

The socio-cultural impacts associated with tourism are the demonstration effects, acculturalization, increasing crime and prostitution, health hazards, displacement of communities, host irritation or friction, and commercialization of culture [7]. Tourists, who are coming from different cultures and environments and their behaviour in the host community can be either beneficial or adversely affect the local community. The physical presence of the tourists may change the quality of life, structure of social organizations of local residents [25]. Tourism leads to commodification and loss of authenticity of culture and identity when local communities change themselves as per the taste of tourists [26]. The presence of tourists can lead to noticeable behaviour in the host destination. Sex tourism, sexual exploitation of women and children, gambling, drug abuse, alcoholism, and other anti-social activities lead to host irritation [15,19,27,28] Sometimes tourists ignore the local customs and culture and disrespect

them out of carelessness. The immoral behaviour and negative attitude of the tourist towards the host population and their culture cause host populations' irritation towards tourism [29,30]. Thus, tourism can not only protect and promote historical and cultural heritage but also damage the social structure, rich and diverse socio-cultural traditions, and local livelihood. "The sustainable tourism respects the socio-cultural authenticity of host communities, conserves their built and living cultural heritage and traditional values, and contributes to intercultural understanding and tolerance" UNWTO [10].

Tourism is a double-edged sword. Indiscriminate tourism development also brings about irreparable damages to the economy, ecology, and society. The challenge is for the tourism industry to maintain the balance between these three pillars of sustainability for sustaining the growth of the tourism industry, UNWTO [31]. Sustainable tourism is a comprehensive approach, which integrates all the stakeholders of tourism for mitigating tensions and frictions created by the complexity of interactions between the tourism industry, tourists, natural environment, and local communities. According to Swarbrooke [32] "tourism, which is economically viable but does not destroy the resources upon which the future of tourism will depend, notably the physical environment and the social fabric of the host community is known as sustainable tourism". Long-term economic, environmental, and social sustainability can be achieved by maintaining a balance between the destination's physical characteristics and the tourism industry [33].

Tourism development should be community-based; education and training programmes must be imparted to the communities for managing and protecting the local heritage and natural resources, and conservation of cultural diversity and local land and property rights [34]. Community-based tourism along with formal tourism is an appropriate form of economic development for indigenous communities. Hence, the integration of native communities and traditional wealth add value to the tourism industry [35]. Ensuring sustainability of the tourism industry depends upon the appreciation of local complexities as well as broad commitments from all the tourism stakeholders to develop nature tourism [36].

The destination governance system is an important ingredient of sustainable tourism, which encompasses a wide spectrum of functions from framing tourism policies and programmes, creation and maintenance of tourism infrastructure, and marketing of tourism products. The general safety and security are the main concern of tourists and the destinations should provide a safe and secure environment to visitors. The efficient law and order system, the expediency of the legal system, general safety and security measures provided at destinations, a conducive visa regime, and good behaviour and positive attitude of officials towards tourists are also important destination characteristics that can draw tourists from domestic and international tourist markets, UNWTO [10]. Tourism policy is an important pillar of sustainable tourism. An effective tourism policy embraces sustainability principles through strengthening the institutional structure, tourism governance, and integrating various stakeholders in the tourism sector. The sustainable tourism policy should envisage development, management, and coordination of tourism activities and implementation of policies with multi-stakeholder co-operation and collaboration such as tourism business operators, host population, and NGOs, WTO [10]. Sustainable tourism development aims at maintaining high levels of tourism satisfaction and guarantees an unforgettable experience to tourists and promotes sustainable tourism practices among all stakeholders. It also considers current and future economic, social

and environmental consequences on destinations by considering the requirements of tourists, host communities, and industry.

MATERIALS AND METHODS

Research Hypothesis

This research paper examines the economic, environmental, and social impact of Delhi tourism, and also explores how tourism development has helped Delhi to achieve economic, environmental, and socio-cultural sustainability. This research paper has formulated five alternative research hypotheses for empirically verifying the sustainability of tourism development, based on the review of the literature. These hypotheses are stated as follows: -

- H:1 Environmental Pressure (EP) is negatively related to sustainable tourism development (STD).
- H2: Environmental Management (EM) is positively contributing to sustainable tourism development (STD).
- H:3 Economic Empowerment (EE) is positively related to sustainable tourism development (STD).
- H4: Socio-cultural Pressure (SP) is negatively related to sustainable tourism development (STD).
- H5: Destination Governance (DG) Mechanisms are directly related to sustainable tourism development. (STD).

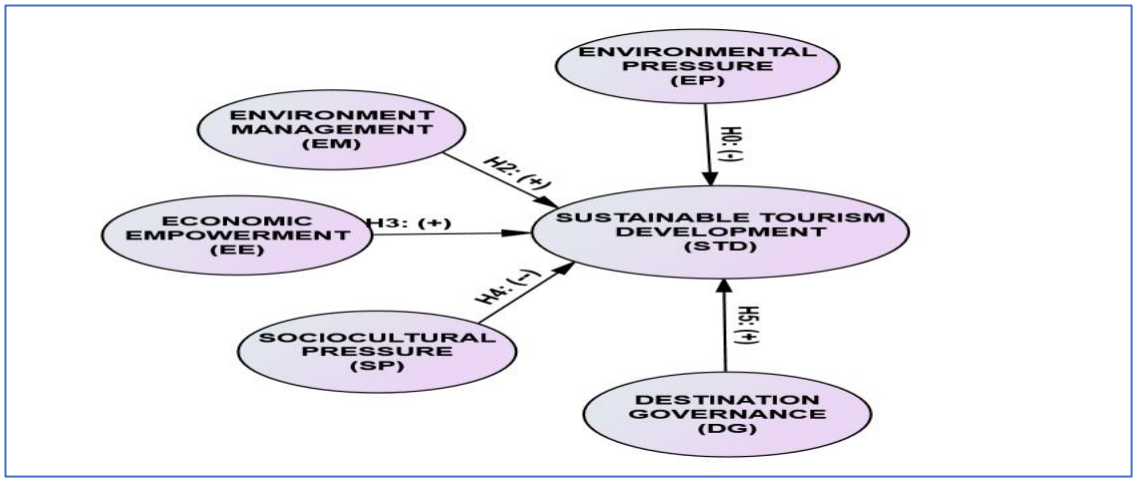


Figure I: Sustainable Tourism Development Model for Testing Hypotheses

Scale Development for Sustainable Tourism

Based on the "making tourism more sustainable, a guide for policymakers" by UNEP and UNWTO [10], a structured questionnaire was designed as a survey instrument by including indicators that measure the economic, environmental, and socio-cultural sustainability, and tourism governance. This paper has identified 12 variables for representing environmental sustainability, such as Pressure on Water Resources, Tourism Increases Pollution, Pressure on Land Resources, Pressure on Transportation, Pressure on Natural Vegetation and Waste Generation, Water Resources Management, Pollution Control, Land Resources Management, Transportation Management, Protection of Natural Vegetation and Waste Management. The economic sustainability was measured using 4 variables such as tourism causes High Inflation,

Employment Generation, Improving Standard of Living, and Preference for Locally Made Products.

To measure the socio-cultural sustainability of tourism development, 6 variables are identified such as Tourism protects and preserve Social and Cultural Heritages, Promote Local Festivals and Folklore, Commercialisation of Culture, Cultural Clashes, Increase Antisocial Activities, Loss of Habitat and Bad Influence on Children. Destination governance is composed of 7 variables that are measured through Tourism Plans, Safety and Security, Emergency Mechanisms, Friendly Attitude of Officials Towards Tourists, Promotion of Energy Conservation, Environmental Education, and Community management of the environment. Thus, a questionnaire with 29 statements was developed for measuring the economic, environmental, socio-cultural sustainability of tourism development. Two professors who are specialized in tourism and two eminent persons from the tourism industry examined the questionnaire and confirmed the contentment validity.

Sample, Sample Design and Research Methods

Primary research was undertaken for examining tourism sustainability through a questionnaire survey conducted at different tourist places across Delhi. The questionnaire survey was executed randomly among the tourists. A database of 201 tourists was prepared to study the sustainability of Delhi tourism. A five-point Likert scale is used to evaluate each variable based on the following scale: 1= strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree [37].

For examining the economic, environmental, and socio-cultural sustainability of tourism development, a questionnaire survey was conducted randomly among the tourists at important tourist places of Delhi. The number of tourists who participated in the survey was 201, which consisted of 68% males and 32% females. The survey ensured the representation of respondents from all age groups ranging from 18 years to senior citizens. Tourists participated in the survey composed of 24% from the age group of 18-25, 30% from the age group of 25-40, 28% from the age group of 40-60, and 18% from senior citizens. The educational background of tourists is another demographic characteristic, which states that tourists in the sample consisted of 43% undergraduates, 36% graduates, and 21% postgraduates. The sample is also representing tourists from the low-income group, the middle-income group, and the rich people. The collected data shows that respondents with income levels above Rs. 0-5,00,000 represent 22%, income between Rs. 5,00,000-10,00,000 represent 51% and income above Rs. 10,00,000 represent 27% of the total tourists. The tourists who participated in the survey were predominantly domestic tourists and the composition of domestic and international tourists was 78% and 22% respectively. The normality condition of data had checked using skewness and kurtosis before performing data analysis. It was established that the data fulfill the normality assumption and skewness -1 and +1 and kurtosis 3, which lie within the permissible range. The size of the sample used in the analysis is 201, which is acceptable for a complex model with several dimensions exceeds six [38].

Descriptive statistics, exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and structural equation modelling (SEM) have been performed for analysing and interpreting the perception of tourists about the sustainability of Delhi tourism. This paper has used Excel, SPSS

20, and AMOS 23 for recording and processing data. Exploratory factor analysis (EFA) is applied for determining the dimensions of sustainability of tourism development.

Confirmatory factor analysis (CFA) is performed for establishing the reliability and validity of measured variables and dimensions or constructs, using the composite reliability (CR), McDonald constructs reliability (MaxR(H)), and average variance extracted (AVE). The structural equation modelling (SEM) approach is adopted for testing the hypothesis and simultaneously examining the structural relationship existing among the proposed constructs using the maximum likelihood estimation (MLE) method [39]. The chi-square test (χ2/ df), goodness-of-fit index (GFI), adjusted goodness fit index (AGFI), root mean square error of approximation (RMSEA), standardized root mean residuals (SRMR), normed-fit-index (NFI), non-normed-fit-index (NFI) or Tucker-Lewis Index (TLI) and comparative fit index (CFI) are used for evaluating the goodness-of-fit of the proposed model.

FINDINGS AND DISCUSSION

Exploratory Factor Analysis (EFA)

The exploratory factor analysis (EFA) is applied for determining the dimensions of sustainability of tourism using principal component analysis (PCA) with the varimax rotation. The sampling adequacy and normality of the distribution were examined through the Kaiser-Meyer-Olkin measure (0.669) and Bartlett's test (1649.412, df 153, p 0.00) before naming the factors. Six factors are extracted based on an eigenvalue greater than 1 and these factors together explain 68% of the total variance. These factors are named environmental pressure (EP), environment management (EM), economic empowerment (EE), socio-cultural pressure (SP), destination governance (DG), and sustainable tourism development (SD).

Descriptive Statistics

Table I, presents the mean and standard deviation of 18 measured variables, which form the 6 constructs, environmental pressure (EP), environmental management (EM), economic empowerment (EE), socio-cultural pressure (SP), destination governance (DG), and sustainable tourism development (SD). The mean value of 2.51 on Tourism Increases Pollution (EP1) reveals that tourism is not responsible for air pollution in Delhi. The mean value of Pressure on Transportation (EP2) is 2.52 which shows that tourism is not putting pressure on transportation infrastructure. The pressure on Land Resources (EP2) has also reported an average value of 2.63 which also reject the arguments that tourist is responsible for pressure on land resources. The pressure on Natural Vegetation and Wildlife (EP4) has recorded a mean value of 2.51 with a standard deviation of 0.93, which explains that tourism is not putting pressure on natural vegetation.

The mean value of Pollution Control (EM1) is 3.23, which reveals that the Delhi administration has been taking appropriate measures to control air, water, and land pollution. The average value of Transportation Management (EM2), 3.30, reveals that the transportation system is well maintained by the Delhi Government. Similarly, the average value of Land Resource Management (EM3) is 3.22, which shows that the land resources have been effectively managed in tourist places. The mean score of Protection of Natural Vegetation (EM4) 3.09, show that the government is successful in managing natural vegetation.

The mean of Employment Generation (EE1) has recorded a low value of 1.93 which establishes that tourism is not generating sufficient employment opportunities for local people. The average score of Promote Local Products (EE2) is 2.30 also establishes that tourism has failed to promote locally made products in tourist places. The average score of Improving Living Standard (EE3) 2.08 also reveals that tourism has not facilitated the improvement of the living standard of people. Low mean scores fail to substantiate that tourism is contributing to the economic empowerment of local people.

The descriptive statistics on Anti-Social Activities (SP1) 3.17 and 0.99 show that tourism has increased antisocial activities such as drugs, prostitution, and other criminal activities. The mean value and standard deviation of Commercialisation of Culture (SP2) 3.45 and 0.93 reveal that the increasing tourism activities have led to the commercialization of culture. The Emergency Mechanism (DG1) and Behaviour of officials (DG2) recorded mean scores of 2.90 and 2.53 with standard deviations of 0.85 and 0.92. These low scores signal that the behaviour of officials and emergency mechanisms provided at tourist destinations are not conducive for promoting tourism.

The mean value and standard deviation of energy conservation (SD1) are 3.20 and 1.03, which substantiate that the government is promoting renewable energy and conservation of conventional energy. However, the low mean score and standard deviation of Environmental Education (SD2) 2.78 and 0.97 shows that the environmental education and awareness campaigns are not effective in mitigating the adverse impact of tourism on ecology. Similarly, the mean and standard deviation of Community Management (SD3) 2.77 and 1.06 respectively, do not support the argument that the government integrates the local community in the management and administration of tourist destinations. Community participation and environmental education are the core of sustainable tourism development that is ignored by the government and tourism industry. Thus, the descriptive statistics, by and large, do not provide conclusive evidence of the sustainability of tourism development in Delhi.

Table I: Descriptive Statistics

Constructs and Measured Variables	Mean	Standard Deviation	Factor Loading	Cronbach Alpha (α)
Environmental Pressure (EP)				***0.859***
EP1: Tourism increases Pollution.	2.56	0.95	0.91	
EP2: Pressure on Transportation.	2.52	0.85	0.69	
EP3: Pressure on Land Resources.	2.63	0.89	0.88	
EP4: Pressure on Natural Vegetation.	2.51	0.93	0.64	
Environment Management (EM)				***0.910***
EM1: Pollution Control.	3.23	1.00	0.89	
EM2: Transportation Management.	3.30	0.99	0.87	
EM3: Land Resources Management.	3.22	1.06	0.89	
EM4: Protection of Natural Vegetation.	3.09	1.00	0.74	
Economic Empowerment (EE)				***0.689***
EE1: Employment Generation.	1.93	0.94	0.95	
EE2: Promote Local Products.	2.30	0.97	0.62	
EE3: Improving Living Standard.	2.08	0.91	0.67	
Socio-Cultural Pressure (SP)				***0.600***
SP1: Antisocial Activities.	3.17	0.99	0.88	
SP2: Commercialization of Culture.	3.45	0.93	0.49	
Destination Governance (DG)				***0.604***
DG1: Emergency Mechanisms.	2.90	0.85	0.79	
DG2: Friendly Behaviour of Officials.	2.53	0.92	0.63	
Sustainable Tourism Development (STD)				***0.687***
SD1: Energy Conservation.	3.20	1.03	0.61	
SD2: Environmental Education.	2.78	0.97	0.66	
SD3: Community Management.	2.77	1.06	0.70	

Source: Results from Primary Data

Confirmatory Factor Analysis (CFA)

Confirmatory Factor Analysis (CFA) is a method of testing how well a pre-specified measurement theory composed of measured variables and factors fits reality as captured by data [38]. Based on the factor analysis, this paper has identified sustainable tourism development (STD) as the dependent variable, which is composed of measured variables such as Energy Conservation (SD1), Environmental Education (SD2), and Community management of the environment (SD3). The independent variables are environmental pressure (EP), environment management (EM), economic empowerment (EE), socio-cultural pressure (SP), and destination governance (DG). A measurement model was built by integrating sustainable tourism development as the dependent variable and the other 5 constructs as independent variables. Figure: II exhibits the measurement model of sustainable tourism development based on the constructs derived from the exploratory factor analysis (EFA).

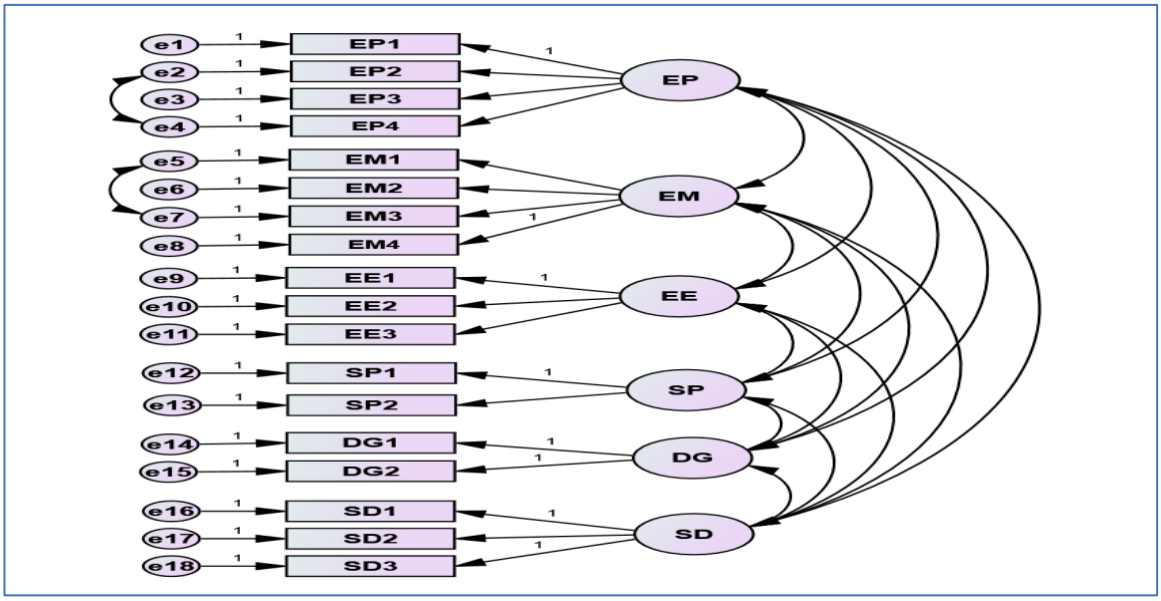


Figure II: Measurement Model of Sustainable Tourism Development

A confirmatory factor analysis (CFA) is performed for examining and substantiating the convergent validity and the discriminant validity of the structural equation model. The individual reliability of indicator variables as well as the internal consistency of the constructs are examined from the initial measurement model with the help of factor loadings, Cronbach's alpha, composite reliability (CR), average variance extracted (AVE), maximum shared variance (MSV), McDonald construct reliability MaxR(H), square root of AVE and inter construct correlation coefficients.

The Cronbach alpha (α) is used to assess the reliability of the scale, which reflects the truthfulness, consistency, and stability of objects of investigation. The higher the value of Cronbach α value, the greater the degree the convergence of investigation results is and the higher reliability the questionnaire has. Table I shows the Cronbach's alpha (α) for the sustainability indicators, environmental pressure (EP) 0.859, environmental management (EM) 0.910, economic empowerment (EE) 0.689, socio-cultural pressure (SP) 0.600, destination governance (DG) 0.64 and sustainable tourism development (STD) 0.687. The coefficients of Cronbach's alpha (α) reveal the unidimensionality of the measured variables as the coefficients for all the constructs fall within the minimum critical value of 0.60 as suggested by Hair, et al, [38].

Composite reliability (CR) and McDonald construct reliability (MaxR(H)) are the alternative multidimensional reliability coefficients that show how well the measured variables can reflect the construct which is being measured [40]. The composite reliability measure is the most suitable indicator of the reliability of each indicator variable or measured variable than Cronbach alpha (α). Table II shows the composite reliability indices for environmental pressure (EP) 0.866, environmental management (EM) 0.915, economic empowerment (EE) 0.796, destination governance (DG) 0.708, and sustainable tourism development (STD) 0.700, which are falling within the minimum acceptable value (≥0.70). Hair et al, 2019) However, the composite reliability coefficient for sociocultural pressure (SP) 0.672, which is lesser than the prescribed lower limit. The McDonald construct reliability coefficients (MaxR(H)) explain the

size in proportion and nature of the relation between the latent constructs and measured indicators [41]. Table II reveals that the MaxR(H) coefficients for all the constructs are greater than the minimum coefficient level of 0.70 which indicates that the reliability of measured variables.

The convergent validity indicates the degrees to which the indicators of a specific construct converge or share the proportion of common variance. Convergent validity is also tested by using the measure average variance extracted (AVE). The minimum cut-off value for the AVE is 0.50 for each construct, which represents the capacity of the specific construct to explain more than 50% of the variance of its indicators on an average. Table II shows that each construct has recorded an average variance extracted (AVE) greater than 0.50, which exceeds the cut-off value of 0.50, signifying a higher convergent validity among the measured variables in the model [38]. However, the AVE for sustainable Tourism development (SD) is lower than the cut-off rate of 0.50.

The discriminant validity denotes the extent to which a construct diverges from other constructs. The discriminant validity can be judged by comparing the average variance extracted (AVE), the maximum shared variance (MSV), and inter-construct correlation coefficients [42]. Table II displays that the AVE is greater than MSV for all constructs. Similarly, the square root of the AVE that is shown on the diagonals in the bold faces is greater than the rest of the inter-construct correlation coefficients. Thus, the results provide evidence of the high discriminant validity among the five latent constructs.

Table II: Model Validity Measures

CONSTRUCTS	CR	AVE	MSV	MaxR(H)	EP	EM	EE	DG	SP	SD
EP	0.866	0.623	0.054	0.909	**0.789**					
EM	0.915	0.729	0.150	0.948	-0.197*	**0.854**				
EE	0.796	0.573	0.027	0.898	0.165*	-0.040	**0.757**			
DG	0.672	0.506	0.340	0.676	0.075	0.344***	0.068	**0.712**		
SP	0.708	0.581	0.050	0.965	0.114	0.124†	0.042	0.013	**0.762**	
SD	0.700	0.437	0.340	0.700	-0.233*	0.387***	0.090	0.583***	0.224*	**0.661**

Note: EP=Environmental pressure, EM= Environment Management, EE= Economic Empowerment, SP = Socio-cultural Pressure, DG = Destination Governance, ST = Sustainable Tourism Development. CR = Composite Reliability, AVE = Average variance extracted, MSV = Maximum shared variance, MaxR(H) = McDonald construct reliability, Inter-construct

correlation coefficients are shown under respective constructs and Square root of AVE are shown diagonally in bold values. p-values are reported in the parentheses below parameter estimates: p<0.10* p<0.05, ** p<0.01***
Source: Results from Primary Data

Goodness of Fit Indices

The Chi-square (χ2) statistic is a traditional measure for evaluating the overall fit, which examines the magnitude of the difference between a sample and fitted covariance matrices. The overall model fit is decided by examining the Chi-square statistic (χ2) and associated p-value. A good model fit gives an insignificant result at the 0.05 threshold. The Chi-square test reveals either a badness of fit or lack of fit [43]. However, the rejection of a model is based on the inadequacy of the Chi-square value (χ2), which is statistically influenced by sample size and model complexity [38]. Hence, other fit indices such as GFI, AGFI, RMSEA, SRMR, NFI, TLI, and CFI are also applied to evaluate the model fit. Table III presents the various Goodness of Fit Indices (GFI) for the measurement model of sustainable tourism development of Delhi.

Table III: Goodness of Fit Indices

Goodness of Fit Indices (GFI)	Threshold Value	CFA Model
Chi-square (χ2) (CMIN)		231.526 *** (df 118)
(CMIN/DF)	<0.30	1.962
Goodness of Fit Index (GFI)	≥0.90	0.900
Adjusted Goodness Fit Index (AGFI)	≥0.90	0.847
Root Mean Square Error Approximation (RMSEA)	≤0.08	0.069
Standardized Root Mean Residual (SRMR)	≤0.08	0.072
Normed Fit Index (NFI) (Delta 1)	≥0.90	0.874
Tucker Lewis index (TLI) (rho2)	≥0.90	0.912
Comparative Fit Index (CFI)	≥0.90	0.932

Source: Results from Primary Data

Table III on Goodness of Fit Indices (GFI), demonstrates the fitness of the measurement model. The Chi-square (χ2) statistic of the CFA model proves that the dimensions of sustainable tourism are statistically significant (χ2 231.526 (p .000) (DF 118). The alternative measure to Chi-square is relative/normed chi-square (χ2/df) that minimizes the impact of sample size on the model Chi-square (χ2). Table III shows that the chi-square value to degrees of freedom is 1.968 (χ2 /df = 1.968), which lies below the cut-off value of 3 [38].

The goodness of fit index (GFI) is an alternative to the Chi-square test, which calculates the proportion of variance that is accounted for by the estimated population covariance [45]. The goodness of fit index (GFI) from Table III shows a value of 0.900, which is within the acceptable range of 0.90 to 1.0. However, the adjusted goodness of fit index (AGFI) is 0.847, which is below the cut-off rate. The standardized root mean residual (SRMR) is the square root of the difference between the residuals of the sample covariance matrix and the hypothesized covariance model. The SRMR is 0.072 which is lying between 0 and 1.0 or a conservative upper limit of 0.8 [44]. The root means square error approximation (RMSEA) describes how well the model would fit with unknown, but optimally chosen parameter estimate with the population covariance matrix. The RMSEA of 0.069 falls well between the stringent cut-off value of 0.06 and 0.07 [43].

The normed fit index (NFI), which is an incremental or comparative fit index that does not use chi-square in its raw form, but compares the chi-square value to a baseline model that tests the null hypothesis that all variables are uncorrelated [38,46]. The values for this statistic range between 0 and 1 and a good model fit requires an acceptable value greater than 0.90. However, the normed fit index (NFI) recorded a moderate model fit with a value of 0.874. A major limitation of this index is that it is sensitive to small sample size. The non-normed fi index (NNFI) or Tucker-Lewis Index (TLI) that rectifies the sensitivity of normed fit index (NFI) to a small sample. Bentler and Hu [44] suggest an acceptable value of >0.95 for a good model fit, however, a minimum cut-off value of 0.80 is preferable. Table II depicts the Tucker-Lewis Index (TLI) value of .912, which is above the minimum cut-off value.

The comparative fit index (CFI) is a modified form of normed fit index (NFI), which considers the small sample size. The CFI compares the sample covariance matrix with the null model that assumes all the constructs are uncorrelated. A cut-off criterion of CFI>0.90 indicates the preferable goodness of fit of the model [43,44]. Table II shows that the comparative fit index (CFI) is 0.932, which is within the acceptable range prescribed and reveals a good model fit. Thus, the goodness-of-fit (GOF) indices establish that the structural equation model (SEM) fits well with the empirical data.

Structural Equation Model (SEM) and Hypothesis Testing

The structural equation modelling (SEM) is designed for simultaneously examining the structural relationship among the proposed constructs and testing the hypothesis using the maximum likelihood estimation (MLE) technique [39]. The empirical research hypotheses are verified through relationship paths of model elements using SEM. This paper uses five sustainability constructs in the SEM for testing the hypotheses. Figure III exhibits the model on sustainable tourism development of Delhi and Table IV shows the standardized maximum likelihood parameter estimates from the structural equation model (SEM)

Figure III and Table IV show the regression path coefficients and test statistics, which prove that 3 out of 5 hypotheses have passed the estimated structural model testing. Table IV shows that the regression coefficient of environmental pressure (EP) is significant and negative, which is consistent with the empirical hypothesis, H1 that environmental pressure is inversely related to sustainable tourism development (STD). The significance and negative coefficient of environmental pressure (EP) prove that tourism has been exerting a tremendous negative impact on environmental sustainability. The regression path coefficient of environment management (EM) is insignificant and positive, which rejects the empirical hypothesis H2, that environmental management directly contributes to sustainable tourism development (STD). Similarly, the regression coefficient of economic empowerment (EE) is insignificant and positive. The insignificant path coefficient strongly rejects the research hypothesis H3 that economic empowerment (EE) is directly contributing to sustainable tourism development (STD). The regression coefficient of socio-cultural pressure (SP) is significant but positive as against the direction of research hypothesis H4 that socio-cultural pressure is inversely related to sustainable tourism development. This finding does not provide conclusive evidence to substantiate the argument that tourism is exerting an adverse influence on the social sustainability of Delhi tourism. The regression coefficient of destination governance (DG) is statistically significant and positive, which strongly supports the research hypothesis H5 that

destination governance mechanisms are directly contributing to the sustainability of tourist destinations of Delhi.

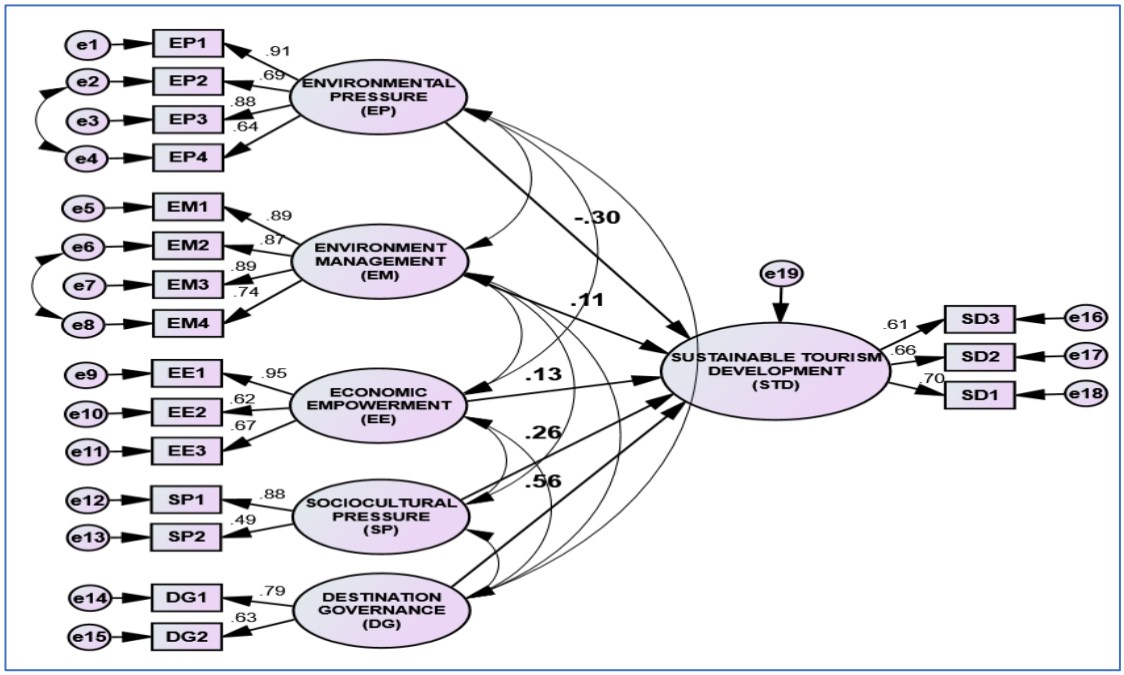


Figure III. Model of Sustainability of Tourism Development in Delhi

Table IV: Standardised Maximum Likelihood Parameter Estimates from Structural Equation Model (SEM)

Hypothesis	Path	Standardized Coefficient	SE	CR	P-value	Support for Hypothesis
H1	Sustainable Tourism Development (STD) → Environmental Pressure (EP) (-)	-.30	.065	-3.138	.002**	Accepted
H2	Sustainable Tourism Development (STD) → Environment Management (EM) (+)	.11	.078	1.119	.263	Rejected
H3	Sustainable Tourism Development (STD) → Economic Environment (EE) (+)	.13	.055	1.616	.106	Rejected
H4	Sustainable Tourism Development (STD) → Socio-cultural Pressure (SP) (-)	.26	.097	1.925	.054*	Accepted
H5	Sustainable Tourism Development (STD) → Destination Governance (DG) (+)	.57	.123	4.077	****	Accepted

Note: Regression path coefficients, standard errors (SE), critical ratios (CR), and p-values are reported in the parentheses below parameter estimates: p<0.10* p<0.05, ** p<0.01***
Source: Result from Primary Data

Discussion

The mass influx of tourists and indiscriminate exploitation of resources damage the purity of natural heritage. The research findings on environmental pressure (EP) unequivocally establish that tourism development is putting a huge adverse impact on air quality, land resources, transportation infrastructure, and natural vegetation. Tourism development is severely affecting not only the sustainability and competitiveness of the destinations but also the safety and security of human beings. Hence, the government should adopt suitable strategies for the conservation of physical integrity, biodiversity, resource efficiency, and environmental purity, which are the essential elements of the environmental sustainability of Delhi.

Tourism is a resource-intensive industry and utilizes both renewable and non-renewable resources. The research findings validate that unsustainable tourism development leads to environmental pollution, mismanagement of land, excessive pressure on transportation infrastructure, and degradation of precious flora and fauna. The rejuvenation of natural resources and environmental purity can be maintained by adopting sustainable conservation and management of natural resources. Sustainable resource management encompasses the activities such as the installation of appropriate mechanisms to address environmental pollution, mismanagement of land, pressure on transportation infrastructure, and degradation of natural vegetation. However, the research findings on environmental management (EM) establish that the environmental management strategies adopted by the government and tourism industry could not mitigate the adverse environmental impact of tourism. The Delhi government has to incorporate appropriate strategies and programmes to make tourism more environmentally sustainable.

Tourism contributes towards overall socio-economic development through accelerated economic growth by improving living standards, generating employment opportunities, promoting locally made products, and reducing mass poverty and hunger. The research findings on economic empowerment (EE) demonstrate that tourism development has unsuccessful in contributing significantly to the economic empowerment of the local community. Hence, the government of Delhi has to utilize tourism as an engine of economic growth by adopting appropriate strategies for the economic empowerment of local communities across the tourist places in Delhi.

Socio-cultural sustainability of tourism is a critical pillar of sustainable tourism. Tourism helps to conserve and preserve both historical and cultural heritage. Many empirical types of research have established that indiscriminate mass tourism has increased competition for scarce resources, which resulted in adverse socio-cultural impacts such as cultural clashes, anti-social activities, devaluation of traditions, loss of identity and values, and social disharmony. The research findings on socio-cultural Pressure (SP) do not lead to the conclusion that tourism is adversely affecting the social and cultural sustainability of Delhi.

Destination governance (DG) is another important aspect of sustainable tourism, which assimilates the sustainability principles through the integration of various stakeholders of tourism and reinforcement of institutional structures for providing direction to manage tourism destinations sustainably. The research findings establish that the destination governance system is reinforcing sustainable tourism development in Delhi. However, during

the survey, the stakeholders especially the local community members had expressed strong resentment over the way government and tourism planners formulate and implement the tourism plans and programmes. They complained that the government has kept away from the process of formulation and implementation of tourism plans and programmes. Hence, the Delhi government and tourism industry must ensure the participation of the local community while planning, designing, and implementing tourism plans and policies.

CONCLUSION

This research paper examines the sustainability of tourism and attempts to identify the synergies between environmental, economic, and socio-cultural sustainability in the development paradigm of Delhi. This paper has used exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and structural equation modelling (SEM) for data analysis and interpretation of results. Exploratory factor analysis (EFA) was conducted, using principal component analysis (PCA) with the varimax rotation for determining the dimensions of sustainable tourism. Having been generated six factors from factor analysis, these factors were labelled as environmental pressure (EP), environmental management (EM), economic empowerment (EE), socio-cultural pressure (SP), destination governance (DG), and sustainable tourism development (STD).

Confirmatory factor analysis (CFA) was conducted on extracted factors for verifying the convergent validity and discriminant validity of the final structural equation model with five sustainability dimensions (environmental pressure, environment management, socio-cultural sustainability, economic empowerment, destination governance) as independent variables and sustainable tourism development (STD) as the dependent variable. The significant and negative association between the environmental pressure (EP) validates that tourism has been exerting a huge negative impact on the sustainability of tourism. The regression coefficient of environment management (EM) is insignificant and positive, which rejects the research hypothesis that environmental management directly contributes to sustainable tourism development. The insignificant and positive regression coefficient of economic empowerment (EE) rejects the research hypothesis that tourism is directly contributing to the economic empowerment of the local community in Delhi. The regression coefficient of the socio-cultural pressure (SP) is significant but positive as against the empirical prediction that social and cultural sustainability is negatively related to tourism development. The regression coefficient of destination governance (DM) is significant and positive which, supports the research hypothesis that tourism governance mechanisms are contributing to the sustainable tourism development of tourist destinations. Thus, the research findings directly to us the conclusion that the tourism plan and policies introduced by the governments have not yielded the desired result in achieving sustainable development of Delhi. Hence, the government should adopt proactive measures to mitigate the adverse environmental and economic impact of tourism and also integrate all the stakeholders, especially the local community, while formulating, implementing, and reviewing tourism plans and programmes.

Scope for Further Research: This research paper provided an opportunity to evaluate the sustainability of tourism development in Delhi. The research findings establish that tourism has failed to ensure environmental, economic, socio-cultural sustainability. As this research paper comprehensively examined the sustainability of tourism in Delhi, findings may provide useful inputs to government agencies and the tourism industry while formulating and implementing

tourism plans and programmes. The focus of the research was limited to the perceptions of tourists because of time and monetary constraints. Hence, an important extension of this research would be to examine the economic, environmental, and socio-cultural sustainability from the perspectives of different stakeholders such as the local community, tourism business operators, government officials, and NGOs.

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