Sustainability of Goa Tourism - Perception of Tourists

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Abstract – This research paper attempts to examine the economic, social, and environmental sustainability of Goa tourism and the factors that determine the sustainability of tourism development in Goa. Descriptive statistics and factor analysis are two methods used to examine the sustainability of tourism development. The descriptive statistics establish that tourism development is contributing to the economic and environmental sustainability of Goa. However, tourism has caused unfavorable impacts on the social and cultural environment of Goa. The factor analysis establishes that resource exploitation, resource management, environment management, destination unsustainability, economic sustainability, local sustainability, tourism governance, community engagement, and socio-cultural sustainability influence the sustainability of tourist destinations in Goa.

Keywords – Sustainability, Environment, Development, Governance, Community Engagement.

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1. INTRODUCTION

The tourism industry is considered an engine of economic growth in both developed and developing countries. The tourism industry contributes precious foreign exchange, generates employment, and helps in infrastructure development and the alleviation of poverty. However, inconsiderate tourism development has brought about disastrous implications on the economy, society, and environment of tourist destinations. The massive growth of tourism and the concentration of tourist activities in certain destinations imposed a perceptible strain on local society and resources. The challenge for the tourism industry is to maintain the balance between these three pillars of sustainability for sustaining the growth of the tourism industry. Sustainable tourism has emerged as the most comprehensive approach to achieve sustainable development and mitigate 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." (UNWTO) It emphasizes an optimum balance among economic, environmental, and social aspects of tourism and addresses the needs of visitors, industry, environment, and the host communities. Sustainable tourism can eradicate poverty and gender inequality by maximizing the potentials of tourism by adopting appropriate strategies and integrating all stakeholders of tourism including the indigenous and local communities, (UNCSD).

In India, tourism development has brought a plethora of problems and issues, which challenge the economic, social, and environmental existence of destinations in India. The tourism plans and programs are planned and implemented in such a way that the fruits of economic development have benefited the tourism business operators, promoters of hotels and restaurants, and big corporations at the cost of local communities. Therefore, the central government and state governments have accepted sustainability as the basic premise of development processes, and achieving sustainable development through sustainable tourism is considered the major objective of tourism development in India. For achieving sustainable tourism development, the government of India and the Goa state formulated and implemented various plans and programmes. This research paper has identified Goa as the model of Indian tourism for studying various dimensions of tourism development and the implementation of tourism policies and programs.

The main objectives of this research paper are to study the impacts of tourism on the economy, environment, and society, to examine the economic, environmental and socio-cultural sustainability of tourism development, and to identify the factors contributing to the economic, environmental and socio-cultural sustainability of Goa. Primary research was undertaken for studying the sustainability of tourism through the questionnaire survey conducted at various tourist destinations across Goa. Descriptive statistics and factor analysis were used for the analysis of the

data and interpretation of results. The descriptive statistics establish that tourism development is contributing to the economic and environmental sustainability of Goa. However, tourism has caused unfavourable impacts on the social and cultural environment of Goa. The factor analysis establishes that resource exploitation, resource management, environment management, destination unsustainability, economic sustainability, local sustainability, tourism governance, community engagement, and socio-cultural sustainability influence the sustainability of tourist destinations in Goa.

This paper is organized as follows. Section 2 provides a discussion on previous researches on sustainable tourism. Section 3, research methodology describes the sample, methods, and materials adopted for measuring the variables and analyzing the data. Section 4, analysis of the result, examines the data derived out of the structured questionnaire survey conducted across Goa using descriptive statistics and exploratory factor analysis. Section 5, discussion of the result, provides a brief discussion about the results obtained from the analysis of the result. Section 6, Conclusion, concludes the research paper and discusses future directions for research.

2.   REVIEW OF LITERATURE

Goa is projected as a model tourism destination of India. Meticulously designed and developed tourism products and destinations such as beach tourism, adventure tourism, wildlife tourism, pilgrim tourism, cultural tourism, architectural tourism and village tourism are unforgettable experiences to the visitors. Tourism is considered an important sector of Goa and contributes to the achievement of sustainable development. Tourism generates both positive as well as negative impacts on the economy, environment, and society.

Tourism serves as a major segment of the economy, which provides many economic benefits and changes the destiny of millions of people from the disadvantaged sections of the society. Tourism reduces widespread poverty by boosting national income, generating employment, earning foreign currency, ensuring regional development and promoting handicrafts, etc. There is also a leakage effect of tourism revenue in Goa through either import of construction materials and equipment or consumer goods from other states. Despite having the active involvement of local people in tourism development, the gains derived from tourism are not substantial but the local population to bear the social and environmental burden. (Solomon (2009), Sawrkar et al. (1998)) The rising prices of goods and services and the increasing cost of housing and properties are big disadvantages to the local community, as they have to pay high prices for food, entertainment, housing, etc, Menon (1993).

The environmental challenges faced by Goa are numerous. The over-utilized waste management system, lack of education and awareness about environment conservation, dumping of solid and liquid wastes, limited enforcement of deterrent measures against beach pollution, water bodies, and ecologically sensitive areas, and violation of coastal zone regulation are some of the pressing challenges of Goa tourism. (KPMG and Department of Goa Tourism (2015)) Mass tourism in Goa exceeded carrying capacity and the tourist destinations are overcrowded, water resource in many coastal areas is stressed and vegetation is destroyed due to tourism-related activities, Solomon (2009). The indiscriminate construction activities along the coastal areas have led to the problem of loss of sand dunes, increasing tidal waves, soil erosion, and deposition. (Solomon (2009), Solomon, et al. (2011), Sawrkar et al. (1998), Alvares (1993)) The scarce land and land resources are extracted and exploited at a large scale for tourism in Goa. The heritage sites have almost lost their value and identity due to the absence of adequate mechanisms for the conservation and development of heritage sites. Ahmed and Shankar (2012)

Tourism puts pressure on transportation infrastructure and the Government is not able to meet the travel requirements of both the local community and tourists. The absence of an efficient public transport system has led to the growth of motorbikes and cars substantially, which in turn has aggravated environmental pollution such as air pollution and noise pollution. Waste generation and littering have become major problems in Goa and there is no mechanism existing in Goa for managing and recycling huge quantities of liquid and solid waste generated by the tourism industry, Solomon et al. (2011). The government has initiated setting up waste recycling plants in Saligao and South Goa and Central Goa. KPMG and Department of Tourism Goa (2015)

Tourism has transformed Goa into a cosmopolitan city. The conservation of social heritages, cultural events, and skills, first-hand knowledge about foreign cultures, etc., are the positive impacts of tourism on the culture and society of Goa. Tourism has also empowered females financially through increased job opportunities and the household decision-making power has been shifted away from males to females, Fellario (2015). However, tourism also puts an adverse impact on society and culture. Goa is affected by the influence of western culture, especially among young people. (Solomon (2009) and Fallerio (2015)) Commercialization and vulgarization of local folk traditions including art, culture, and festivals cause gradual destruction of the purity and originality of these unique traditional assets. Tourist destinations especially coastal areas have become a safe place to cover up things such as money laundering, drugs, prostitution, and trafficking in women and children. (Solomon

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(2009), Menon (1993)). Tourism development in Goa has caused the forcible eviction of coastal communities especially the vulnerable indigenous groups from their traditional lands, Solomon (2009). Tourism brings together people having different cultures, languages, lifestyles, and religions, which lead to cultural clashes. (Sawrkar et al. (1988)) To alleviate the negative impact of tourism, the central government and state government have made positive intervention through various Acts and policies.

3. RESEARCH METHODOLOGY

The focus of the research paper has been on three aspects of sustainable tourism development: environmental sustainability, economic sustainability, and socio-cultural sustainability. Primary research has been conducted for examining the sustainability of tourism through the questionnaire survey conducted at different tourist destinations across Goa. A structured questionnaire was prepared based on the review of literature, which was composed of 32 statements representing 32 sustainable indicators on the economy, environment, society and culture, and tourism governance. The 5-point Likert scale, a non-comparative scaling technique has been used for designing the questionnaire. The destinations were selected based on judgment sampling by which the tourist destinations were chosen based on popularity in domestic and international tourism markets. The survey was conducted across Goa covering popular tourist destinations such as Anjuna, Baga, Calangute, Candolim, Miramar, Colva, Benaulim, Palolem, Aguada, Cavelossim, Sinquerim, Vagator, and Panaji. A data set consisting of the responses of 326 tourists was prepared from the questionnaire survey which had executed randomly among the tourists. This research paper has utilized descriptive statistics and factor analysis for examining the perception of tourists on the economic, environmental, socio-cultural sustainability, and tourism governance.

This paper has used demographic analysis to examine the pattern of data. The demographic variables used for data analysis are gender, age, education, income, and nationality of tourists. The number of tourists who participated in the survey was 326, which consisted of 60% males and 40% females. The survey was represented by respondents from all age groups ranging from 18 years old to senior citizens. The tourists who participated in the survey encompass 25% from the age group of 18-25, 35% from the age group of 25-40, 25% from the age group of 40-60, and 15% from above 60 years of age. The educational background of the tourists is another demographic characteristic, which states that the tourists in the sample consisted of 45% undergraduates, 35% graduates, and 20% postgraduates. The sample is also represented by tourists from low-income groups, middle-income groups, and high-income groups. The collected data

shows that respondents with income between Rs. 0-1,00,000 represent 24%, income between Rs.1,00,000-5,00,000 represent 51% and income above Rs.5,00,000 represent 25% of the total tourists. The tourists who participated in the survey were predominantly domestic tourists and the composition of domestic and international tourists in the sample was 78% and 22% respectively.

4. DATA ANALYSIS

This section examines the sustainability of tourism development in Goa from the perspective of the tourists using descriptive statistics and factor analysis.

4.1 Descriptive Statistics

Descriptive statistics such as mean and standard deviation have been used for describing the perception of tourists about the sustainability of Goa tourism. Through descriptive statistics, this paper has examined how tourism development is leading to economic, environmental, and socio-cultural sustainability in Goa. Table 1 provides descriptive statistics for various sustainability indicators of the pillars of sustainable development: economic, environmental, and socio-cultural sustainability.

Table 1: Descriptive Statistics

Pillars of Sustainability	Variables	Mean	Std. Deviation
Tourism Governance	Tourism Plans	3.67	1.08
	Safety and Security	3.70	1.05
	Legal System	3.50	1.01
	Positive Behaviour of Officials	3.82	0.86
	Managed Tourist Destinations	3.59	0.97
	Tourists Follow Sustainable Tourism Practices	3.45	0.98
Economic Sustainability	High Inflation	3.94	1.09
	Trained Guides and Tour Operators	3.10	1.10
	Employment Generation	4.12	0.95
	Poverty Reduction	3.84	0.99
	Prefer Locally Made Products	3.65	1.10
Environmental Sustainability	Pressure on Water Resources	3.60	1.18
	Pressure on Land	3.68	1.06
	Pressure on Transportation	3.65	1.29
	Pressure on Natural Vegetation and Wildlife	3.36	1.12
	Water Management	3.29	0.98
	Land Management	3.13	1.01
	Transportation Management	3.24	1.01
	Management of Natural Vegetation and Wildlife	3.16	1.03
	Waste Generation	3.64	1.12
	Waste Management	3.17	1.21
	Energy Conservation	3.10	1.05
	Promotion of Environmental Education	3.28	1.09
	Community Management of Environment	3.49	1.01
Socio-cultural Sustainability	Promote Socio-cultural Heritages	3.79	1.02
	Revive Festivals and Folklores	3.83	0.85
	Commercialization of Culture	3.76	0.95
	Cultural Clashes	3.17	1.14
	Anti-social Activities	3.61	1.18
	Loss of Habitat	3.26	1.06
	Bad Influence on Children	3.19	1.29
	Local Community Behaviour	3.69	0.90

Source: SPSS output from primary survey

Table 1 discloses the descriptive statistics on tourism governance, economic sustainability, environmental sustainability, and socio-cultural sustainability of tourism in Goa from the perspectives of tourists.

Tourism Governance: Table 1 discloses that the tourists have awarded a mean score of 3.67 to Tourism Policy, which explains that the tourism

plans and programmes implemented by the Goa Government are positively contributing to the sustainability of the tourist destinations. The tourists have assigned an average score of 3.70 to Safety and Security, which proves that general safety and security is the main concern of the tourists and the tourist destinations provide a safe and secure environment to the visitors. The average score of 3.50 on the Legal System establishes that the Goa government is providing adequate safety and security to the tourists in all destinations. The high mean value of the Positive Behaviour of Officials (3.82) establishes that the Goa tourism department and officials are maintaining positive behaviour and friendly attitude towards tourists. The mean score of 3.45 on the sustainable indicator Tourists Follow Sustainable Tourism Practices proves that while visiting tourist destinations, the tourists adopt sustainable tourism practices. The average score on Managed Tourist Destinations (3.59) reveals that tourist destinations are effectively and efficiently planned and managed. The descriptive statistics on tourism governance indicators prove that tourism leads to the sustainability of Goa. Hence, the research findings on sustainability indicators of tourism governance strongly support the empirical research hypothesis that tourism governance is directly contributing to the sustainability of Goa tourism.

Economic Sustainability: Table 1 demonstrates the perception of tourists about sustainable variables such as employment generation, poverty eradication, preference for locally made products, high inflation, and trained guides and tour operators.

The high mean scores of Employment Generation (4.12) and Poverty Reduction (3.84) prove that the employment opportunities generated by the tourism industry are reducing poverty and improving the standard of living of the local community. The high mean score assigned by the tourists for High Inflation (3.94) establishes that Goa experiences a high rate of inflation and general prices of goods and services are exorbitant. A vast majority of tourists responded that they give preference to Locally Made Products (3.65) when they visit Goa. The average score on Trained Guides and Tour Operators (3.10) reveals that in Goa, the guides and tour operators are properly trained and skilled and they provide good service to the tourists.

The descriptive statistics on economic sustainability indicators prove that tourism development is generating huge employment opportunities, reducing poverty, and improving the standard of living of the local community. The preference of the tourists for locally made products and properly trained and skilled guides and tour operators are important economic factors, which influence the sustainability of tourism development in Goa. The research findings on economic sustainability indicators strongly support the empirical hypothesis that

tourism development is directly contributing to the economic sustainability of tourism in Goa. However, the high inflation and rising prices of goods and services, housing, and properties are undesirable for tourism development.

Environmental Sustainability: Table 1 exhibits the descriptive statistics for the variables such as pressure on water resources, pressure on land, pressure on transportation, and pressure on natural vegetation and wildlife, which are used for examining the sustainability of resource utilization. Tourists believe that tourism puts huge Pressure on Water Resources (3.60) and the indiscriminate water exploitation creates water scarcity, water contamination, and depletion of groundwater. Similarly, tourists argue that indiscriminate tourism development in Goa has resulted in huge Pressure on Land (3.68). The massive influx of tourists and increasing tourism activities have put Pressure on Transportation (3.65). Inadequate transportation facilities provided by the Goa government and substandard service rendered by the Goa transport department leave the tourists to exploitation by private taxi operators. A mean score of 3.36 on Pressure on Natural Vegetation and Wildlife is leading to the conclusion that tourism development in natural heritages, especially in coastal regions, forests, and protected areas, has destroyed the biological diversity and physical integrity of the tourist destinations.

Table 1, the descriptive statistics indicate that Goa has installed and implemented effective and efficient mechanisms to mitigate the pressure on resources such as water, land, transportation, and natural vegetation and wildlife. Tourists believe that tourist destinations have installed an efficient system of Water Management (3.29) for mitigating pressure on water resources. The mean score of 3.13 on Land Management leads to the conclusion that the destinations have a proper land management system to mitigate the pressure on land due to tourism development. Tourists assigned an average score (3.24) on Management of Transportation, which reveals that the Government has taken suitable measures for mitigating pressure on transportation. The mean value of Management of Vegetation and Wildlife (3.16) establishes that the state government has taken appropriate measures to mitigate the degradation of natural vegetation and the loss of wildlife in the natural heritages.

Tourists assigned a mean value of 3.64 to waste generation, which proves that tourism generates a huge quantity of wastes in tourist destinations. The mean score of 3.17 to Waste Management reveals that tourist destinations have efficient and effective waste disposal and recycling system to process the waste generated by the tourism industry. The average score to Energy Conservation (3.10) discloses that the government is promoting

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sustainable utilization of conventional energy and non-conventional energy. Similarly, the average score of Environmental Education (3.28) establishes that the government is providing Environmental education and conducting various awareness programmes to the local community, business operators, and tourists for adopting sustainable tourism practices. Tourists also believe that the Community Management of Environment of (3.49) is an important characteristic of Goa tourism and the local community actively contributes to the sustainable management of the environment in many tourist destinations.

The descriptive statistics on environmental sustainability indicators prove that tourism development is ensuring the sustainability of Goa. Thus, the descriptive statistics on economic sustainability indicators strongly support the empirical hypothesis that tourism development is directly contributing to the environmental sustainability of Goa. However, the Government and tourism industry has to adopt appropriate mechanisms for promoting sustainable exploitation of precious natural resources.

Socio-cultural Sustainability: Table 1 descriptive statistics indicate that the tourists have assigned a reasonably high mean score (3.79) to Promote Socio-cultural Heritages because they believe that Goa tourism ensures the protection and conservation of socio-cultural heritages. Similarly, the tourists have also given a high average score (3.83) for Revive Festivals and Folklores under the perception that tourism promotes and revives local festivals and folklores of the indigenous communities. The mean value of the variable Commercialisation of Culture (3.76) reveals that tourism in Goa has led to the commercialization of the culture of indigenous people. In contrast, the mean value of Cultural Clashes (3.17) shows that the mass influx of tourists and cultural hegemony has resulted in cultural clashes between the tourists and the local community.

The tourists strongly perceive that uncontrolled tourism in Goa has resulted in increasing Anti-social Activities (3.61) such as crime, drug abuse, alcoholism, prostitution, and child abuse, etc. The average score on Loss of Habitat (3.26) also explains that tourism development has resulted in the loss of habitats to human beings, animals, and natural vegetation. Likewise, the respondents have assigned a moderate score (3.19) to Bad Influence on Children, which indicates that tourism is adversely affecting the attitude and behaviour of children and juveniles. On the contrary, Local Community Behaviour has recorded a high mean score of 3.69, which establishes that the local community maintains good behaviour and a positive attitude towards tourists. The descriptive statistics on social and cultural sustainability indicators prove that tourism development is not ensuring the socio-cultural sustainability of tourist destinations in Goa. Thus, the findings from descriptive statistics strongly repudiate the empirical hypothesis that tourism development is directly contributing to the social sustainability of Goa.

The descriptive statistics precisely described the perception of the tourists about the economic, environmental, and social sustainability of tourism development in Goa. The research findings prove that tourism development is directly contributing to the economic and environmental sustainability of Goa. However, the state has to engage vigorously in the tourism development activities for mitigating the negative impacts of tourism especially on the socio-cultural environment of the tourist destinations.

4.2 Factor Analysis

The factor analysis is employed for examining the sustainability of tourism development and identifying the factors contributing to the economic, environmental, and socio-cultural sustainability of Goa's development paradigm from the perspective of tourists.

The suitability of data for factor analysis has been examined by applying the Keiser-Myer-Olkin test and Bartlett Test of Sphericity, Hair et al. (2019). Keiser-Myer-Olkin measure examines the sampling adequacy and Bartlett's test of Sphericity examines the null hypothesis that the original correlation matrix is an identity matrix. Table 2 shows the results of the sampling test and data assumption respectively from Kaiser-Meyer-Olkin (KMO) and Bartlett test of Sphericity.

Table 2: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy:	.672
Approx. Chi-Square	3331.783
Bartlett's Test of Sphericity	
Degree of Freedom	496
Significance	.000

From Table 2 the Bartlett test of Sphericity is statistically significant and rejects the null hypothesis that the original correlation matrix is an identity matrix (Chi-square = 3331.783, p<0.000). The Kaiser-Meyer-Olkin (KMO) overall measure of sampling is 0.672, which indicates that data are suitable for the factor analysis. The value from Kaiser-Meyer-Olkin (KMO) test, which measures sample adequacy above 0.50, adequately indicates that the data are sufficient for performing factor analysis. (Hair et al. (2019)) We have used multidimensional statistical analysis, called factor analysis based on the principal component analysis (PCA) for finding the factors that determine the economic, environmental, and socio-cultural sustainability of the tourist destinations.

Table 3 and Figure 1 represent the results of factor analysis including the factors, eigenvalues, percentage of variance, and percentage of the

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cumulative variance of initial eigenvalues and rotation sum of squared loadings for 32 variables after performing factor analysis and varimax rotation using Principal Component Analysis (PCA).

Table 3: Total Variance Explained

Factors	Initial Eigenvalues			Rotation Sums of Squared Loadings		
No.	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.61	14.41	14.41	2.84	8.87	8.87
2	3.08	9.62	24.03	2.69	8.41	17.28
3	2.52	7.87	31.89	2.41	7.53	24.81
4	2.31	7.22	39.11	2.13	6.66	31.47
5	1.82	5.70	44.81	2.13	6.64	38.11
6	1.44	4.50	49.30	2.11	6.59	44.69
7	1.37	4.29	53.59	1.79	5.58	50.27
8	1.20	3.76	57.35	1.61	5.03	55.30
9	1.11	3.45	60.81	1.48	4.61	59.91
10	1.09	3.40	64.21	1.38	4.30	64.21

Source: SPSS output from primary survey
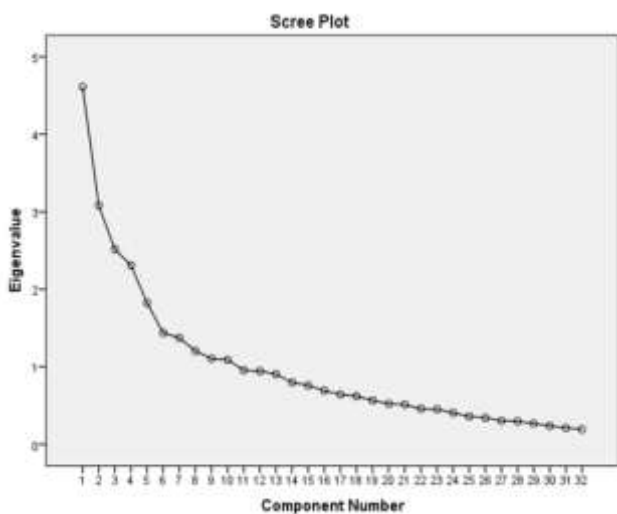
Figure 4.1: Scree Plot

Table 4.3 and Figure 4.1 Scree Plot exhibit the variances and cumulative variances of ten factors after performing factor analysis using Principal Component Analysis (PCA). The cumulative variance for the ten significant factors is 64.21% after varimax rotation. The factors extracted from Table 8.3 are Resource Exploitation (8.87), Resource Management (8.41%), Environment Management (7.53%), Destination Unsustainability (6.66%), Economic Sustainability (6.64%), Local Sustainability (6.59%), Tourism Governance (5.58%), Community Engagement (5.03%), Socio-cultural Sustainability (4.61%) and Destination Management (4.30%), which explain 64.21 % of the total variance from the model.

Table 4 shows the results from the rotated factor matrix of ten principal factors generated from the factor analysis. The table displays the variables having factor loadings above 0.45, which indicates the existence of a significant correlation between the variables and factors.

Table 4.4: Rotated Factor Matrix

Variables	Factors									
	1	2	3	4	5	6	7	8	9	10
Pressure on Land	.820									
Pressure on Transportation	.768									
Pressure on Natural Vegetation	.758									
Pressure on Water Resources	.718									
Land Management		.807								
Transportation Management		.755								
Water Management		.726								
Management of Vegetation		.721								
Promotion of Renewable Energy			.739							
Waste Management			.652							
Promotion of Environmental Education			.632							
Tourists Follow Sustainable Tourism Policies			.602							
Cultural Clashes				.716						
Anti-Social Activities				.647						
Bad Influence on Children				.557						
Waste Generation				.548						
High Inflation				.450						
Poverty Reduction					.711					
Employment Generation					.676					
Tourism Plans					.612					
Promote Socio-Cultural Heritages						.697				
Revive Festivals and Folklores						.616				
Prefer Locally Made Products						.602				
Trained Guides and Tour Operators						.485				
Legal System							.823			
Positive Behaviour of Officials							.624			
Safety and Security							.569			
Local Community Behaviour								.746		
Local Community and Environment								.589		
Commercialization of Culture									.740	
Loss of Habitat									.486	
Managed Tourist Destinations										.779

Source: SPSS output from primary survey

Note: Table 4.4 shows the results on factor analysis, extraction method based on Principal Component Analysis after varimax rotation of principal components with Kaiser Normalisation. Factors 1 to 10 are Resource Exploitation, Resource Management, Environment Management, Destination Unsustainability, Economic Sustainability, Local Sustainability, Tourism Governance, Community Engagement, Socio-Cultural Sustainability, and Destination Management.

4.3. Discussion

Table 4.4 shows the results from the rotated factor matrix based on the varimax rotation with Kaiser Normalisation. The 32 variables are clustered into ten major factors. These factors are Resource Exploitation, Resource Management, Environment Management, Destination Unsustainability, Economic Sustainability, Local Sustainability, Tourism Governance, Community Engagement, Socio-Cultural Sustainability, and Destination Management.

(1) Resource Exploitation: Resource Exploitation is the first important factor that significantly influences the sustainability of tourist destinations in Goa. It includes variables like Pressure on Land (.820), Pressure on Transportation (.768), Pressure on Natural Vegetation (.758), and Pressure on Water (.718). Tourism puts huge pressure on precious natural resources and manmade resources such as land, water, transportation infrastructure, and natural heritages that have wide implications on the sustainability of tourist destinations. The indiscriminate exploitation of resources due to the mass influx of tourists has damaged the purity of physical and cultural heritage. Hence, the

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conservation of physical integrity, cultural richness, biodiversity, resource efficiency, and environmental purity are essential elements of the environmental sustainability of the destinations.

(2) Resource Management: Resource Management is the second most important factor that contributes to the sustainability of destinations in Goa. Resource management is composed of four variables: Land Management (.807), Transportation Management (.755), Water Management (.726), Management of Natural Vegetation, and Wildlife (.721). Tourism brings about immense pressure on resources such as water, land, transportation, and natural vegetation and wildlife. However, Goa tourism has adopted suitable strategies for sustainable exploitation and conservation of resources in various destinations. It has introduced an efficient and effective destination management system by installing appropriate mechanisms to address pressing problems like pressure on land resources, water resources and transportation, and degradation of natural vegetation and wildlife.

(3) Environment Management: Environment Management is the third factor that influences the sustainability of tourism development in Goa. The high factor loadings on Promotion of Renewable Energy (.739), Waste Management (.652), Promotion of Environmental Education (.632), and Tourist Follow Sustainable Tourism Practices (.602) are significantly contributing to the sustainable management of the natural environment. The Goa Government has embraced sustainable destination management in principle and installed appropriate mechanisms for waste disposal and recycling of waste at source in various destinations.

(4) Destination Unsustainability: Destination Unsustainability is the fourth major factor that influences tourism development in Goa. Destination Unsustainability is composed of economic, environmental, and socio-cultural variables, Cultural Clashes (.716), Anti-social Activities (.647), Bad Influence on Children (.557), Waste Generation (.548), and High inflation (.458). Tourism is exerting huge pressure on the social and cultural environment of Goa. The tourists believe that the influence of foreign culture leads to cultural clashes between the tourists and the local community. The prevalence of widespread disparities in the distribution of economic benefits of tourism among different sections of society and increasing competition for scarce resources have

resulted in increasing crimes and anti-social activities. Tourism generates huge quantities of solid and liquid wastes in tourist destinations. Inefficient waste disposal management and waste recycling systems cause dumping and piling up of garbage in the natural environment, especially on roadsides and beaches. Tourism has led to a steep rise in the cost of living accompanied by increasing general prices of goods and services, and the escalating cost of housing and properties.

(5) Economic Sustainability: Economic sustainability is the fifth major factor that contributes to the sustainability of tourist destinations in Goa. The Poverty Reduction (.711), Employment Generation (.676), and Tourism Plans (.612) are the variables, which contribute to economic sustainability. In Goa, tourism contributes to the alleviation of poverty and improvement in the standard of living by providing employment and satisfactory remuneration, and decent working conditions to the host population. It is the single largest industry, which generates a huge amount of employment opportunities directly and indirectly. The tourism plans, policies, and programmes, which envisage sustainable tourism development contribute to the economic sustainability of Goa.

(6) Local Sustainability: Local Sustainability is the sixth important factor, which contributes to the sustainability of tourism development in Goa. The major destination sustainability attributes are Promote Socio-cultural Heritages (.697), Revive Local Festivals and Folklores (.616), Prefer Locally Made Products (.602), and Trained Guides and Tour Operators (.485). The socio-cultural sustainability of tourist destinations is a critical component of sustainable tourism and the government and the tourism industry have ensured the effective management and conservation of social and cultural heritage. Goa tourism is actively promoting indigenous culture and tradition among tourists, which provides immense opportunities for local communities to earn a livelihood from the performance of traditional art forms and folklores. The preference of tourists for locally made products to imported products discloses that the tourism industry is effectively marketing Goan products. The properly trained and skilled tourist guides and tourist business operators are also an integral component of tourism development.

(7) Tourism Governance: The seventh factor that influences the sustainability of tourism

in Goa is Tourism Governance. It comprises the characteristics such as Legal System (.823), Positive Behaviour of Officials (.624), Safety and Security (.569), which draw domestic and international tourists from the tourism markets. The high factor loadings of the legal system and safety and security signify that the Government has provided safety and security and has installed an efficient and effective legal system to deal with the violation of rules and regulations related to tourism. The government officials maintain positive behaviour and a friendly approach towards tourism, which is conducive to tourism growth.

(8) **Community Engagement:** Community Engagement is the eighth significant factor that influences destination sustainability. Community engagement encompasses important destination characteristics such as Local Community Behaviour (.746) and Community Management of Environment (.589). One of the unique features of Goa tourism is the hospitality of the Goan people. The local community maintains a positive attitude and behaviour towards tourists and tourism business operators. The integration of the local community in the planning, formulation, and implementation of tourism plans and programmes is another significant aspect of sustainable tourism and the local community is actively involved in the environmental management of tourist destinations in Goa.

(9) **Socio-cultural Unsustainability:** Socio-cultural Unsustainability is the ninth factor that influences the sustainability of tourist destinations in Goa. The Commercialisation of Culture (.790) and Loss of Habitats (.486) are the socio-cultural attributes, which influence the social sustainability of the tourist destinations. Unsustainable tourism development has triggered a much undesirable impact on the social and cultural environment of Goa. The excessive commercialization of culture has led to the falsification and degradation of the cultural heritage of the indigenous population. The massive infrastructure development undertaken by the tourism industry in the wake of the large influx of foreign and domestic tourists has not only damaged the physical integrity and biological diversity of the natural environment but also destroyed the livelihood and habitats of human beings.

(10) **Destinations Management:** Destination Management is the last factor that contributes to the sustainability of tourism development in Goa. The high loading factor of Managed Tourist Destinations (.779)

signifies that the Goa government is planning and managing natural, social, and cultural heritages for attracting tourists from across the world.

The factor analysis reveals that resource exploitation, resource management, environment management, destination unsustainability, economic sustainability, local sustainability, tourism governance, community engagement, socio-cultural sustainability, and destination management are the important factors, which tremendously influence the sustainability of Goa tourism.

5. CONCLUSION

The main objective of this research project is to examine the economic, social, and environmental sustainability of Goa tourism. Descriptive statistics and factor analysis are two methods used to examine the sustainability of tourism development. The descriptive statistics establish that tourism development is contributing to economic and environmental sustainability. However, the research findings also establish that tourism development has caused unfavourable impacts on the social environment of Goa. The factor analysis establishes that resource exploitation, resource management, environment management, destination unsustainability, economic sustainability, local sustainability, tourism governance, community engagement, socio-cultural sustainability, and destination management influence the sustainability of tourist destinations in Goa.

There are several areas of limitation of this research that may cast a shadow over the reliability and validity of the research results. The tourism industry involves a multitude of stakeholders having diverse interests, objectives, and aspirations. In this research, we could not incorporate the perception of the local community, tourism business operators, Government agencies, and Non-governmental Organizations (NGOs). An important extension of this research would be to examine the economic, environmental, and socio-cultural sustainability from the perspectives of the different stakeholders such as local community, tourism business, government agencies, and NGOs adopting the most rigorous methodologies such as structural equation models (SEM).

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