

**A FACTOR-CLUSTER APPROACH IN ASSESSING RESIDENTS' PERCEPTIONS TOWARDS SUSTAINABLE RURAL TOURISM DEVELOPMENT**

Sadanand Gaonkar\* &amp; S. V. Sukthakar\*\*

**Abstract:** Rural tourism is now widely embraced and has given rural residents numerous recreational business opportunities to engage in tourism globally. Therefore, they are required to investigate even on a lesser scale. In this regard, a study was conducted to ascertain how locals view sustainable rural tourism development and how these perceptions vary across various demographic categories. The data was gathered from 300 randomly selected Dharbandoda Taluka, Goa, India residents and analyzed using descriptive statistics, Exploratory Factor Analysis (EFA), and Cluster Analysis. The EFA revealed the five main factors, namely, the public utility services factor, economic factors, social factors, cultural factors, and environmental factors. The factor-cluster analysis results identified the three main clusters: Socio-Environmental, Socio-Economic, and Socio-Cultural Focused. It is revealed that cluster 3 has more respondents who are female, ages between 18 to 25, single, and employed, and have favorable attitudes toward the sustainable development of rural tourism. The study concludes that the region will experience significant growth if more local and natural resources are utilized efficiently.

**Keywords:** Demography and Tourism; Local Community; Tourism Cluster; Sustainable Development; Sustainable Tourism.

**UMA ABORDAGEM DE AGRUPAMENTO DE FATORES PARA AVALIAR AS PERCEÇÕES DOS RESIDENTES EM RELAÇÃO AO DESENVOLVIMENTO DO TURISMO RURAL SUSTENTÁVEL**

**Resumo:** O turismo rural é agora amplamente adotado e tem dado aos residentes rurais inúmeras oportunidades de negócios recreativos para se envolverem no turismo globalmente e, portanto, necessário investigar mesmo em menor escala. A este respeito, foi realizado um estudo para verificar como os habitantes locais vêem o desenvolvimento sustentável do turismo rural e como estas percepções variam entre várias categorias demográficas. Os dados foram coletados de 300 residentes selecionados aleatoriamente de Dharbandoda Taluka, Goa, Índia, e analisados usando estatística descritiva, Análise Fatorial Exploratória (EFA) e Análise de Cluster. A EFA revelou os cinco principais fatores, a saber, Fator Serviços de Utilidade Pública, Fator Econômico, Fator Social, Fator Cultural e Fator Ambiental. Os resultados da análise fatorial-cluster identificaram os três principais clusters que incluem: Socioambiental, Socioeconômico e Focado na Comunidade. Revela-se que o cluster 3 tem mais entrevistados, sendo mulheres, com idades entre 18 e 25 anos, solteiras e empregadas tiveram atitudes favoráveis ao desenvolvimento sustentável do turismo rural. O estudo conclui que a região experimentará um crescimento significativo se mais recursos locais e naturais forem utilizados de forma eficiente.

**Palavras-chave:** Demografia e Turismo; Comunidade Local; Polo de Turismo; Desenvolvimento Sustentável; Turismo Sustentável.

**UN ENFOQUE DE AGRUPACIÓN DE FACTORES PARA EVALUAR LAS PERCEPCIONES DE LOS RESIDENTES SOBRE EL DESARROLLO SOSTENIBLE DEL TURISMO RURAL**

**Resumen:** El turismo rural está ahora ampliamente aceptado y ha brindado a los residentes rurales numerosas oportunidades de negocios recreativos para participar en el turismo a nivel mundial y, por lo tanto, se requiere investigar incluso a menor escala. En este sentido, se llevó a cabo un estudio para determinar cómo ven los lugareños el desarrollo sostenible del turismo rural y cómo varían estas percepciones entre las distintas categorías demográficas. Los datos se recopilaron de 300 residentes seleccionados al azar de Dharbandoda Taluka, Goa, India, y se analizaron mediante estadística descriptiva, análisis factorial exploratorio (EFA) y análisis de conglomerados. La EFA reveló los cinco factores principales, a saber, el Factor de Servicios de Utilidad Pública, el Factor Económico, el Factor Social, el Factor Cultural y el Factor Ambiental. Los resultados del análisis de conglomerados factoriales identificaron los tres conglomerados principales, que incluyen: Socio-Ambiental, Socioeconómico y Centrado en la Comunidad. Se revela que el grupo 3 tiene más encuestados, que son mujeres, con edades entre 18 y 25 años, solteras y empleadas que tienen actitudes favorables hacia el desarrollo sostenible del turismo rural. El estudio concluye que la región experimentará un crecimiento significativo si se utilizan más recursos locales y naturales de manera eficiente.

**Palabras clave:** Demografía y Turismo; comunidad local; Clúster de Turismo; Desarrollo sostenible; Turismo Sostenible.

HOW TO CITE: Gaonkar, S.; Sukthakar, S. V. (2024). A Factor-Cluster Approach in Assessing Residents' Perceptions Towards Sustainable Rural Tourism Development. *Latin American Journal of Tourismology*, 10(Regular). Retrieved from

<https://periodicos.ufjf.br/index.php/rlatuismologia/article/view/45769>

DOI: <https://doi.org/10.5281/zenodo.13629785>



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## 1 INTRODUCTION

Tourism development is widely praised for boosting local economies through increased employment, foreign exchange, and overall progress in destination areas (Rephann et al., 1997; Sharpley, 2002). It also impacts various sectors, including agriculture, fishing, and handicrafts, enhancing community well-being (Muresan et al., 2016; Su et al., 2015, 2016, 2017, 2019). However, expectations of tourism benefits can sometimes be unmet due to inadequate awareness of potential impacts during early planning (Long, 1996). This can lead to both positive and negative changes in destinations.

History demonstrates that not every community should expect or benefit from tourism development (Madrigal, 1993). The economic, social, and cultural costs are sometimes overlooked in development proposals. Even with economic benefits, tourism can have adverse effects, such as job displacement by non-local workers and competition with local businesses (Freitag, 1994; Rodenburg, 1980). Tourism can also cause problems like environmental pollution and changes in traditional industries, prompting rural communities to seek alternative economic strategies (Andereck & Vogt, 2000).

Rural tourism (RT) has emerged as a significant industry for diversifying rural economies (Davis & Morais, 2004). It has long been a valuable development strategy for rural areas worldwide (Kaptan Ayhan et al., 2020) and is recognized as a tool for rural development (Okech et al., 2012). It encompasses various activities related to farms, nature, adventure, sports, health, education, arts, and heritage, extending beyond just farm-based tourism (Bramwell, 1994).

It also includes rural customs, folklore, and traditions. Since the 1970s, rural tourism has significantly increased in developed countries, aiding economically and socially depressed areas (María Yagü Perales, 2002). However, recent global crises, especially in developing countries, have led to declining traditional agriculture and rural culture due to urbanization and modernization.

In Goa, rural tourism has transformed the region from a food production center to a destination for rural amenities. The tourism industry, leveraging the state's scenic beauty and natural attractions, supports local entrepreneurship and economic growth. In Goa, rural tourism includes agricultural products, eco-products, cultural resources, and various functions like economic, social, educational, environmental, recreational, and therapeutic activities.

Despite these benefits, tourism has introduced challenges such as land use control, income distribution issues, environmental damage, and social impacts, particularly in the newly formed Dharbandoda Taluka. This taluka which was carved out from Sanguem Taluka, has a population of 25,629 according to the 2011 Census.

Rural tourism in Dharbandoda, Goa, could help rediscover previously overlooked rural resources and offer insights for farmers and policymakers. While many rural areas globally support tourism

development, Goa faces unique challenges, such as difficulty maintaining a sustainable livelihood due to the varied factors impacting them across resident demographic characteristics.

Local communities' support for rural tourism hinges on their perceived benefits. Developed and developing countries have formulated policies supporting and encouraging rural tourism. Many rural people actively participate in developing and promoting tourism destinations, as they frequently display discretionary, spontaneous, and supportive behavior towards the tourists and the community by helping tourists and keeping the tourist area clean (Chen & Dwyer, 2018; Fan et al., 2021; Zhang & Xu, 2019).

Thus, sustainable rural tourism needs further exploration from various perspectives and contextual characteristics. Sustainable tourism is crucial for economic growth, and residents play a key role in this development. Therefore, this paper aims to evaluate how different demographic factors influence residents' perceptions of sustainable rural tourism development, contributing to the advancement of tourism in the area.

## 2 THEORETICAL REVIEWS

Since the 1970s, rural tourism in developed countries has grown significantly, evolving from a minor and passive activity into a major economic force (María Yagü Perales, 2002; Sharpley, 2007). Although rural tourism has been present since the late 19th century in Europe and America (Lane & Kastenzholz, 2015), its integration with tourism has proven to be a productive strategy for global development, driving economic growth and job creation (Augustyn, 1998; Fleischer & Felsenstein, 2000). This growth has led to significant changes in the scale and structure of rural tourism (Cawley & Gillmor, 2008).

These changes have created new opportunities for local communities, providing additional income and employment while revitalizing traditional crafts and arts (Su, 2011). The rising interest in sustainable rural tourism reflects its potential for socioeconomic benefits. Wu et al., (2022) identified key dimensions of community citizenship behavior (CCB) in rural tourism, highlighting how supportive actions by locals can help address challenges through active involvement in destination governance.

However, challenges persist, including community displacement, disruption of local livelihoods, and conflicts over tourism management and resources (Su et al., 2015; Wang & Yotsumoto, 2019). Issues such as differing views on marketing strategies and the need for effective local participation (Panyik et al., 2011), rural tourism sustainability challenges (Su, 2011), through social disruption, crime, and environmental degradation (Li et al., 2016; Park & Stokowski, 2009), may jeopardize the sustainability of local livelihoods, including the capabilities, resources, and activities required to support individuals, households, or communities in rural destinations.

Research has explored various aspects of rural tourism and effective pathways for successful sustainable rural tourism development (Gullino &

Larcher, 2013; Jimura, 2011), including visitor satisfaction (Devesa et al., 2010), experience management (Kastenholz et al., 2012), and the emotional impacts of tourism (Christou & Sharpley, 2019). It also covers marketing strategies, revitalization of rural areas, and community attitudes and issues (Chen et al., 2013; Gao & Wu, 2017; Haven-Tang & Sedgley, 2014; Rasoolimanesh & Jaafar, 2016; Williams & Lawson, 2001; Zhou, 2014).

Further, resident emotions toward tourism development (Zheng et al., 2019), sense of human place through host-guest interaction (Zhang et al., 2022), and social, economic, and environmental sustainability for rural tourism development projects (Blancas et al., 2011; Mwesiumo et al., 2022), and nostalgia of rural tourism stakeholders (Christou et al., 2018), are among others.

The perceived impact of sustainable tourism development on local communities has been studied. It was observed that local communities are directly affected by the growth of tourism industries and their interactions with tourists (Sharpley, 2014), thus resulting in changes to community values, behavior patterns, lifestyles, and community members' quality of life (Andereck et al., 2005).

A few examples of successful rural tourism destinations include Yuanjia Village (Gao & Wu, 2017), Qiyunshan, Anhui (Li et al., 2016), Hetu Town, Anhui Province (Su et al., 2019), and Guanxi in Chinese rural tourism development (Chen, 2017) in China and Kedah in Malaysia (Liu, 2006), Yenice district, located in the north-west of Turkey (Kaptan Ayhan et al., 2020), rural tourism in Spain (María Yagü Perales, 2002) and Southern Germany (Oppermann, 1996) highlighting the global interest in rural heritage and tourism development.

Despite the benefits, rural tourism can lead to negative impacts on the economy, such as increased living costs and property prices (Rasoolimanesh et al., 2017); as well as social issues like overcrowding and crime, increased litter, and public alcoholism (Deery et al., 2012; Látková & Vogt, 2012; Tosun, 2002); increased prostitution (Akama & Kieti, 2007). Environmental concerns include improper waste disposal and other forms of degradation (Li et al., 2016).

Research also focuses on mitigating these issues through better marketing strategies, intermediary management, and promoting year-round tourism activities (Campón-Cerro et al., 2017; Chen et al., 2013; Guaita Martínez et al., 2019; Su, 2011), cultivating qualities of bridging and bonding social capital (McGehee et al., 2015), creating stable tourist activity throughout the year, and promoting social and environmental sustainability (Kim & Jamal, 2015).

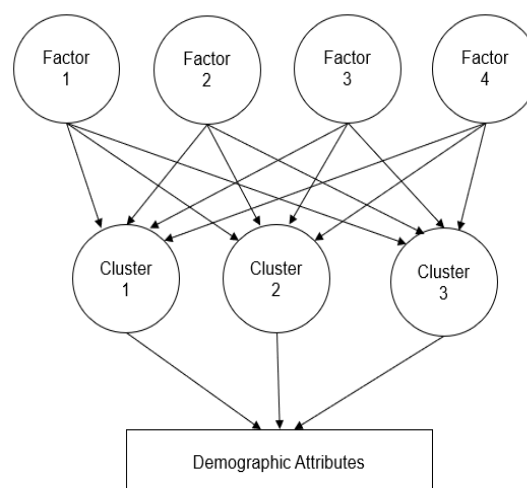
While some scholars question the link between rural tourism and the preservation of traditional areas (Barbieri, 2013) the sector remains a valuable tool for economic and cultural development (Bakas & Duxbury, 2018; Ertuna & Kırbaş, 2012). Thus, it should be viewed as a form of tourism and a tool for preserving and renewing rural culture and society, thereby improving economic and sustainable development (Bučienė & Merkienė, 2014; Díaz-

Pompa et al., 2020; Muñoz-Fernández et al., 2017; Oliveira & Diniz, 2018; Sariego López, 2014).

The tourism sector is the means through which it will help develop the place and improve the lives of the residents. The academic literature on tourism contains numerous discussions about the impacts of sustainable tourism development. Most tourism impact studies focus on economic gains due to tourists' expenditures, usually represented by additional income for residents. However, the ways that tourism growth may bring consequences for community social structures or individuals' ways of life require more holistic analyses.

The need for comprehensive and suitable indicators to capture broader growth patterns and assess development impacts in tourist destinations is increasingly evident. Gaining the support and insights of residents is crucial for sustaining and advancing tourism activities in these areas. Therefore, examining residents' opinions and the demographic differences in their perceptions of sustainable tourism development is crucial. This research aims to assess these differences and provide insights for enhancing tourism strategies in rural areas.

Below is the conceptual figure, which explains the highlights of the framework.



**Figure 1.** Conceptual Framework  
**Source:** Authors Compilation

### 3 METHODOLOGY

#### 3.1 Data Gathering and Sample Size

The study employed a quantitative approach, collecting primary data through a structured questionnaire. The data collection occurred during the monsoon season when the region's natural resources renewed the energy of locals and tourists. The structured survey allowed for gathering direct and preliminary information from respondents. The questionnaire was randomly distributed to residents aged 18 and above in various villages across Dharbandora Taluka. The villages were treated as a single group due to their similar socio-economic backgrounds and proximity to each other and neighbouring communities within the taluka.

A sample size was determined based on the taluka's total population, following the (Krejcie & Morgan, 1970) sample size table. For a population of 25,629, the table indicates that a minimum sample of 378 is required. For this study, a rounded figure of 380 samples was selected. Out of the 380 questionnaires distributed, 300 valid and usable responses were collected for final analysis, as some responses were either incomplete or biased. This resulted in a response rate of 78.94%.

### 3.2 Data Techniques and Methods

Various analytical techniques were employed to achieve the research objectives. First, descriptive statistics were used to analyze the demographic profile of the respondents, providing frequencies and percentages. Next, an Exploratory Factor Analysis (EFA) was conducted using SPSS to assess residents' perceptions of sustainable rural tourism development (Dolnicar & Grün, 2008; Hair et al., 2013).

Following the EFA, a cluster analysis was performed to identify groups of residents with similar response patterns (Fredline & Faulkner, 2000). The identified clusters were then validated using a one-way Analysis of Variance (ANOVA), incorporating variables not included in the previous analyses. Finally, cross-tabulation was conducted to explore the demographic characteristics of each segment and assess the varying perceptions among different clusters.

### 3.3 Measurement of Variables

The data collection instrument, the questionnaire, was designed to align with the study's objectives. It consists of two main sections. The first section focuses on the demographic characteristics of respondents, including age, gender, marital status, education level, and employment status.

The second section addresses residents' perceptions of sustainable rural tourism development, with 40 items adapted from previous research (Andereck et al., 2005; Andereck & Vogt, 2000; Andriotis & Vaughan, 2003; Barker et al., 2003; Sinclair-Maragh et al., 2015). These items were measured using a 5-point Likert scale, where 1 represents "strongly disagree," 2 represents "disagree," 3 represents "neither agree nor disagree," 4 represents "agree," and 5 represents "strongly agree."

## 4 RESULTS ANALYSIS

Dharbandora Taluka, one of the newest administrative divisions in Goa, is renowned for its natural beauty and resources, making it a key area for promoting rural tourism. The local communities primarily focus on cultivating crops such as cashew nuts, bananas, coconuts, black pepper, and brown rice. The region is also home to popular tourist attractions, including the ancient Mahadev Temple at Tambdi Surla, the Dudhsagar Waterfall, Bhagwan Mahavir Wildlife Sanctuary, Mollem National Park, a biodiversity park, and the Satpal Arboretum.

Dudhsagar Waterfall, a spectacular cascade resembling a "sea of milk," is among India's most picturesque waterfalls, attracting numerous visitors yearly. The area surrounding the waterfall, which lies in a deciduous forest teeming with diverse flora and fauna, also includes an ancient heritage site with unique architectural features located near the Goa-Karnataka border. This site and the Dudhsagar Baba Temple hold significant religious and cultural importance, drawing both locals and tourists.

Bhagwan Mahavir Wildlife Sanctuary, located in Mollem village within Dharbandora Taluka, is one of Goa's largest protected wildlife areas. The adjacent Mollem National Park, situated within the Western Ghats, is the only national park in Goa. Additionally, the sanctuary hosts the historic 12th-century Tambdi Surla Temple and the famous Tambdi Surla Falls, which are particularly attractive during the monsoon when coastal tourism is less active.

### 4.1 Descriptive Frequency

The initial analysis covers the demographic profile of respondents. As illustrated in Table 1, most respondents (36%) are aged 18 to 25, while only 2% are over 55. Gender distribution shows that 53% of respondents are female, and 47% are male. Regarding marital status, 56% are unmarried, and 44% are married.

Educational qualifications reveal that 44% have completed higher secondary education, 25% have finished matriculation, 21%, and 5% have graduated and post-graduated, respectively, and 4% are illiterate. Employment status indicates that 56% of respondents are employed, 24% are unemployed, 19% are students, and only 1% are retired.

**Table 1.** Demographic Profile of the Respondents.

Demographic Attributes	Frequency	Percent	
Age Group (Years)	18-25	108	36.0
	26-35	64	21.3
	36-45	73	24.3
	46-55	49	16.3
	Above 55	6	2.0
Gender	Male	141	47.0
	Female	159	53.0
Marital Status	Married	133	44.3
	Unmarried	167	55.7
Education	Illiterate	12	4.0
	Matric	75	25.0
	Higher Secondary School	132	44.0
	Graduate	64	21.3
	Post Graduate	17	5.7
Employment Status	Student	58	19.3
	Employed	167	55.7
	Unemployed	71	23.7
	Retired	4	1.3
	<b>Total</b>	<b>300</b>	<b>100.0</b>

Source: Authors Compilation.

### 4.2 Exploratory Factor Analysis

An EFA was conducted to create a summated scale for each construct by summing the items loaded on each construct and then calculating their average score. Principal component analysis with

Varimax rotation was used to identify the underlying constructs. To assess the data's suitability for factor analysis, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity were evaluated.

The factor loading matrix was carefully reviewed, and items showing cross-loading on multiple factors or having factor loadings of 0.50 or less were excluded from the analysis. This approach is appropriate as factor loadings should exceed 0.50 (Park & Yoon, 2009; Rid et al., 2014). The Eigenvalues for each factor were also considered to justify their inclusion in further analysis. Subsequently, the Cronbach's Alpha reliability test was performed to assess the internal consistency of the underlying constructs.

As shown in Table 2, out of the 40 items, only 19 items are considered for further analysis, as the deleted items' factor loadings were below 0.50. The

factor analysis of the 19 items yielded a KMO value of 0.786 and a significant Bartlett's Test of Sphericity ( $P=0.000$ ). These values indicate that factor analysis was suitable for identifying the dimensions required for cluster analysis.

The five factors identified through the EFA were retained based on Eigenvalues greater than 1.0. The Cronbach's Alpha reliability test demonstrated high internal consistency (Hair et al., 2014). Table 2 details the five dimensions identified through principal component factor analysis. Factor 1, labeled "Public Utility Service Factors," included eight items. Factor 2, termed "Economic Factors," had three items. Factor 3, "Social Factors," also included three items. Factor 4, called "Cultural Factors," comprised two items, while Factor 5, labeled "Environmental Factors," consisted of three items. Together, these factors explained 50.015% of the total variance.

**Table 2.** Results of Exploratory Factor Analysis.

Measures	Public Utility Services	Economical	Social	Cultural	Environmental
Built infrastructure	0.691				
Food court facilities	0.660				
Parking Facilities	0.657				
Transport facilities	0.643				
ATM facilities	0.624				
Public restrooms facilities	0.567				
Water Facility	0.556				
Electricity supply	0.533				
Employment opportunities for the local people		0.814			
Increased recreational business		0.784			
Personal incomes are enhanced.		0.674			
Greater appreciation of local resources			0.724		
Residents' leadership role in tourism planning			0.674		
Active participation of residents			0.514		
Preservation and protection of local culture and traditions				0.726	
Increase local awareness and education about traditional culture.				0.651	
Greater appreciation of natural resources					0.712
A better understanding of natural biodiversity					0.539
Protection of flora and fauna					0.537
Cronbach's Alpha	0.721 (N=19)				
KMO	0.786				
Bartlett's Test of Sphericity	0.000				
Eigen Value	3.296	1.866	1.460	1.455	1.426
% of Variance	17.349	9.819	7.682	7.659	7.506
Cumulative %	17.349	27.168	34.850	42.509	50.015

**Source:** Authors Compilation.

### 4.3 Cluster Analysis

Cluster analysis was employed to identify distinct groups within the sample by examining their common characteristics (Pérez & Nadal, 2005), ultimately dividing them into meaningful categories. Both hierarchical and non-hierarchical clustering techniques were used to determine the cluster groupings.

Initially, hierarchical clustering, utilizing the Ward Method and squared Euclidean distance, was applied to determine the preliminary number of clusters based on specific measured characteristics. This method involved assessing the proportional increase in heterogeneity among the most dissimilar observations and identifying the most significant change.

A notable gap was observed between cases 297 and 298, with a coefficient difference of 1037.934

and 1206.968, respectively. These cases were used as the basis for further cluster analysis. A non-hierarchical K-means cluster analysis was conducted to determine the number of cases within each cluster to refine the clustering.

The optimal cluster solution was identified by selecting the maximum number of runs. The resulting clusters were labeled according to their cluster centroids. Subsequently, one-way ANOVA was used to analyze the key characteristics of the items and factors, comparing different groups by evaluating statistically significant differences between their means (Hair et al., 2012).

Cluster validation was performed using ANOVA to assess criterion validity, incorporating a measure not included in the earlier analysis. This validation step was critical in determining whether the survey

instrument accurately reflected residents' perceptions of rural tourism development. The measure was considered acceptable if the instrument's outcomes aligned with the non-test criteria scores, which are practically valuable for measuring the phenomena of interest. Following this, cross-tabulation was conducted using demographic data to establish respondent profiles.

#### 4.4 Cluster Identification

A summated scale encompassing 19 items was used for the cluster analysis, combining five factors proportionately through hierarchical and non-hierarchical techniques. A final three-cluster solution was selected. Cluster 3, the largest, comprised 124 residents (41%), followed by Cluster 2 with 94 residents (31%), and Cluster 1 with 82 respondents (28%). These clusters were named based on the two

most important factors to the residents, representing the three distinct segments.

As indicated in Table 3, residents in Cluster 1 believed that tourism development had improved their socioeconomic conditions and the environment, leading to the label "Socio-Environmental Focused." Cluster 2 was characterized by residents who felt that tourism's social impact and economic growth had increased significantly, although there was a negative impact on public utility services, leading to the label "Socio-Economic Focused."

Cluster 3 was defined by residents who felt that overall development in rural areas was driven by social and cultural factors, enhancing community well-being. This cluster also noted a significant impact on public utility services. Therefore, this cluster is labeled as "Socio-Cultural Focused."

**Table 3.** Clustering variable profiles for the first sub-sample from the non-hierarchical cluster analysis with initial seed points from the hierarchical analysis (N = 300).

Factors	Initial Cluster Centers			Final Cluster Centers			ANOVA					
	Cluster			Cluster			Cluster		Error		F	Sig.
	1	2	3	1	2	3	Mean Square	df	Mean Square	Df		
Public Utility Services	3.50	1.25	4.88	3.52	3.28	3.98	13896	2	.286	297	48.638	.000
Economical	1.33	4.67	4.33	2.61	<b>3.96</b>	3.86	50.707	2	.240	297	211.38	.000
Social	4.33	4.33	5.00	<b>3.62</b>	<b>3.55</b>	<b>4.02</b>	7.232	2	.263	297	27.538	.000
Cultural	3.00	4.50	5.00	3.51	3.38	<b>4.10</b>	16.005	2	.375	297	42.710	.000
Environmental	2.33	3.00	5.00	<b>3.60</b>	3.34	4.01	12.356	2	.212	297	58.329	.000

Source: Authors Compilation.

#### 4.5 Cluster Validation

Table 4 presents the ANOVA results for cluster validation, which were statistically significant based on the measure used. A separate question was asked to validate the clusters and gauge opinions on promoting rural tourism in the destination areas. The analysis

confirmed statistically significant differences among the three established clusters, as the P value was below 0.05 at the 5% significance level. These results also support the criterion validity of the items that measured residents' perceptions of tourism development.

**Table 4.** Cluster Validation through ANOVA.

Descriptive					
Ways to promote rural tourism in the area	N	Mean	Std. Deviation		
Socio-Environmental Focused	82	3.0976	1.48748		
Socio-Economic Focused	94	2.6702	1.57527		
Socio-Cultural Focused	124	2.4435	1.41020		
Total	300	2.6933	1.50338		
ANOVA					
Ways to promote rural tourism in the area	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	21.186	2	10.593	4.806	.009
Within Groups	654.601	297	2.204		
Total	675.787	299			

Source: Authors Compilation.

#### 4.6 Analysis of Cross-tabulations

The cross-tabulation method enabled the researchers to identify similarities in the profiles of respondents based on factors such as age, gender, education level, and occupation across the different clusters, as shown in Table 5. This approach, used by Andriotis & Vaughan, (2003), aligns clusters with the respondents' socio-demographic characteristics to understand their attitudes toward tourism development.

Table 5 reveals that the "socio-cultural-focused" cluster is the largest group, consisting of 124 respondents. This group prioritizes social and cultural

aspects, recognizing that tourism has significantly enhanced their standard of living, fostered active involvement in tourism activities, and facilitated cultural exchanges between host communities and tourists. Additionally, members of this cluster, many of whom have only completed secondary education and are 19 years old or younger, have noted substantial improvements in education and cultural activities, likely welcoming these changes to the educational system.

This cluster also has the highest proportion of residents working directly or indirectly in tourism, suggesting some level of objectivity in their responses since they do not entirely rely on the industry for employment. Notably, this cluster is the only one

where the cultural identity, morals, and sense of community have been notably strengthened and where residents believe that tourism has improved public utility services.

However, the literature presents mixed views on the cultural impact of sustainable tourism development. On the one hand, cultural variables can be enhanced through preservation efforts (Andereck et al., 2005; Besculides et al., 2002), but on the other hand, tourism can lead to cultural degradation, commodification, and moral decline due to activities like gambling, prostitution, and substance abuse (Barker et al., 2003; Choi & Sirakaya, 2005).

The "socio-economic-focused" cluster, with 94 respondents, is the second-largest group. This cluster believes tourism has contributed to economic improvements by providing local employment opportunities, enhancing income, and promoting active community participation. Most respondents in this cluster are aged 18 to 25 years.

As suggested by Tomljenovic & Faulkner, (2000) younger people tend to be more concerned about the negative environmental impacts of sustainable tourism, aligning with (Harrill, 2004) assertion that age influences residents' opinions on tourism development. The socio-economic-focused cluster also comprises mostly male residents with higher secondary education who are positive toward sustainable rural tourism development. Better employment opportunities in this cluster support the residents' ability to improve their living standards.

However, despite tourism development in the region, public service amenities like transportation, parking, water quality, and electricity have not seen corresponding improvements. These amenities are crucial for residents but are often perceived as benefiting tourists rather than the local population (Mbaiwa, 2003) or being seen as costly investments (Tomic et al., 2012).

The third and smallest group, comprising 82 respondents, is the "socio-environmental-focused"

cluster. These residents believe that tourism has positively impacted society, culture, and the economy, with a particular appreciation for preserving and protecting local natural resources, including flora, fauna, and biodiversity. This is the only cluster to express significant concern for the environment, which is somewhat surprising given the region's abundant natural resources.

This cluster has the highest youth participation, particularly among the 18 to 25 age group. However, previous studies, such as Sinclair-Maragh et al., (2015), found that residents aged 60 and older were more aware of tourism impacts than younger groups. This cluster also includes many female and unmarried respondents, indicating that women are more perceptive of tourism's social impacts.

Additionally, this cluster has the highest proportion of residents with higher secondary education who are employed, which enables them to articulate their concerns about tourism more effectively. This region's communities engage in farming and tourism, benefiting from showcasing their rural culture and traditions to tourists.

Despite ongoing tourism activities, many locals with higher secondary education believe the environment is well-maintained, contributing to rural tourism development. Andriotis & Vaughan, (2003) noted that a higher secondary education level provides residents with a better framework for understanding the dynamics of rural tourism development.

The cross-tabulation analysis in this study also highlighted commonalities across all three clusters concerning gender, age, education level, and occupation. The study found that the clusters derived from the cluster analysis were theoretically and statistically meaningful, with the cross-tabulation effectively profiling the clusters according to their demographics for a thorough investigation. This analysis, grounded in the destination life cycle concept, revealed residents' perceptions in areas newly introduced to rural tourism development.

**Table 5.** Cross-tabulation analysis of Demographic Profile Based on Factor-Cluster Approach.

Demographic Attributes		Socio-Environmental Focused	Socio-Economical Focused	Socio-Cultural Focused	Total
		Cluster 1 (N= 82)	Cluster (N= 94)	Cluster 3 (N= 124)	
Age Group (In Years)	18-25	36	31	41	108
	26-35	22	19	23	64
	36-45	15	24	34	73
	46-55	9	18	22	49
	Above 55	0	2	4	6
Gender	Male	36	48	57	141
	Female	46	46	67	159
Marital Status	Married	31	45	57	133
	Unmarried	51	49	67	167
Education	Illiterate	2	6	4	12
	Matric	25	19	31	75
	Higher Secondary	44	32	56	132
	Graduate	9	26	29	64
	Post Graduate	2	11	4	17
Employment Status	Student	17	17	24	58
	Employed	48	55	64	167
	Unemployed	17	20	34	71
	Retired	0	2	2	4
<b>Total</b>		<b>82</b>	<b>94</b>	<b>124</b>	<b>300</b>

Source: Authors Compilation.

## 5 DISCUSSION AND IMPLICATIONS

Tourism catalyzes the socio-economic development and revitalization of rural areas (Sharpley, 2002). Initially, rural tourism primarily involved tourists visiting farms, staying in agricultural areas, and engaging in farming activities. However, as highlighted by Nair et al., (2015), rural tourism has evolved into a multi-dimensional concept encompassing firsthand experiences of farming, nature, and the cultural characteristics and traditional lifestyles of various rural communities.

Given its growing significance in the tourism industry, there is a pressing need to sustain, promote, and develop rural areas where local traditions and cultures can be showcased. Many people are drawn to rural areas to escape the stress and busyness of their urban lives. In the face of industrialization, modernization, and high urban population densities, rural regions offer a better quality of life, providing peace and tranquility.

As a result, the three pillars of sustainable tourism i.e., economic, social, and environmental, as well as the preservation and promotion of cultural and traditional activities in rural areas, are equally crucial for the sustainable development of rural tourism.

In light of this, the current study provides valuable insights into residents' perceptions of sustainable rural tourism development in the region, revealing both positive and negative impacts on their lives. The study identifies public utility services and economic, social, cultural, and environmental factors as the most critical elements of EFA.

These factors were further analyzed across different demographics using a cluster approach, highlighting commonalities in residents' perceptions. Three clusters were identified: socio-environmental-focused, socio-economic-focused, and socio-cultural-focused. All three groups play a crucial role in the sustainable development of rural tourism.

Social factors were found to have the most significant influence, as they were present in all three clusters. Additionally, younger residents aged 18 to 25, those with higher secondary education, and employed individuals were more likely to perceive the positive impacts of sustainable rural tourism development. However, perceptions varied by gender and marital status.

The socio-cultural-focused cluster exhibited a particularly positive attitude, suggesting that residents are key players in developing tourism activities in the region's rural areas. Williams & Lawson (2001) found that individuals who are highly skeptical of tourism tend to view community issues more favorably than others, while those most supportive of tourism are less concerned with these issues. Various factors, such as natural disasters, infectious diseases, wars, and negative perceptions of the country, can hinder the positive outcomes of tourism over time, as the industry heavily relies on the influx of tourists.

Given these challenges, it is crucial for tourism organizers, developers, and policymakers in the region to thoroughly understand the dynamics of these clusters and their impact on the communities of

Dharbandoda Taluka, Goa. Before implementing new tourism initiatives, it is essential to consider all clusters' demographics and assess the available resources and how they can be sustainably utilized for future planning. Doing so will enhance specific locations and benefit the entire region.

According to Kaptan Ayhan et al., (2020), he has emphasized that suitable land use for rural tourism includes trekking, mountaineering, hiking, and exploring flora and fauna. Park et al., (2012) examined the varying levels of social capital among local people, finding that fruit, vegetable, and rice farmers have the greatest advantage in running farm stay businesses and rural activity programs for tourists due to the resources available in the region.

Hwang & Lee, (2015) noted that farms struggle to generate non-farm income without the Rural Traditional Theme Village (RRTV) program, due to internal competition and declining human resources. Wilson et al., (2001) also emphasized that sustainable rural tourism development and entrepreneurship require the involvement and collaboration of business people directly or indirectly engaged in tourism.

Therefore, to foster sustainable rural tourism development, tourism planners should develop strategies to enhance positive factors. This may include improving public services, such as transportation, water, and electricity, to benefit residents as well as tourists. It is also important to mitigate negative impacts by regulating price increases and addressing immoral behaviors through law enforcement and educational programs. The use of brochures and online marketing can further support these efforts.

## 6 CONCLUSIONS

The findings of this study highlight sustainable rural tourism development as a powerful tool for diversifying the rural economy and alleviating poverty in rural areas. This form of tourism has gained significant global interest due to its substantial demographic relevance and remarkable economic growth, especially in recent decades. With many niche tourism markets still developing, rural tourism stands out as a growing sector that appeals to tourists.

Today's travelers are increasingly drawn to hidden, unique destinations that offer a sense of belonging, rather than just visiting popular attractions. Rural tourism, which provides a place of relaxation and an environmentally friendly experience for nature enthusiasts, is becoming increasingly attractive. Residents and stakeholders who recognize the value of rural tourism can reap significant benefits. This study, therefore, encourages further research in rural tourism, contributing to the academic literature and supporting the growth of tourism in the state and the country.

The use of a "factor-cluster approach" in this study introduces a novel method for evaluating residents' perceptions, potentially advancing tourism research methodology, particularly in understanding the complex factors that influence sustainable rural tourism development. The study offers fresh insights



into how local communities perceive and react to sustainable tourism initiatives by concentrating on residents' perceptions.

This enhances the theoretical understanding of community-based tourism development and the elements that influence local support. The findings can guide policymakers and tourism planners in identifying key factors that affect residents' support for sustainable rural tourism. This information is crucial for developing policies and strategies that align more closely with local preferences and needs.

Additionally, understanding residents' perceptions allows tourism stakeholders to engage more effectively with local communities, helping to develop community engagement strategies that foster collaboration and address potential conflicts or concerns.

The study does, however, have two primary limitations. First, the research focuses on a single region within the state, which presents an opportunity for future scholars to explore other areas that could generate additional revenue for local communities and the state. Second, the analysis in this study is based on a factor-cluster approach, but future research could employ other techniques, such as structural equation modeling, to build on this study's foundation. This would give researchers more detailed constructs and a deeper understanding of their impact on sustainable rural tourism development.

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#### Acknowledgment

The author wishes to inform you that funding agencies do not support this research.

#### Conflict of Interest

The author declares that no conflict of interest could be perceived as prejudicing the impartiality of the research reported.

**Credit author statement.**

Term	Definition	Author 1	A2
Conceptualization	Ideas; formulation or evolution of overarching research goals and aims	x	
Methodology	Development or design of methodology; creation of models	x	
Software	Programming, software development; designing computer programs; implementation of the computer code and supporting algorithms; testing of existing code components	x	
Validation	Verification, whether as a part of the activity or separate, of the overall replication/ reproducibility of results/experiments and other research outputs		x
Formal analysis	Application of statistical, mathematical, computational, or other formal techniques to analyze or synthesize study data	x	
Investigation	Conducting a research and investigation process, specifically performing the experiments or data/evidence collection	x	
Resources	Provision of study materials, reagents, materials, patients, laboratory samples, animals, instrumentation, computing resources, or other analysis tools	x	
Data Curation	Management activities to annotate (produce metadata), scrub data, and maintain research data (including software code, where it is necessary for interpreting the data itself) for initial use and later reuse	x	
Writing - Original Draft	Preparation, creation, and presentation of the published work, specifically writing the initial draft (including substantive translation)	x	
Writing - Review & Editing	Preparation, creation, and presentation of the published work by those from the original research group, specifically critical review, commentary, or revision – including pre-or post-publication stages		x
Visualization	Preparation, creation, and presentation of the published work, specifically visualization/ data presentation	x	
Supervision	Oversight and leadership responsibility for the research activity planning and execution, including mentorship external to the core team		x
Project administration	Management and coordination responsibility for the research activity planning and execution		x
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Processo Editorial / Editorial Process / Proceso Editorial  
 Editor Chefe / Editor-in-chief / Editor Jefe: PhD Thiago D. Pimentel (UFJF).  
 Recebido / Received / Recibido: 28.08.2024; Revisado / Revised / Revisado: 28.08.2024; 01.09.2024; Aprovado / Approved / Aprobado: 05.10.2024; Publicado / Published / Publicado (online): 25.10.2024.  
 [Artigo ressubmetido; Paper resubmitted; Artículo reenviado]  
 Documento revisado por pares / Peer-reviewed paper / Documento revisado por pares.