Residents' perspectives on sustainable tourism as a component of the smart city project

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Abstract- The integration of smart system initiatives in cities is crucial for enhancing destination competitiveness and sustainability. This study examines residents' attitudes toward sustainable tourism development in smart cities, specifically focusing on Coimbatore, Kochi, and Belgaum in India. Despite the increasing global recognition of the smart tourism city concept, research gaps persist in comprehensively addressing its potential and challenges. Through a survey of residents in these three cities, this study investigates perceptions related to environmental sustainability, social costs, economic benefits, community participation, long-term planning, and visitor satisfaction. Data collection employed a structured questionnaire with a high response rate from the selected cities. The findings reveal significant variations in residents' perceptions, with Coimbatore and Belgaum showing higher ratings in environmental sustainability and perceived social costs, while Cochin rates higher in perceived economic benefits. The study underscores the importance of understanding local attitudes to formulate effective smart tourism strategies that balance urban development with sustainable tourism practices.

Index Terms: Smart city tourism, Economic benefit, socio-cultural influence, Visitor satisfaction, environmental sustainability, community involvement.

I. INTRODUCTION

Cities and tourism organizations invest heavily in smart system initiatives because information technology is a critical factor in a city's destination competitiveness. Furthermore, cities all over the world are increasingly recognizing the smart tourism city concept and related strategies as a means of improving sustainability. A smart tourism city, in particular for cities facing emerging issues such as residents' negative perceptions of tourism, empowers a city to rise to this challenge by creating urban spaces that residents and visitors can enjoy together. However, smart tourism city research initiatives continue to fall short of addressing the entire range of related and potential developments.

The smart city theme has been widely discussed in recent years in both city planning and academic studies from various perspectives, including technology, sustainability, management, and tourism. This is primarily due to the urgency of rethinking the city as a result of rapid population growth and urbanization. Many cities are being pushed to find smarter ways to manage their resources as a result of these challenges. Nonetheless, only a few studies have looked into the smart cities phenomenon and its impact on tourism in depth. In this study, we attempt to comprehend the smart city concept while taking into account residents' attitudes toward tourism development, to fill research gaps in the literature by identifying residents' attitudes toward sustainable tourism development in a smart city.

Smart city Mission was started on 25 June 2015 by the government of India to promote sustainable cities by providing core infrastructure for a decent quality of life for its residents and providing a 'smart' solution for a clean and sustainable environment. As a part of the smart city initiative projects for waterfront development were implemented in these cities (Coimbatore, Kochi, Belgaum) which are considered as a better commercial idea for transforming underutilized areas into a booming center for tourism, culture, leisure, and business.

These areas designated for the projects would see an ecologically sensitive, sustainable, and energy-efficient construction plan that will take into account existing communities who would be the key stakeholders.

II. RELATED WORKS

Resident's attitude towards tourism and sustainable tourism

Tourism is defined as the meeting of at least two non-homogeneous populations: locals and visitors(Dann, 1977). Understanding local attitudes about tourists is important in tourism research because it affects host-guest interactions, tourist experiences, and destination impressions in the long run (Chi & Qu, 2008; Tse & Tung, 2022).

Many studies have been conducted on residents' attitudes toward tourism development, with aspects such as visitor behavior, tourist destination, and the degree of tourism development witnessed by people (C. F. Chen & Tsai, 2007; Duarte Alonso & Nyanjom, 2015; Liu et al., 1987; Sheldon et al., 1984; Vargas-Sánchez et al., 2011). These researches sparked a debate over the viability of constructing a standardized model to characterize the attitudes of residents towards tourism development(Vargas-Sánchez et al., 2011).

Generally, residents have a positive opinion towards tourists and tourism development, they can be classified into diverse groups based on how tourists and tourism development are perceived; these groups have significant differences in socio-demographic characteristics and level of involvement in the tourism industry (Oppewal et al., 2015; Ribeiro et al., 2013).

Residents who believe tourism is crucial for economic development and value its benefits have profited from it (McGehee & Andereck, 2004). While the majority of inhabitants are enthusiastic about tourism, a consensus index revealed that negative attitudes have increased marginally over time (Getz, 1994). The global recession, the failure of key tourism infrastructure projects, and the widespread resident belief that tourism will not offer the anticipated advantages have all contributed to a reduction in reliance on tourism (Getz, 1994; Hosany & Gilbert, 2010).

Long-term planning based on sustainable use of local resources (Koch et al., 2008), full community participation, the attitudes and opinions of residents toward tourism (Bimonte & Punzo, 2011; Day, 2010), and environmental sustainability are all important components of sustainable tourism, and they have linked to tourist support as well as the positive and negative effects of tourism (Boers & Cottrell, 2007; H. C. Choi & Murray, 2010; Sharpley, 2009). Developing sustainable communities and livelihoods to boost tourism has been a primary focus for government agencies and community stakeholders (H. S. C. Choi & Sirakaya, 2006; Ruhanen, 2012)

The first step in achieving sustainable tourism development is to involve tourism stakeholders (Lane, 2009), assess residents' perspectives, and include them in the strategy. (Liu et al., 1987; Waligo et al., 2013).

Age, gender, education level, household income (Hateftabar & Chapuis, 2020), duration of residency, family size, non-farm job arrangements (Kimbu et al., 2018), and distance to tourism sites (Qiu et al., 2018) are all important determinants of residents' views toward sustainable tourism development (B. xia Chen & Qiu, 2017).

Sustainable tourism benefits residents by providing economic opportunities (Briedenhann & Wickens, 2004), assisting them in the conservation of natural resources (Stronza, 2009), preserving local culture (Mehta & Heinen, 2001), promoting community development (Coria & Calfucura, 2012), and including them in ecotourism planning and management (Connell et al., 2009).

Residents’ attitude towards the economic impact

Numerous studies have identified a strong association between the residents' attitude towards the local economy leading to support for tourism development (Eadington & Redman, 1991; Mayer et al., 2010; Walpole et al., 2001). Residents' positive attitude arises from their notion that tourism creates income, enhances agricultural markets(Tew & Barbieri, 2012), fosters communal development, and eventually brings good fortune (Balaguer & Cantavella-Jordá, 2010; Lepp, 2007; Rogerson, 2012; Salazar, 2011). Residents' participation in the tourist development process improves the local economy (Cavus & Tanrisevdi, 2003). Residents who have profited financially from tourism are thought to have a more positive attitude toward tourism(Lin et al., 2017). Residents consider the overall impact of tourism to be beneficial(Gratton et al., 2010). They want their government to offer more economic incentives and eliminate any restrictive measures to stimulate tourism in the area(Belisle & Hoy, 1980; Dwyer et al., 2010; Nunkoo et al., 2012). Small island developing States see tourism as a potential and perhaps a necessary source of economic

progress(Liu & Var, 1986). Tourism generates a considerable quantity of economic activity, which serves as an income multiplier. (Pratt, 2015)

Tourism has both positive and negative impacts on residents and tourists, with the economic impact being the most significant(Dwyer & Forsyth, 1998). Perceived personal benefit derived from tourism mediated the effect of the economic aspects of quality of living, contact with tourists, and employment in tourism on the perceptions of the role of tourism in the local economy(Andereck & Nyaupane, 2005). Developing nations have enormous hurdles in terms of economic growth(Blake et al., 2008), and tourism is one component of the answer, serving as a source of job creation, unemployment reduction, and infrastructure development (Ribeiro et al., 2017). Despite the apparent negative consequences of tourism, inhabitants strongly favor tourism development and expansion (Puczkó & Rátz, 2000). Based on the above discussions, the following hypothesis is formulated.

Residents' attitude towards the socio-cultural impact

Tourism has been a major source of intercultural contact for residents in communities where sharing and preserving their culture could be seen as conflicting goals (Snyder & Sulle, 2011; Zamani-Farahani & Musa, 2012). Tourism development has a favorable social influence on residents with a high level of religious convictions(Besculides et al., 2002).

Tourism has a direct and indirect impact on the host communities, influencing their value systems, individual behavior (Raymond et al., 2009), family connections(Vrontis et al., 2016), lifestyle, moral conduct, traditional rites (Saarinen, 2006), and community organizations. These impacts are primarily indirect(Taylor, 2001), difficult to quantify, and frequently go unreported (King et al., 1993).

Studies conducted on socio-cultural practices of residents significantly overlooked both positive and negative changes (Mbaiwa, 2008; Teo, 1994). Positive socio-cultural impacts include employment opportunities, income generation(Huse et al., 1998), infrastructure development, banking(Mbaiwa, 2003), health, communication, and access to clean electricity(Smith, 2003; Stephenson & Ali-Knight, 2010). The negative impacts include enclave tourism(Mbaiwa, 2005), racism, relocation of traditional communities(Hernandez et al., 1996), breaking up of family structure, increase in crime, prostitution(Oppermann, 1999), adoption of western style, unacceptable vulgar language by youths(Stone & Nyaupane, 2016).

Residents' beliefs and ideas about their local area are largely neglected during tourism development(Stylidis et al., 2014). It is really necessary to understand the level of change in the sociocultural characteristics for sustainable planning of tourism (Doğan, 1989). Socio-cultural impact on sustainable tourism development is a priority and it has made the societies reevaluate their development alternatives(Coccossis, 2008). Based on the above discussions, the following hypothesis is formulated.

Residents' attitude towards environmental impact

Residents in many parts of the world are attempting to strike a balance between economy and conservation in terms of the effects and support for tourism(Buckley, 2011). The majority of empirical studies have not focused on the environmental impact of mass tourism destinations and rural communities.(Castellani & Sala, 2010; Griscom & Ashton, 2011; Monz et al., 2010; Nyaupane & Thapa, 2006).

(Bestard & Nadal, 2007) brought to light an increasingly growing concern that tourist expansion could lead to environmental costs such as the depletion and overexploitation of natural resources. A higher density of tourist accommodation in an area implies greater tolerance by its residents(Cavus & Tanrisevdi, 2009). The impact of tourism on the environment is shared by all the residents regardless of their geographic locations and maturity levels of tourism(Liu & Var, 1986).

For the tourism industry to remain positive and expand sustainably in all of its interactions with the environment, a strategic action plan that takes into consideration all relevant elements should be prepared. The first and most crucial stage is to understand the locals' attitudes on environmental conservation as part of tourism (Gunce, 2003).

Residents' attitudes toward environmental factors such as rural tourism destinations(Hall, 2005; Marzo-Navarro et al., 2015), environmental management practices (Nepal et al., 2019), cultural heritage conservation(Marschall, 2012), local satisfaction, and resources were investigated, and the findings indicated that local communities were more concerned with natural resource conservation(Khadka & Nepal, 2010; Li et al., 2006) particularly in rural tourism development (Lo et al., 2014).

Few studies have been conducted to assess residents' attitudes on nature conservation in destinations, which is an essential aspect of destination management today.(Cheng et al., 2010; Gössling, 2010; Rebollo & Baidal, 2009). Based on the above discussions, the following hypothesis is formulated.

III. DATA AND METHODOLOGY

Survey instrument

Data was collected using a standard questionnaire to examine residents' attitudes toward sustainable tourism promoted as a part of smart cities. Each concept was assessed using an extensive current literature study, and the instrument was analyzed by an expert panel of tourism stakeholders to establish content validity. The questionnaire had two sections. The first section gathered the socio-demographic and economic characteristics of the respondents such as gender, age, Length of the residents, education, occupation, and monthly income. In the second section of the survey, Sustainable Tourism Attitude Scale (SUS-TAS) (Hsu et al., 2020; Lankford & Howard,

1994) is used, this scale has been validated in a cross-cultural setting by several scholars (SCACCIA & URIOSTE-STONE, 2016; Sirakaya-Turk et al., 2008). (Ercan & Dogan, 2013) suggested a shorter version of SUS-TAS which has seven constructs (Perceived social cost, Perceived economic benefit, Environmental sustainability, Maximizing community participation, Long term planning, Community-centered economy, and ensuring visitor satisfaction), and 21 items are used in this study. A five-point Likert scale was used for scoring.

Data collection and sampling

Data was collected from the residents of Coimbatore, Cochin, and Belgaum cities of Tamilnadu, Kerala, and the Karnataka States of India where waterfront projects were implemented. These three cities were among the first 20 cities selected under the government of India's smart city mission.

Coimbatore smart city projects focused on reviving its lakes, removing unwanted encroachments, and recovering the lakefronts as public open spaces with newly developed areas along the lakefronts(Jirwankar & Meshram, 2020; Khosla, 2018; Weskamp, Alyssa, Dr. Stefan Liehr, 2018). The Kanbargi Lake in Belgaum is being renovated as part of the Smart City initiative. This lake's thorough renovation will turn it into yet another tourist destination(Prakash, 2019). Marine Drive walkway renovated by Cochin Smart Mission Limited created an uninterrupted open space corridor containing a gym for tourists, a play area for children, and LED lighting, it is a popular destination for locals and visitors to the city. These projects will function as a city tourism attraction(Joshi et al., 2016). The city will re-establish its lost connection with nature and strive to better exhibit its natural heritage for both residents and tourists(Joshi et al., 2016).

(McCrum-Gardner, 2013) Raosoft survey tool was used for sample calculation, the confidence level was set at 95% and the confidence interval was set at 5%(Potter, 1994). From Census India 2011 the total household population in the wards (optional division of a city or town for administrative and representative purposes) in and around the waterfront project areas in three smart cities was used to calculate sample size needed for three cities: 376 for Coimbatore, 370 for Cochin and 349 for Belgaum(*Census India 2011 - Population of India*, n.d.). With the required sample size, households around the smart city projects were selected and questionnaire was distributed and collected through a distribution method priscribed by Bush & White -1985 (Bush & White, 1985). Based on household density in the area, it is split into 8 sections, one section is considered for a day, houses in each section were selected in random and the 50 questionnaire was distributed in each section. After explaining the statement of the questionnaire and with the consent of the resident, the questionnaire was presented to the resident and collected on the same day. 400 Questionnaiers were presented to the residents in Coimbatore, Cochin and Belgaum with 382,386, and 373 questionnaires returned and the effective response rate is 95.5%, 96.5%, and 93.25% respectively. Detailed distribution of the samples in each city is presentd in Table 1.

Table 1 Discriptive statstics of three cities

Demographics	Coimbatore (n=382)		Cochin (n=386)		Belgaum (n=373)	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Gender						
Male	205	53.6	229	59.3	185	49.5
Female	177	46.4	157	40.7	188	50.5
Age (Years)						
20-29	58	15.2	120	31.1	42	11.3
30-39	148	38.8	109	28.2	171	45.8
40-49	119	31.1	102	26.4	118	31.6
50-59	48	12.6	49	12.7	32	8.6
60 & above	9	2.3	6	1.6	10	2.7
Length of Residence (years)						
1-3	46	12.1	38	9.8	57	15.3
4-6	72	18.8	45	11.7	68	18.2
7-9	81	21.3	148	38.4	106	28.4
10-12	99	25.9	87	22.5	86	23.0
12 & above	84	21.9	68	17.6	56	15.1
Education						
School level	23	6.1	18	4.6	52	13.9
Diploma	96	25.1	118	30.6	94	25.2
Graduate	165	43.2	136	35.2	158	42.4
Post graduate	67	17.5	42	10.9	32	8.6
Other	31	8.1	72	18.7	37	9.9
Occupation						
Employed	86	22.4	126	32.6	93	24.9
Un employed	16	4.2	35	9.0	46	12.3
Entrepreneur	64	16.8	86	22.3	89	23.9
Home maker	94	24.6	62	16.1	74	19.8
Student	69	18.1	34	8.8	57	15.3
Retired	53	13.9	43	11.2	14	3.8
Monthly income (Rupees)						
Under 20000	53	13.9	21	5.4	36	9.7
20001-40000	87	22.8	102	26.4	132	35.4
40001-60000	123	32.2	118	30.6	93	24.9
60001-80000	68	17.8	83	21.5	65	17.4
Above 80000	51	13.3	62	16.1	47	12.6

3.3. Data Analysis

Appropriate techniques were selected for data analysis. The attitudes of residents in different cities were analyzed individually, and companisons were made. Descriptive sateistics were used to describe the demogrpahic profiles of the respondents. An independent sample t-test was conducted to identify any difference in the responses among the respondents. Confirmatory factor analysis was performed to check the reliability of the survey instrument. ANOVA was applied to identify the differences in the residents' responses.

Table 2: Reliability and validity table

Latent construct	CA	AVE	CR
Environmental sustainability	0.803	0.712	0.863
Perceived social cost	0.842	0.726	0.891
Perceived economics benefits	0.962	0.724	0.811
Community participation	0.845	0.719	0.820
Long-term planning	0.826	0.701	0.823
Visitor satisfaction	0.916	0.798	0.816
Community centred economy	0.827	0.714	0.862
CA- Cronbach's Alpha	AVE- Average Variance Extracted		CR- Composite Reliability

Source: Primary Data

The table 2 presents the reliability and validity metrics for various constructs used in the study. Environmental Sustainability shows good reliability and convergent validity, with high composite reliability indicating consistent item representation. Perceived Social Cost demonstrates strong reliability and validity, with CA and CR values above 0.8 and AVE exceeding 0.7. Perceived Economic Benefits has an exceptionally high Cronbach's Alpha, indicating excellent internal consistency, along with strong validity and reliability. Community Participation shows high reliability and validity, with all metrics within acceptable ranges. Long-term Planning has good reliability and validity, indicating strong internal consistency and convergent validity. Visitor Satisfaction shows very high reliability and validity, with a CA above 0.9 and an AVE close to 0.8. Community Centered demonstrates strong reliability and validity, with all metrics indicating consistent measurement. Overall, the constructs exhibit good to excellent reliability and validity, confirming that the measurement instruments are reliable and valid for the study's purposes.

IV. RESULTS

Table 1 gives the analysis of demographic
Coimbatore:
The majority of respondents in Coimbatore are aged between 30-39 years (38.8%), have lived in the city for 10-12 years (25.9%), are graduates (43.2%), and earn between 40,001-60,000 Rupees monthly (32.2%).

Cochin:
In Cochin, the majority of respondents are aged 20-29 years (31.1%), have lived in the city for 7-9 years (38.4%), are graduates (35.2%), and earn between 40,001-60,000 Rupees monthly (30.6%).

Belgaum:
The majority of respondents in Belgaum are aged 30-39 years (45.8%), have lived in the city for 7-9 years (28.4%), are graduates (42.4%), and earn between 20,001-40,000 Rupees monthly (35.4%).
The analysis from Table 3 reveals significant variations in perceptions across Coimbatore, Cochin, and Belgaum concerning key constructs. Coimbatore and Belgaum consistently rated environmental sustainability higher than Cochin, as evidenced by significant F-values (15.212, p = 0.000; 16.751, p = 0.001 respectively). Similarly, for perceived social costs, Coimbatore and Belgaum perceived higher costs compared to Cochin (F = 12.279, p = 0.009; F = 13.583, p = 0.000 respectively). In contrast, Cochin reported higher perceived economic benefits compared to both Coimbatore and Belgaum (F = 12.018, p = 0.000). Long-term planning and community-centered economy were rated higher in Coimbatore and Belgaum than in Cochin (F = 17.750, p = 0.001; F = 8.203, p = 0.000 respectively), indicating differing priorities in urban planning and community-oriented initiatives across these cities. Visitor satisfaction showed higher ratings in Belgaum compared to both Coimbatore and Cochin (F = 14.219, p = 0.001), suggesting varying levels of satisfaction with local visitor experiences.
The results indicate significant variations in perceptions across cities for most constructs. Coimbatore generally shows higher ratings in environmental sustainability, perceived social cost, long-term planning, visitor satisfaction, and community-centered economy compared to Cochin and sometimes Belgaum. Belgaum often rates higher in perceived social cost and visitor satisfaction compared to Coimbatore and Cochin. Cochin, however, rates higher in perceived economic benefits compared to Coimbatore and sometimes Belgaum.

Table 3: Results of independent sample t-test

		Coimbatore		Cochin		Belgaum	
		Male	Female	Male	Female	Male	Female
Environmental sustainability	Mean	4.23	3.96	4.85	4.51	4.19	4.02
	F	15.212		16.751		14.231	
	p	0.000		0.001		0.000	
Perceived social cost	Mean	4.52	4.03	4.76	4.11	4.56	3.92
	F	12.279		13.583		16.247	
	p	0.009		0.000		0.000	
Perceived economic benefits	Mean	4.26	4.63	4.85	4.17	4.53	4.10

	F	0.726		12.018		0.684	
	p	0.227		0.000		0179	
Community participation	Mean	3.83	3.76	3.37	3.06	3.72	.351
	F	0.623		0.557		0.863	
	p	0.486		0.327		0.182	
Long-term planning	Mean	4.63	4.42	4.29	4.07	4.47	4.22
	F	17.750		10.235		11.247	
	p	0.001		0.000		0.000	
Visitor satisfaction	Mean	4.57	4.39	4.68	4.47	4.73	4.51
	F	13.522		14.219		13.224	
	p	0.007		0.001		0.000	
Community centred economy	Mean	4.41	4.26	4.53	4.38	4.46	4.23
	F	8.203		11.524		13.529	
	p	0.000		0.001		0.000	

The table 4 shows significant F-values ($p < 0.05$) for several factors across the cities of Coimbatore, Cochin, and Belgaum, indicating differences in perceptions based on demographic variables.

Table 4: ANOVA test results

	Factors	Coimbatore	Cochin	Belgaum
		F value	F value	F value
Age	Environmental sustainability	3.726*	3.844*	3.772*
	Perceived social cost	2.347	2.519	2.157
	Perceived economics benefits	1.472	1.564	1.872
	Community participation	1.927	1.826	1.240
	Long-term planning	2.716	2.443	2.189
	Visitor satisfaction	2.661	2.547	2.364
	Community centred	1.872	1.844	1.236
Length of residence	Environmental sustainability	2.452	2.117	2.266
	Perceived social cost	3.886*	3.521*	3.773*
	Perceived economics benefits	3.576*	3.221*	3.542*
	Community participation	4.227*	4.522*	4.392*
	Long-term planning	6.753*	6.113*	6.248*
	Visitor satisfaction	1.693	1.529	1.223
	Community centred	5.210*	5.943*	5.663*
Education	Environmental sustainability	4.223*	4.102*	4.955*
	Perceived social cost	5.320*	5.179*	5.249*
	Perceived economics benefits	7.213*	7.448*	7.632*
	Community participation	6.224*	6.023*	6.248*

	Long-term planning	1.203	1.408	1.623
	Visitor satisfaction	4.236*	4.587*	4.183*
	Community centred	5.022*	5.136*	5.278*

*p<0.05

Age: Environmental sustainability shows significant differences ($F = 3.726$, $p < 0.05$) among the cities, suggesting varied perceptions of sustainability across different age groups. Perceived social cost also exhibits differences ($F = 3.844$, $p < 0.05$), indicating varying views on social costs among age demographics.

Length of Residence: Perceived social cost ($F = 3.886$, $p < 0.05$) and perceived economic benefits ($F = 3.576$, $p < 0.05$) differ significantly, suggesting that perceptions on these factors vary with the length of residence in the cities. Community participation ($F = 4.227$, $p < 0.05$) and long-term planning ($F = 6.753$, $p < 0.05$) also show significant differences, highlighting distinct views on community involvement and future planning based on residency duration.

Education: Environmental sustainability ($F = 4.223$, $p < 0.05$), perceived social cost ($F = 5.320$, $p < 0.05$), perceived economic benefits ($F = 7.213$, $p < 0.05$), community participation ($F = 6.224$, $p < 0.05$), visitor satisfaction ($F = 4.236$, $p < 0.05$), and community-centered economy ($F = 5.022$, $p < 0.05$) all show significant differences based on education level. This indicates that educational background influences perceptions across various constructs, with higher education often associated with different viewpoints on sustainability, economic benefits, community involvement, and visitor satisfaction.

Overall, these results highlight that demographic factors such as age, length of residence, and education significantly influence how residents perceive environmental sustainability, social costs, economic benefits, community participation, long-term planning, visitor satisfaction, and community-centered economy across Coimbatore, Cochin, and Belgaum. The differences suggest varied priorities and perceptions among different demographic groups within each city, emphasizing the need for tailored approaches in urban planning and community development initiatives.

V. DISCUSSION

Firstly, regarding Environmental Sustainability, Coimbatore and Belgaum consistently rated this higher compared to Cochin, which aligns with literature emphasizing the importance residents place on sustainable tourism practices and environmental conservation (Bestard & Nadal, 2007; Gunce, 2003). This suggests that residents in Coimbatore and Belgaum may prioritize environmental protection due to their perceived benefits from sustainable tourism, whereas Cochin may lag in this aspect, possibly due to differing levels of environmental consciousness or urban development priorities (Hall, 2005; Marzo-Navarro et al., 2015).

Secondly, Perceived Social Costs were rated higher in Coimbatore and Belgaum compared to Cochin. This finding echoes literature that highlights concerns among residents about the social impacts of tourism, such as changes in community dynamics and increased living costs (Cavus & Tanrisevdi, 2009; Oppermann, 1999). It indicates that Coimbatore and Belgaum residents may perceive higher social costs associated with tourism development, possibly due to increased tourism pressures and changes in local social structures.

Thirdly, Perceived Economic Benefits were rated higher in Cochin compared to Coimbatore and Belgaum. This finding aligns with literature emphasizing residents' positive attitudes towards tourism for its economic benefits, including job creation and income generation (Eadington & Redman, 1991; Walpole et al., 2001). Cochin's higher rating in this aspect suggests that residents there may view tourism as a significant economic driver, supporting local businesses and livelihoods more visibly than in Coimbatore and Belgaum.

Fourthly, Long-term Planning and Community-centered Economy were consistently rated higher in Coimbatore and sometimes in Belgaum compared to Cochin. This finding corresponds with literature advocating for sustainable community development through long-term planning and community involvement in tourism initiatives (Lane, 2009; Ribeiro et al., 2017). It suggests that Coimbatore and Belgaum may have stronger community engagement and planning efforts aimed at sustainable tourism development compared to Cochin.

Finally, Visitor Satisfaction was higher in Belgaum compared to Coimbatore and Cochin. This aligns with literature suggesting that positive visitor experiences are crucial for fostering resident support for tourism (Puczkó & Rátz, 2000; Andereck & Nyaupane, 2005). Belgaum's higher rating in visitor satisfaction indicates that residents may perceive tourism as beneficial due to positive interactions with visitors and perceived economic gains from tourism activities.

The findings generally align with existing literature on residents' attitudes towards tourism and sustainable development, there are nuanced variations across Coimbatore, Cochin, and Belgaum. These variations underscore the importance of considering local demographic characteristics and priorities in formulating sustainable tourism policies and community development strategies tailored to each city's unique context and resident perceptions. This approach can help maximize the benefits of tourism while minimizing negative impacts, ensuring long-term sustainability and community well-being in each city.

VI. CONCLUSION

This study provides valuable insights into the perceptions of local communities in Coimbatore, Cochin, and Belgaum regarding sustainable tourism and smart city projects. The application of the Sustainable Tourism Attitude Scale (SUS-TAS) has empirically demonstrated that local residents are well-acquainted with the concept of smart city initiatives and are engaged in discussions about sustainable tourism development. The findings underscore the importance of integrating local community perspectives in the planning and implementation of tourism policies.

The results highlight significant variations in attitudes towards environmental sustainability, perceived social costs, economic benefits, long-term planning, visitor satisfaction, and community-centered economy across the three cities. These differences emphasize the need for tailored approaches in tourism development that consider the unique socio-demographic characteristics and priorities of each community.

Moreover, this research aligns with the theories of sustainable tourism, which advocate for a collaborative approach involving local residents, tourism operators, and government officials. It suggests that future studies should extend beyond community surveys to include perspectives from tourism operators and government officials, thereby fostering a more holistic understanding of the challenges and opportunities in sustainable tourism development. By promoting cooperation among all stakeholders, future research can contribute to creating more effective strategies for sustainable tourism that enhance community well-being and environmental conservation.

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