

The Role of Smart City Mission in Tourism Development and Sustainability in Udaipur

Kapil Mehta*, Yashwant Singh Rawal**, Sanjeeb Pal***

Abstract

The whole concept and existence of smart cities is relatively very new. The theory of smart cities dates back to the late 20th century and has its roots in Los Angeles United States of America. Development of a city as a smart city does not mean to change the whole face of the city by changing its infrastructural facilities and by revamping its connectivity or by establishing a new city, the concept of smart cities may differ from one city to another and this does not consider to establish the revamping change in the infrastructure but it seeks to provide some of the facilities that will make the cities much more likable, convenient & clean. The needs of a tourist at a destination are cleanliness, safety, security, Proper water supply, better connectivity, peace, and transportation. While keeping in mind that if the facilities that are used at destination are the ones that promote sustainable tourism, they promote sustainable development of the whole area as well. The study tries to find out how a smart city mission makes a conducive environment for sustainable tourism in Udaipur City. The research design is descriptive whereas data has been collected from secondary sources like information on government, other related sites, and various research articles published in this regard. The results show the positive approach of Udaipur Smart City Limited while the study leaves the further scope for more research in regard to the evaluation of actualization of the measures that have been applied in the city and their effect on sustainable Tourism in the city.

Keywords: Smart City, Safety, Security, ICT, Sustainable Tourism, Transportation

INTRODUCTION

Smart cities are also called the cities which work for the people. When one says this, it means the cities which get better and better according to the needs of their citizens in context with the infrastructural facilities and other requirements related to cleanliness hygiene, Safety & Security, and connectivity (Ministry of & Housing Urban Affairs, 2022). The concept of smart cities in India gained importance when the central government started emphasizing smart cities' mission in 2015. Smart cities entail facilities related to better traffic management, better waste management, an interface useful for communicating with the citizens and getting the response and feedback from the citizens at easy disposal (Anand, Sreevatsan & Taraporewala, 2018). Sustainable tourism includes the activities like touring, traveling. taking accommodation, eating food should be carried out in such a way that let us ensure that these things are neither overused nor compromised to prevent clean development be it social or economic development. The fact that tourism generates employment and generates opportunities for growth in the economy is very well-acknowledged but the negative impacts of tourism on Natural resources and socio-cultural habits are not negligible (tourismnotes.com, 2022). The tourism industry generates waste which if goes unnoticed and not treated well can damage the environment through polluting air, water & land and that is why the need of having proper waste management and disposal scheme is of utmost importance and that's what can be taken care by smart cities ensuring appropriate allocation of

* Amity School of Hospitality, Amity University Rajasthan, India. Email: kmehta869@gmail.com

** Parul Institute of Hotel Management and Catering Technology, Parul University, Vadodara, Gujarat, India. Email: yashwantr84@gmail.com

*** Amity School of Hospitality, Amity University Rajasthan, India. Email: sanjeebpal2002@gmail.com

manpower, Machinery and necessary investment of applicable resources. Tourists have concerns regarding their safety and security and being a tourism destination there are the forces that work in direction maintaining the security & safety of that place (Environmental Issues in India Today, 2016). The function of security & safety management can be done effectively by having ICT hubs to ensure proper communication between the public and the agencies which are responsible for it. The inclusion of better ICT at the tourism destination ultimately is a comprehensive approach to provide safety & Security of the management. The need for basic facilities like adequate water supplies & electricity in tourism has a sharing with local communities' resources and have the implications on local resources thus it is a priority of Smart city mission, and it is expected to better the services in tourism sector (wiki/Water_resources, 2022). Tourism also does the exploitation of energy resources by means of using fuel in transportation. The congestion of roads often leads to traffic jams that indirectly lead to wastage of fuel and emission of Green House gases as well as creates Noise pollution (Smart Transportation, 2016). The Activities under the Smart City mission are required to manage in such a way that can eliminate the excess GHG emission, control the wastage of Fuel as well as control noise pollution (Environmental Issues In India Today, 2016). The facilities that promote waste management, transportation management, and beautification of the city may help in achieving sustainable tourism practices (Smart Cities Mission Statements & Guidelines, 2015). The study provides the status of efforts of the smart city Udaipur complementing the sustainable tourism practices as it tries to find the correlation between smart cities & Sustainable tourism.

REVIEW OF LITERATURE

Source of Information on Smart City

The application of smart city mission may differ from one city to another but the principles on which it is based and the concepts that it holds are almost similar for every city. The enigma of what could be achieved under the SCM can be sourced from the website mentioning the policy of Smart City Mission of Indian Ministry of housing & urban Affairs & united nations Organization website that outlines the policy guidelines for SCM that invokes an empirical approach for connecting the SCM with sustainable tourism. It also displays the reason for urbanization and tourism and their negative impacts

while promoting smart cities as the place which excludes the possibilities of negative impacts of urbanization and tourism (Anand, Sreevatsan & Taraporewala, 2018).

The Correlation between Smart Cities and Sustainable Tourism Destinations

Proper representation in terms of activities that are common in Smart cities & sustainable tourism and While the information from these organizations helps in understanding the manifesto of Smart Cities (Jasrotia & Gangotia, 2018). The further research on how the concept of SCM can be related to Sustainable tourism development that requires sustainable infrastructural & logistical that are the focal points of Smart City Mission (SCM) shows a clearcut fragmentation of Smart provisions including Hard Smartness (Infra based facilities) & soft smartness (knowledge sharing & financial service-based). Lee, Hunter and Chung (2020). Some studies conducted to connect the idea with the discussion about the provisions of facilities that make Dubai a smart city also showcase the augmented uses of these provisions in smart tourism. It simplifies the process of understanding smart tourism & planning smart tourism by explaining Smart Tourism. Dynamic Responsive System (STDRS) works upon 6 dimensions & 4 Pillars that are economy, Governance, Mobility, People, Living, Environment & Efficient, Seamless, Safe & Impactful respectively. The components of STDRS give the learner a hint to inculcate the pillars & dimensions to explain the smartness of tourism in the context of safety & Security, Environmental health as well as social & Cultural changes because of tourism. It suggests inter-connecting the multifarious subsystems to make it more visitor-friendly (Khan, Woo, Nam & Chathoth, 2017).

Illustration of the association between smart cities & sustainable and green tourism by explaining the facilities of smart cities and requirements of sustainable tourism inspires to apply the investigation to find out the correlation in different smart cities. The paper puts Up the data-driven smart city & its effect on sustainable practices of tourism & tries to find out the technologies required to ensure sustainable & Green practices & suggests green architecture & Green energy to ensure sustainable tourism (Lu, 2021) on solution part about the apparent or indirect implications of the smart city approach on a tourism destination validates the correlation of both. The paper tries to evaluate the smart city initiatives and their impact on tourism destinations in Spain for evaluating the indicators of the change brought about by the measures

taken under smart city strategies in the country. The outcome of this study hints at the inhibition of planning of Smart cities to benefit tourism in maintaining its sustainability and thus suggests the reconsideration of identifying the challenges and redirection of smart policies guided by the thought of awareness to challenges (Lvars-Baidal, 2020). The status of public awareness is also a significant response to be recorded for example research conducted in Kvarner Tourist destination gives a glimpse on the awareness about the smart cities & Sustainable tourism linkage by emphasizing upon observing the transformation of conventional tourism destinations into the tourism destinations which are contemporary in the context of smart cities and sustainable tourism and thus motivates the researchers to find out the concept's applicability in Smart cities of India. Their results show that 67% of the people are not familiar with the connection between Smart cities & Sustainable tourism in the region (Nizic, 2020). The research gap can be seen by having a glimpse at how sustainable tourism activities are motivated by the provision of suitable infrastructure and facilities under the smart city mission. The study aimed to bring a theoretical model that links both the activities by facilitating the inference of causal mechanism which links smart cities & sustainable Tourism while mentioning the ambiguity which persists as having smart cities not necessarily contributes to sustainable practices in tourism thus leaving the scope for behavioral change required in ensuring sustainability in tourism apart from smart city facilities. The paper necessitates the need for Smart cities & sustainable tourism such as Planning long term building, Surveillance systems, interface for public-private communication with greater transparency and customization of tourism products, and the platforms to fulfill the needs with Information technology platforms as Wi-Fi connectivity, big data GIS-based data, E-governance, etc (Perles Ribes & Baidal, 2018). The research conducted on smart tourism city also gives the mentions & technicalities that intertwine smart cities & tourism as it discusses about the tandem in which the technology works for ensuring greater mobility as well tourism specific IT system that includes information on location-based services of entertainment, dining & tour related rich information. Since the above-mentioned research has a provision of ICT facility that can be given under smart city mission can also simultaneously help tourism grow systematically (Buhalis & Amarrangana, 2014) moreover A study conducted on smart tourism destination has tried to put up a creative approach with the help of big data analytics that can help better understand trends & pattern in tourism to go for making

personalized & customized service product in terms of hospitality. Though this concept is tourism specific and does not help to create an impact on every smart city but it can work very well under Smart city mission which also happens to be one of the most beautiful cities in the world from tourists' point of view (Christopoulou, Ringas & Garofalakis, 2014). and if social development with tourism is concerned, the sociable Smart city as depicted in the research has an Urban Computing system that enables citizen & tourists to understand the history & culture of the city, can also be an example of the smart city that with the help of technology ensure maintenance of cultural heritage & an optimistic people to people contact by creating awareness about a particular place that installs Urban computing system that works in the tourism specific system (Soares et al., 2021), the examples of successful implementation of policies that have changed the way of growth of tourism destination is evident in the report on research conducted on Helsinki as a sustainable tourism Capital of Europe explains on the initiatives that may work in favor of a city that works under smart city mission to mitigate carbon footprints increase. The whole report on Southern Finland Project showcases the aims & plan to build information driven tourism city that takes into account safe & sustainable tourism (Lvars-Baidal et al., 2020).

RESEARCH GAP

The studies that have been conducted regarding finding a correlation between Smart cities and sustainability found the gaps and tried to plug them by putting up suggestions related to information and communication technologies and other efforts regarding waste management, ensuring adequacy in water & electricity supplies as well efficient transportation. Researches which have been conducted earlier have an extensive inclusion of smart cities, tourism & Sustainability but none of them cover Udaipur city as Place of research & also the earlier researches do not try to see the connectivity between Smart city & sustainability in tourism that ensures socio cultural dynamics of tourism thus giving the impetus to continue with this topic of the research in regards to the smart city as well as the tourist city Udaipur.

OBJECTIVES

- To find out the role of Smart City Mission in supporting smart and sustainable tourism.
- To analyze the efforts done by government bodies under Smart city Mission in Udaipur.

RESEARCH METHODOLOGY

The secondary data used in the research has been taken from the government websites and relevant research articles published in reputed journals. Researchers also refer the website of the Ministry of Housing and Urban Affairs which provided detailed guidelines about the projects to be considered under the smart city mission and the government website of Udaipur smart city mission provided the data on what measures have been taken so far.

The data available on the booth the websites put up in a tabular form to give more clear understanding about what projects the authorities are working on and how these projects will help the growth of sustainable tourism. The observation and description on how the activities under SCM would be helpful for sustainable tourism have been clubbed with the same tabular form empirically.

THE CONVERGENCE BETWEEN SMART CITIES AND SUSTAINABLE TOURISM

As per the population survey (2011) In India, the population which lives in cities is around 31% of its population and will be able 75% of contribution to GDP by 2030. Cities attract people because of the "Pull factor" in form of better health services, easy access to education, better means of livelihood and job opportunities. The possible solutions for urbanization which is happening rapidly to develop village areas economically and to enhance the capacity of the city in order to accommodate the population in the city in a sustainable manner. The smart city should be a city that has technological modernization by the inculcation of uses of different types of communication methods, sensors, and other

communication modes. These smart cities also have some of the modes of data collection in such a way that they will be helpful for further improvement of the cities the data which is gathered in this data collection method from the citizen devices or any other electronic devices is normally processed and monitored in such a way that it helps the transportation system, information system, water management, utility management, security management by detecting waste and crime, ensuring the other community services. The application of

It does help ensure sustainable tourism because it will be able to give confidence to the tourism sector for attracting the tourists, to ensure good connectivity with the place, to ensure safe and clean transportation. Ensuring proper waste management element of smart cities works for betterment in waste management mechanisms and it beautifies the city indirectly does attract the customer and ensures that whatever tourism waste has been generated will fall into the right place for either being recycled or reduced. The provision of the facilities in smart cities to make them safe cities is also going to be an alluring factor for tourists and also when they visit these safe cities, they find a sense of security to the tourists by using technology which has been described in above-mentioned paragraphs (Anand et al., 2018). Ease of access to online services as a feature of smart cities also helps in the augmentation of tourism in a better way as it can reduce the time and cost to the tourists (UNWTO, 2022).

INITIATIVES TAKEN UNDER SCM, AND PROJECT COMPLETED BY UDAIPUR SMART CITY LIMITED AND THEIR INDIRECT EFFECT ON SUSTAINABLE TOURISM IN THE CITY

Table 1

<i>Sr. No.</i>	<i>Smart Cities Mission–Objectives</i>	<i>Efforts of Udaipur SmartCities Limited</i>	<i>Motivation To Tourism Development & Sustainability</i>
1.	Adequate Water Supply	Water ATM, Water Quality Monitoring System	Basic Need of Tourism & Cleanliness
2.	Improved Sanitation	Progress Under SBM	Need of a tourist and nudge to keep the place clean.
3.	Solid Waste Management	Bioremediation at Balicha Collection Vehicle commissioned under SBM	Need of the area and nudge to tourists to keep the place clean.

Sr. No.	Smart Cities Mission – Objectives	Efforts of Udaipur Smart Cities Limited	Motivation To Tourism Development & Sustainability
4.	Efficient Urban Mobility & Public Transport	Operation of E- Rickshaw, Parking Lot Development nearby at PWD Garage Near Gulaab Bag, Micro Level Intervention in Walled City Areas, Junction Improvement of Surajpole, Construction of Bridge Near Daiji ki Pulia, Multilevel Parking at Chandpole, Construction of Parking lot at RNT& MB Hospital.	Reduces Carbon Footprint in Tourism
5.	IT Connectivity	Construction of Command & Control Building, Installation of around 500 Wi-Fi hotspots	Promotes Better connectivity to ensure the marketing, accessibility & research activities in Tourism.
6.	Sustainable Environment	Pollution Control in Pichola Lake by trapping wastewater coming from Sisaram Village, Water Quality Monitoring System, Construction of Bird Park through Convergence	To motivate to contribute to the achievement of Sustainable development goals, especially- Goal 6&13
7.	Safety & Security of the Residents	Construction of Command & Control Building	Attract more tourists & to achieve Goal 16 in regards to keeping peace & strength.
8.	To improve the quality of Tourism Destinations	Conservation of Step Wall, Renovation of Ghats & Waterfronts, Ayad River Front Development, Design, Develop & Manage adventure zone at Manikyalal Verma Udhyan Park.	The attraction for the tourists

Source of Data for Smart Cities Mission – Initiatives: Official Website of Ministry of Housing & Urban Affairs Smart Cities Mission Statement & Guidelines.

Source of Data for getting information about Efforts of Udaipur Smart Cities Limited: Official Website of Udaipur Smart City Limited.

Udaipur Smart City Limited is in process of tendering some more projects which will be covering the aspects shown above. As per the information given on the website, it seems that the authority is placing enough measures to ensure that the smart cities mission proves to be a convenient urban settlement, but it still has so many projects pending in the same regard.

The Table formulated above makes the clarity to understand the correlation between features of Smart cities & the concept of sustainable tourism development.

FINDINGS

- The depiction shown in the table show a relevance between Smart city mission objectives & the impact of the activities carried under SCM on tourism sector directly.
 - The efforts that have been done by local government or state/central government under SCM have been given below-

- The progress made under Swachh Bharat improves the cleanliness in the city as under Swachh Bharat scheme, the local government has installed toilets at tourism destinations such as Dudh Talai, Fateh Sagar, Moti Mangari, and bus stand, railway station has improved the cleanliness of tourism destination thus improving the quality of experience of traveling such places. The collection of garbage from commercial shops nearby tourism destination as well as cleaning the algae & waste from lakes has also contributed to beautification of the lakes.
- To ensure less carbon footprint Operation of E-Rickshaw has been commissioned and in order to ensure smooth flow of traffic the Parking Lot Development nearby at PWD Garage Near Gulaab Bag, Micro Level Intervention in Walled City Areas, Junction Improvement of Surajpole, Construction of Bridge Near Daiji ki Pulia, Multilevel Parking at Chandpole, Construction

of Parking lot at RNT & MB Hospital have eased traffic congestion that occurs in the downtown.

- In order to enhance effective communication between citizen & tourists with government the “Abhay control & command building” has been constructed & the operations have commenced to ensure that the grievance of citizens & tourists are timely addressed. This operations ensure safety, security & law and order maintenance in the city and it also improves image in front of tourists as the above mentioned tenets are basic requirement of tourism sector. The launching of “Action Udaipur” App shall also help the government agencies to handle grievance management in the city.
- The heritage rejuvenation program like Conservation of Step Wall, Renovation of Ghats & Waterfronts, Ayad River Front Development, Design, Develop & Manage adventure zone at Manikyalal Verma Udhyan Park have also enabled the tourism destinations to look more attractive.
- Under Smart City mission the Trapping & treating waste water that pollutes the Lake Pichola has also helped to clean this tourist destination clean. The installation of Water Quality Monitoring Systems has enabled the city to have check the quality of water in the city.
- The development of Bird Park through Convergence in Gulab Bagh will also attract tourists who admire nature and play an important role to create sensitivity about wildlife among public & tourists.
- Apart from all strategically planned activities mentioned earlier, it has also been found that certain activities under Smart city mission have hampered ease of accessibility towards destination. The work for improving drainage system has scrapped the main routes that lead to city’s tourism destination like dudh talai, Chandpole etc. The scrapped road is a main cause of pollution especially PM2.5 & PM10 that may cause deterrence among the tourist to visit the place.
- Furthermore, the cleanliness status of the toilets in public area also not maintained regularly thus discourage tourists to not use the facilities that

have been meant for ensuring beauty & cleanliness of the city.

CONCLUSION

The whole study correlates these sustainable tourism practices and smart city objectives and tries to find out the motivational factors for sustainable tourism practices to be carried out and help with the provisions of smart city Mission. The information that is collected reviewed and analyzed and presented provides the guidelines that can guide a city or a researcher about the role of smart cities in sustainable tourism practices and their development by defining the principles of sustainable tourism practices and the features and core elements of smart cities. The study does cover finding out the aspects of the efforts put by the government while correlating the same with nudge provided for sustainable tourism. The smart city activities have different dimensions that target to improve the quality of different services to the citizen that are common to the needs of tourists. This study only covers the tenets of Smart city mission like ICT provision & cleanliness in the city to correlate tourism activities but has a lot of scope to find out more dimensions of Smart city mission that touch every Sustainable development goals thus has more scope for further research work in context with realizing the impact of Smart city mission on sustainable tourism.

REFERENCES

- Khan, M. S., Woo, M., Nam, K., & Chathoth, P. K. (2017). smart city & smart tourism: A case of Dubai. *Sustainability*, 9(12), 1-24. doi:<http://dx.doi.org/10.3390/su9122279>
- Environmental Issues in India Today. (2016). Retrieved from My India: <https://www.mapsofindia.com/my-India/india/environmental-issues-in-India-today#:~:text=%20Environmental%20Issues%20in%20India%20Today%20%201,country.%20According%20to%20data%20from%20the...%20More%20>
- Dkhar, N. B., & Ali, Q. S. W. (2018). India’s Rampant urban issues & challenges. Retrieved from The Energy & Resources Institute of India: <https://www.teriin.org/article/indias-rampant-urban-water-issues-and-challenges>
- Jasrotia, A., & Gangotia, A. (2018). Smart cities to smart tourism destinations: A review Paper. *Journal*

- of *Tourism Intelligence and smartness*, (1), 47-56. Retrieved from https://www.researchgate.net/publication/327536704_SMART_CITIES_TO_SMART_TOURISM_DESTINATIONS_A_REVIEW_PAPER_ISSN_2249-7307
- Lee, P., Hunter, W. C., & Chung, N. (2020). Smart tourism city: Developments & transformation. *Sustainability*, 12(10), 1. doi:<https://doi.org/10.339/su12103958>
- Lu, C. W., Huang, J. C., Chen, C., Shu, M., Hsu, C. W., & Bapu, B. T. (2021). An energy-efficient smart city for sustainable green tourism industry. *Sustainable Energy Technology and Assessments*, 47(1). Retrieved from <https://www.sciencedirect.com/science/article/abs/pii/S2213138821005051>
- Ivars-Baidal, J. A., Vera-Rebello, J. F., Perles-Ribes, J., Femenia-Serra, F., & Celdren-Bernabeu, M. (2020). Sustainable tourism indicators; What's New within the smart city/destination approach. *Journal of Sustainable Tourism*, 1. doi:<https://doi.org/10.1080/09669582.2021.1876075>
- Ministry of Housing & Urban Affairs. (n.d.). Retrieved from <https://smartcities.gov.in/about-scm>
- Nizic, M. K., Vodeb, K., & Grdic, Z. S. (2020). The smart city concept for sustainable development of a tourist destination. *Journal of Maritime & Transportation Science*, 58(1), 111-123. doi:<http://dx.doi.org/10.18048/2020.58.07>
- Pappu, A., Saxena, M., & Shyam, A. R. (2007). Solid wastes generation in India & their recycling potential in building material. *Building & Environment*, 42(6), 2311-2320. doi: <https://doi.org/10.1016/j.buildenv.2006.04.015>
- Perles Ribes, J. F., & Baidal, J. L. (2018). Smart sustainability: A new perspective in the sustainable debate. *Investigations Regionals-Journal of Regional Research*, (42), 151-170. Retrieved from https://www.researchgate.net/publication/330514899_Smart_sustainability_A_new_perspective_in_the_sustainable_tourism_debate
- Safe Cities Create a better Life. (n.d.). Retrieved from the benefits of Safe Cities: https://cdn.ihf.com/www/Technology/Security/IHS_Markit-Benefits_of_Safe_Cities_WhitePaper.pdf#:~:text=Safe%20cities%20are%20an%20essentia,1%20pillar%20supporting%20the,the%20impact%20of%20natural%20disasters%20and%20o,ther%20threats
- Smart Cities Mission Statements & Guidelines- Ministry of Urban Development Government of India.(2015, June). Retrieved from Smart cities: <https://smartcities.gov.in/themes/habikon/files/SmartCityGuidelines.pdf>
- Smart Transportation. (2016). Retrieved from Grant Thornton: <https://www.grantthornton.in/globalassets/1.-member-firms/india/assets/pdfs/smart-report.pdf#:~:text=A%20major%20component%20of%20the%20scheme%20is%20providing>
- Soares, J. C., Domareski Ruiz, T. C., & Lvars Baidal, J. A. (2021). Smart destinations: A new planning & management approach. *Current Issues in Tourism*, 1. doi: <https://doi.org/10.1080/13683500.2021.1991897>
- Sustainable Tourism. (n.d.). Retrieved from <https://tourismnotes.com/sustainabletourism/#:~:text=Su,stable%20tourism%20is%20the%20form,s%20of%20tourism%20>
- Water Supplies & Water Resources. (n.d.). Retrieved from Wikipedia.
- Water, Sanitation & Hygiene. (n.d.). Retrieved from <https://www.unicef.org/india/what-we-do/water-sanitation-hygiene>
- Smart Cities for Sustainable Development. (n.d.)
- Anand, A., Sreevatsan, A., & Taraporewala, P. (2018, August 28). SCM Policy. BRIEF. Retrieved from cprindia.org
- Waterprob (Welcome to Azad India Foundation.)Lem in India(azadindia.org) Creating Smart Cities for Innovative Tourism Experiences | UNWTO
- Gretzel, U., Singla, M., Xiang, Z., & Koo, C. (2015). Smart tourism: Foundations and developments. *Electron Markets*, 25, 179-188. doi:<https://doi.org/10.1007/s12525-015-0196-8>
- Buhalis, D., & Amaranggana, A. (2015). smart tourism destinations enhancing tourism experience through personalisation of services. In: I. Tussyadiah & A. Inversini (Ed.), *Information and Communication Technologies in Tourism* (127th Ed., pp. 377-389). Springer.
- Christopoulou, E., Ringas, D., & Garofalakis, J. (2014). The vision of the sociable smart city. In *International Conference on Distributed, Ambient and Pervasive Interaction* (pp. 545-554). Cham, Germany.