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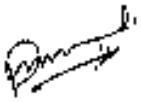
We invite authors to contribute original high-quality research on recent advancements and practices in Environment Management. We encourage theoretical, experimental (in the field or in the lab), and empirical contributions. The journal will continue to promote knowledge and publish outstanding quality of research so that everyone can benefit from it.

Er. D. S. Mali
Editor, CIJE



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Impacts of Festivals on Environment, Smart Cities, and Tourism in Maharashtra, India

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Abstract

A feature of modern society is the city which tries to express itself through social and physical environments. Festivals play a crucial role in the cultural, social, and economic fabric of societies worldwide. This research paper examines the multifaceted impact of festival celebrations on the environment, with a focus on smart cities and tourism. The idea of a "Smart City" is evolving in response to the demands of the areas where the majority of us live and work, as well as the most influential economic and social forces of our day. Smart city development is accompanied by the emergence of a wide variety of IoT devices. There are several different environmental concerns included in the contemporary urban sustainability challenges. These difficulties include things like neighborhood traffic congestion, air pollution, a steady increase in the production of solid waste, high (and frequently inefficient) energy use, and materials related to climate change.

Keywords: Festivals, Environment, Smart City, Tourism and Pollution

Introduction

Today, tourism is one of the largest and most dynamically developing sectors of external economic activities. It has high growth and development rates and considerable volumes of foreign currency inflows. Infrastructure development and the introduction of new management and educational experiences actively affect various sectors of the economy, which positively contributes to the social and economic development of the country as a whole (Bibri and Krogstieb, 2017).

Tourism has emerged as the fastest-rising industry in the world. It accounts for 7% of capital investment and about 20 million people around the globe are employed in this industry. Now it is one of the sectors sustaining the national economy (Gurav, 2015).

Smart Cities are the integration of information technology, telecommunications, urban planning, smart infrastructure, and operations in an environment geared to maximize the quality of life for a city's population (Patel and Doshi, 2019).

Smart City Mission

The Indian Government announced the smart city mission (SCM) in June 2015, which is a significant government effort. To make them more habitable, sustainable, and technologically

advanced, the objective seeks to remodel and modernize metropolitan areas throughout the nation. The Mission's fundamental ideas have developed as well. The National Sustainable Habitat and SCM urged state governments to choose three existing cities in each state for development in August 2014. This showed that the Mission's focus had changed from Green Field to Brown Field expansion. As a result, the focus has moved from developing 100 new SCs to improving existing ones. This cleverly emphasizes the importance of SC being built as sustainable homes. In September 2014, the Indian government sponsored a National Conclave on Building Smart Cities, which focused on three key features of smart cities:

1. Competitive (attempts to entice inhabitants and investors);
2. Long-term (the Government of India (GoI) declared that it is "dedicated to promoting wealthier, healthier, and happier cities for a higher quality of life in cities").
3. Technology is an important part of Smart City governance and plays an important role. The Conclave also acknowledged that technology, particularly ICT, is a critical component of smart cities.

The Government of India had allocated INR 7060 crore to the SCM in its interim budget for 2014-15. A government panel has approved the allocation of INR 2.73 lakh crore over the next 10 years for the building of 100 smart cities and 500 cities as part of the National Urban Rejuvenation Project (NURP) (Jawaid, *et al*. 2016 and Joshi Sujata, *et al*. 2016).

Kumar Harish *et. al*. (2019), examined the increasing rate of urban population and deteriorating conditions of physical, institutional, social, and economic infrastructure in cities are demanding smarter ways to improve public utilities and services in India. Smart city development promotes an established, interconnected, and sustainable urban system. The Indian government has launched the “100 Smart Cities Mission" for planned urbanization in the country. The “100 cities" have been selected from a two-round city challenge competition. However, some controversial viewpoints have made questionable remarks about the selection process. For the effective planning of smart cities, an exhaustive analysis is essential to find the existing critical infrastructure, key resources, and development trends. The purpose of this study is to aid city planners and decision-makers in determining city eligibility in a multi-dimensional way and to develop evaluation criteria for the city selection process to meet the goal of the smart city mission. This article proposes a weighted criteria model to assess the city selection eligibility.

The factors are identified from the literature studies. Total interpretive structural modeling is used to analyze the complex interrelationships among the factors and to develop a selection hierarchy. The fuzzy MICMAC process is used to classify the factors based on driving power and dependence. The stabilized driving power is applied to calculate the corresponding weights for each factor. In the study findings, the most driving, linkage, and dependent factors are

identified for analyzing city selection eligibility. The policy-makers, government officials, and decision-makers would benefit from the study outcomes to select the top "N" number of cities for SCM.

Smart Cities in Maharashtra

Table 1: Smart Cities in Maharashtra State

Sr. No	Name of the City	Identity of City
1.	Mumbai	The Financial Hub
2.	Pune – Pimpri Chinchwad	Cultural and Educational Capital of Maharashtra, The Emerging IT Hub
3.	Nagpur	Orange City, Green, and Sustainable City
4.	Navi Mumbai	The Satellite Destination
5.	Nashik	Beyond Vineyards, Dynamic City
6.	Chhatrapati SambhajiNagar	The Historical Gem
7.	Thane	The Lake City
8.	Solapur	The Textile Hub
9.	Amravati	The Cultural Capital
10.	Kalyan Dombivali	The Twin City

https://smartcities.gov.in/cities-profiles

Components of the Smart City Project

With different backgrounds, attributes, and necessities, for creating each Smart City the key components stay the same. These are the major areas where a variety of services and amenities will be available (Caragliu *et. al*., 2011, Giffinger, et *al*, 2007, www.ibm.com/uk/cities).

These determinant variables are:

- **Smart Environment (SE)**

It emphasizes the significance of competent and accountable resource management as well as long-term urban planning. Pollution and emission reductions, as well as environmental preservation and safety programs, can enhance the city's natural attractiveness. Smart cities promote lower energy use as well as the adoption of new technology breakthroughs that increase efficiency.

- **Smart Mobility (SM)**

It advocates for more efficient transportation systems (e.g. non-motorized options) and ensures that citizens have access to local and public transportation, as well as reintegrating ICT to boost efficiency. The goal of smart cities is to increase the efficiency with which people, goods, and vehicles are moved around cities.

- **Smart Government (SG)** Involvement at the community level is addressed more explicitly. The governance structure is open to the general public and permits them to take part in decision-making. The general public may effortlessly acquire data and information on the management of city-credited information communication technology infrastructure. Hurdles to communication could be removed by establishing a much more competent and connected framework of governance.

- **Smart Living (SL)**

The purpose is to improve the quality of life of the residents by providing them with healthy and safe living conditions. Smart city residents have simple access to health care, computerized health records, and a wide range of social services.

- **Smart Economy (SE)**

It envisages the competitiveness of the total city, which is determined by the method of ground-breaking and inventive business, R&D expenditures, entrepreneurial prospects, labor marketplace output and suppleness, and the economic role of the city and position in the nationwide and worldwide market.

- **Smart Peoples (SP)**

This means providing the populace with a premium, constant, and invariable intensity of education, as well as emphasizing the excellence of community exchanges, edifying information, progressiveness, and degree of involvement that the general public has in their acquaintances among the public sphere.

- **Smart City and Tourism**

Indian SCM can increase tourism by developing more aesthetically pleasing, functional, and visitor-friendly urban environments. These cities may provide visitors with a more pleasurable and memorable experience while also contributing to the general economic prosperity of the region by investing in infrastructure, technology, and sustainable practices. The Indian SCM may have a big effect on tourism in the nation. Numerous ways that smart city development might improve Indian city's overall tourism appeal include:

- **Infrastructure Improvements:** Smart cities strive to improve their infrastructure, which includes roads, public transportation, and utilities. This may facilitate access to and navigation of numerous tourist destinations for visitors, resulting in a smoother and more pleasurable travel experience.

- **Enhanced Public Transportation:** The development of public transportation systems is a common goal of smart cities. Modernizing and expanding public transit systems can make it easier for visitors to explore the city, which will ease traffic and pollution.
- **Better Connectivity:** High-speed internet access and digital connectivity are prioritized in smart cities. This can be especially helpful for travellers who use social media, online travel agencies, and navigation apps to organize their journeys and share their experiences.
- **Safety and Security:** Smart cities frequently make investments in cutting-edge security and surveillance technology, making both locals and visitors feel safer there. The trust of tourists to visit these cities can be increased by improved safety measures.
- **Services for Tourist Information:** Digital kiosks, mobile apps, and websites can all be used by smart cities to give visitors quick access to information. Information about tourism destinations, cultural activities, regional fares, and other topics may be included.
- **Cultural Promotion:** Technology can be used by smart cities to promote and safeguard their cultural legacy. Tourists can have more fun with cultural encounters by using digital museums, augmented reality tours, and interactive exhibitions.
- **Waste Management and Cleanliness:** Effective waste management programs can keep popular tourist locations tidy and appealing. Tourists are more likely to have a favorable opinion of a city that is clean and well-kept.
- **Sustainability:** Eco-friendly practices and sustainability are frequently given top priority in smart cities. To meet the rising demand for eco-tourism, this can involve programs like creating green spaces, installing electric vehicle charging stations, and utilizing renewable energy sources.
- **Tourist Engagement:** Smart city projects can attract visitors by offering interactive experiences like virtual reality tours, self-guided mobile exploration apps, and real-time information on activities and attractions.
- **Citizens' and tourists' safety:** Smart cities frequently include integrated emergency response systems that can improve locals' and visitors' security. For tourists in strange places, timely response to emergencies might be vital.

Core Infrastructure Elements in a Smart City

1. Adequate Water Supply
2. Assured Electricity Supply
3. Sanitation, including Solid Waste Management
4. Efficient Urban Mobility and Public Transport
5. Affordable housing, especially for poor people

6. Robust IT Connectivity and Digitalization
7. Good Governance, especially e-governance, and Citizen Participation
8. Sustainable Environment
9. Safety and Security of Citizens, Particularly Women, Children and the elderly
10. Health and Education

Smart City and Socio-Economics Aspects The idea of a "Smart City" is evolving in response to the demands of the areas where the majority of us live and work, as well as the most influential economic and social forces of our day. Smart city development is accompanied by the emergence of a wide variety of IoT devices, which raises issues with cybersecurity and privacy. Therefore, it is crucial to research the effects of smart cities on people's social lives.

It is observed that due to the increase in urbanization, population, and economic growth, it is important to make a detailed study of the prospects and challenges of tourism in smart cities in Maharashtra. According to Patel Yash & Doshi Nishant (2019), the surrounding ecosystem involves both people and corporations. It is important to note that the existing cities are turning into smart cities to address the challenges of achieving goals for social development and quality of life. So, it can be the outcome of innovative, knowledge-based initiatives designed to improve the socioeconomic, ecological, and competitive performance of cities. This article attempts to comprehend both the potential social impact and the constraints of smart cities.

ICT and IoT:

Eisebith Fromhold, *et. al*. (2019), studied SC strategies that aim at fostering sustainable urban development through the systemic implementation of modern information and communication technologies (ICTs) and continue to appeal to national and municipal governments despite increasingly skeptical academic debates. Especially in Asian emerging economies, aspirations to create SCs are widespread, yet seem hopelessly illusionary in many cases and might harm rather than benefit most citizens. This paper acknowledges these critical views, yet also accentuates constructive perspectives on SC achievements that offer rays of hope, especially for cities in less developed countries. We propose to emphasize influential process qualities of SC strategies, which can instigate broader governance and institutional transformations locally, rather than mainly looking at the technical product features of final SC settings. Refined conceptual distinctions between the product and process view on achievable outcomes of SC schemes are suggested which also borrow from evolutionary geography perspectives.

Hoon Han and Scott Hawken (2017), with the emergence of smart cities, it is more important than ever to investigate cultural nuance, human conduct, and social identity. The challenge of the smart city is critically examined in this special issue, with identity and urban culture at its core. Technology capability and advancement are the focus of current smart city discussions. A one-dimensional business strategy and set of measures are reduced to cities in global rankings. The future quality of life and distinctive cultural identity of a city must be developed

through technology if the phrase "smart city" is to have any lasting relevance. The editorial reviews emerging research on the cultural dimensions of urban innovation and smart cities and places the six special issue papers within a theoretical context. Each paper critiques smart city theories about the practical challenge of enhancing urban identity, quality, and value at a range of scales and geographic contexts. Three main themes are used to frame the debate on smart cities and urban innovation: 1) local development histories, 2) face-to-face relationships, and 3) local community scales. Each of these themes is lacking in current smart city approaches and requires innovative approaches to integrate into the smart city of tomorrow.

Shah, Jigar *et. al*. (2019), the studied population is proliferating, but the resources are not increasing. To cater to the needs of people and improve their standard of living, the concept of a Smart City's introduced. The Smart City aims to make optimal and sustainable use of all resources while maintaining an appropriate balance between social, environmental, and economic costs. The emerging technology of the Internet of Things (IoT) is used in the development of smart cities. Sensors are deployed at many places to gather data. This, in turn, is sent to the cloud where it is processed, and the generated output is used for planning strategies for the smart city. This paper will explore the technologies and projects implemented in New York City the USA to make it smart. This paper explored the technologies and projects implemented in New York City the USA to make it a smart city.

Festivals and Pollution

During the celebration of festivals, people cause air, water, and noise pollution which causes a huge impact on the surrounding environment as well as on our health. It is our responsibility to take care of the ecosystem, animals, and birds. Diwali is the biggest Indian festival that brings with it a lot of air and noise pollution. Air pollution obstructs visibility during festivals due to the fire cracking. Holi is celebrated with chemicals, color, and water; which causes the wastage of water and causes adverse effects on humans and animals. Idols of god are immersed in water that pollutes our rivers during Ganesh Chaturthi and Durga pooja. Solid waste disposal is also a prime issue during the festivals. Festivals bring people together as well as gather for the celebration which causes a lot of garbage to be disposed of around the environment and traffic issues etc. In India, many festivals have a 'Mela' organization and fairs which leads to a lot of waste material being disposed of openly and around the residential area. The constitution of India gives us the right to freely practice the religion as but as the citizens of the country we must also make it our duty to protect nature and celebrate in moderation (https://infinitylearn.com).

For the past 20 years, one of the biggest obstacles to integrating environmentally friendly initiatives has been city management (Alberti *et al.*, 2007). There are various prerequisites and difficulties for sustainable growth in cities all over the world. There are several different

environmental concerns included in the contemporary urban sustainability challenges. These difficulties include things like neighborhood traffic congestion, air pollution, a steady increase in the production of solid waste, high (and frequently inefficient) energy use, and materials related to climate change. These difficulties also include social ones such as increased social tensions and racial segregation (Oksman, and Ylikauppila, 2014), including inappropriate urban design, and its related social deprivation and community disruption (Bibri and Krogstie, 2017), urban conflict and violence, social polarization, and rising urban poverty levels (Jabareen, 2015). These challenges can be mitigated by establishing socially inclusive, environmentally friendly, and economically sustainable cities (Yigitcanlar *et al.*, 2019). The professional and academic communities have been compelled by these environmental and socioeconomic issues to think about what cutting-edge approaches, sophisticated techniques, and cutting-edge technology might be provided for the design of sustainable cities. The idea of a "Smart City" has changed as a result. A smart city has an efficient system to control air pollution and maintain clear air, especially in the air sheds where it is located. Cities generate a wide range of new physical issues, such as diminishing resources, air pollution, problems managing waste, traffic jams, and inadequate, failing, and outdated infrastructures. (Chourabi *et al*., 2012). On the other hand, cities are mostly responsible for environmental issues like water and air pollution as well as the extensive use of non-renewable energy (Grimmond, 2007; Guerra *et al*., 2016), which have effects on climate change (Choucri, 2007). Additionally, the increased urbanization creates new problems for sustainability, including an increase in poverty, social unrest, a lack of natural resources, and unique dynamics. (Ibrahim *et al.*, 2018).

Indoor Air Quality

Indoor examination tainting may happen in any setting, including the office, school, or your comfortable home: the use of toxic substances also known as volatile organic compounds (VOCs), inadequate ventilation, uneven temperature, and moisture level. Uninformed decisions can lead to indoor air pollution, such as smoking in a room or failing to treat mold-infested dividers. A person's health can be directly affected in a matter of seconds by the usage of space heaters or wood stoves, which raise the moisture level. Contribute to the decrease of CO_2 emissions from industries, vehicular pollution, and toxic gases produced on farms.

Air is a mix of gases that fills the atmosphere and gives life to the plants and animals that inhabit the earth, giving it its unique dynamic quality. Air is what allows us to breathe. Broadly speaking, the air is mostly made up of two gases: 78% nitrogen and 21% oxygen. A small number of other gases, such as carbon dioxide and argon, are also present. Air contamination is defined as a gas (or liquid or strong) dispersed through ordinary air in sufficient quantities to endanger human health or that of other animals, kill plants or stop them from growing properly, damage or disturb other aspects of the climate (e.g., disintegrating structures), or cause any other type of irritation.

Regarding the health and comfort of residents, indoor air quality describes the state of the air inside buildings and structures. Knowing and reducing Indoor Air Pollution (IAQ) is crucial since it can have some negative effects on human health. Smoke, pollen, and dust are examples of tiny solid or liquid particles in the air. The respiratory and cardiovascular conditions are linked to particulate matter (PM) 2.5, which can enter the lungs deeply. These are organic chemicals that can evaporate into the air from products like paints, cleaning supplies, and furniture. Volatile Organic Compounds (VOCs) can lead to eye, nose, and throat irritation, as well as more severe health effects. A radioactive gas that can seep into homes from the ground. It's a known carcinogen and is the second leading cause of lung cancer. A common VOC is found in many building materials, furnishings, and household products. Long-term exposure to high levels of formaldehyde can be harmful. Inadequate airflow and ventilation can lead to the buildup of pollutants in indoor spaces.

Smart Solid Waste Management

Smart Solid Waste Management is a term that refers to the management of waste in a smart way. Smart trash monitoring technologies can aid municipalities and optimize wastes, save operational costs, and better handle environmental challenges coupled with incompetent garbage collection. Cities are attempting to integrate the most recent technology, products, solutions, systems, and so on to address water supply, wastewater, and sanitation challenges, and attempts are being made to collect data to diagnose problems and prioritize and administer safeguarding issues. The Automated Waste Collection System (AWCS) can handle traditional waste collection techniques such as door-to-door, curbside, and block collections, as well as community bin collections and transportation to transfer stations.

There are several opportunities to enhance both the general infrastructure and operations of the city as well as the quality of life for citizens when a smart city is implemented. Smart sensor networks, the Internet of Things, and linked technologies are the main tools for implementing smart cities. Trash monitoring devices with intelligence can minimize waste, reduce operating expenses, and improve the way waste service managers and governments deal with environmental issues brought on by ineffective garbage collection. Cities are trying to solve issues with wastewater, sanitation, and water supply by implementing the newest goods, methods, technologies, and so forth.

They are also trying to gather data to identify concerns, prioritize them, and handle maintenance tasks. The AWCS can handle traditional waste collection techniques such as door-to-door, curb-side, and block collections, as well as community bin collections and transportation to transfer stations. The implementation of a smart city offers enormous prospects to improve people's lives and the city's overall infrastructure and operations. The primary solutions for smart city deployment include smart sensor networks (SSN), the Internet of Things (IoT), and connected technologies

Government of India Standards for Smart Cities

Table No. 2: Standards for Smart Cities

Sr. No	Parameter	Govt. of India Benchmark
1.	Transport	Maximum travel time should be 30 minutes in medium-sized cities. Dedicated and physically segregated bicycle tracks & pedestrian routes must be provided on each street. High-quality and high-frequency mass transport within 800m (10-15 minute walking distance) of all residences must be available.
2.	Water Supply	Water must be available 24/7, with 100% of homes having direct connections to the water supply. Every person needs 135 liters of water every day, 100% of water connections must be metered, and 100% of water-related fees must be collected efficiently.
3.	Sewerage and Sanitation	100% of households should be connected to the wastewater network & there must be 100% efficiency in the collection and treatment of sewage waste.
4.	Solid Waste Management	100% of households must be covered by daily door-step collection of solid waste & there must be 100% recycling of solid waste
5.	Storm Water Drainage	A smart city must have 100% coverage of the road network with a stormwater drainage network & no incidents of water logging should be reported in a year.
6.	Electricity	In a smart city, every household should have an electricity connection with a 24 x 7 supply of electricity. 100% metering of electricity supply & 100% recovery of cost must be achieved.
7.	Wi-Fi Connectivity	The Smart City must have 100% Wi-Fi connectivity with 100 Mbps internet speed
8.	Health Care Facilities	There must be the availability of telemedicine facilities to every resident in a smart city and it must have a multi-specialty hospital of 200 beds per lakh population & a general hospital - 500 beds per lakh population.
9.	Education	Primary & Secondary Education A Smart City must have 1 pre-primary/ Nursery School for every 2,500 residents with 1 integrated school (Class I to XII) per lakh of population. Higher Education A Smart city must have 1 college per 1.25 lakh population. Also, there must be 1 university in the city
10.	Fire Fighting	A Smart City must have 1 fire station per 2 lakh population / 5- 7 km radius & 1 sub–fire station with a 3-4 km radius

Challenges in Smart City Development

To illustrate our propositions, the example of India's SCM launched in 2015 is used. While the planned refurbishment of urban spaces in India is rightfully criticized by some, our qualitative empirical research – a multiple case study analysis of five SC schemes in South India in spring 2018 – reveals several promising process qualities besides implementation deficiencies. Our study finds eight mechanisms of detrimental path dependency that obstruct SC progress, but also eight mechanisms of positive evolutionary change concerning urban governance procedures. Making agents in emerging economies aware of these potential outcomes that reach beyond a mere urban technology focus can inspire more effective forthcoming SC strategies and policies.

Verma B. L., and Salvi Dharmendra (2017), studied that the Prime Minister of India had announced his vision to set up 100 SCM across the country soon after his government was sworn into power mid-last year. Since then a race has been on among cities to land on the list that the Ministry of Urban Development is compiling the 100 smart cities mission intends to promote the adoption of smart solutions for efficient use of available assets, resources, and infrastructure making a city smart is emerging as a strategy to mitigate the problems generated by the urban population growth and rapid urbanization. Yet little academic research has sparingly discussed the phenomenon. To close the gap in the literature about smart cities and in response to the increasing use of the concept, this paper proposes a framework to understand the concept of smart cities. It is based on the exploration of an extensive array of literature from various disciplinary areas eight critical factors of smart city initiatives: management and organization, technology, governance, policy context, people and communities, economy, built infrastructure, and natural environment were identified. These factors form the basis of an integrative framework that can be used to examine how local governments envision smart city initiatives. The framework suggests directions and agendas for smart city research and outlines practical implications for government professionals.

Conclusion

There are several fundamental concerns regarding SCM, such as what they represent or the obstacles and opportunities to develop new smart cities in India. The paper concludes that the SCM concept holds immense potential to achieve multiple benefits of sustainability, systems efficiency, economic growth, participatory governance, and better quality of life, considering that there is no internationally accepted definition of an SCM and no national urbanization policy in India. The management of natural hazards in densely populated areas, crime, air, water, and soil pollution that reduces the environment, climate change, and inadequate governance arrangements all contribute to the unhappy lives of urban citizens in India. Other major issues that the city administration frequently faces include unplanned development,

informal real estate markets, inevitable population growth, a lack of infrastructure, inadequate transport facilities, traffic congestion, poor power supplies, and a lack of basic services in both the city and the suburbs. Therefore, the planning and construction of smart cities are imperative to address these issues.

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