



Role of governance in infrastructural Sustainability: A case of Ayodhya

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Abstract: Urbanization has put immense pressure on the city to maintain its spatial equity and efficiency. It is also affecting the environmental stability, further causing deterioration of the health and well-being of people. The idea of smart city infrastructure has the potential to cater to all the demands and helps to achieve its maximum efficiency. This paper talks about analyzing the working of current governance structure and its functioning based on analyzing acts, policies & schemes, and how public participation supports the city in fulfilling its smart city mission, which further helps find the gaps.

Keywords—Urbanization, sustainability, infrastructural development, governance, urban local bodies

I. INTRODUCTION

Ayodhya is one of the ancient religious cities situated along the Sarayu River's banks in the region of Uttar Pradesh. Due to being a town of pilgrims, it has a prominent location for several mythologies. The city is expected to grow into a worldwide tourism location, strongly emphasizing spiritual and historical sites and activities. Ayodhya is a targeted hub for visitors, which results in migration and is best suited for immigrants for staying due to economic opportunities, leisure space and pilgrimage cities. Infrastructure development has become a necessary step for creating natural habitation.

Cities must have the infrastructure to be sustainable, which requires careful design. Sustainable physical infrastructure assets are essential components of our society and our economy. They are usually designed to last for many years, are expected to be heavily used during their lifetime, carry a considerable load, and are exposed to the natural environment [3]. They are also ordinarily major structures, therefore, present a heavy investment, requiring constant management over their life cycle to ensure that they perform as required by their owners and users. The understanding of future city infrastructure becomes wide as it embodies physical urban infrastructure and the newest smart technologies. The specificity of future city infrastructure is that all city infrastructures are interconnected to provide high-quality services [4]. The City infrastructure can be defined as the interconnection of the following components: City administration, transportation, education, healthcare, public safety, utility infrastructure, and real estate. These all help create business development and the development of human lifestyle. It concludes with the qualitative and effective urban development that helps create economic and social vitality [2]. The following table shows the characteristics of the city and how it looks in terms of its functioning.

Table 1. The character of a Sustainable City

Indicator	Characteristics
Healthy	Ecological environment promoting healthy lifestyle.
Comfortable	Easy way of living
Economically Well-being	Competing market division
Innovation	Smart technologies
Secure	Safety of people in the region
Attractive	Natural conditions and tourism potential.

Hence, urban infrastructure is defined as a set of services and underlying structures that maintain the demand for economic development concerning dynamic population growth.

II. THE IDEA OF INFRASTRUCTURAL SUSTAINABILITY

Infrastructure refers to horizontal systems like roads, bridges and service networks. Infrastructure offers essential products and services that support a wide range of socioeconomic activities. Yet, the development of infrastructure needs some token of capital and has long-run impacts on societies and their surrounding environments. The definition of sustainable development is intergenerational and is well defined by the Brundtland report. It is further known for its multidimensional notion of sustainability. The paradigm for incrementally improving sustainable infrastructure consists of a list of principles. Urban infrastructure offers feasible, economical and valuable options for urban regions facing various problems environmentally as well as socially [7]. It complements in some cases and provides support to mitigate the grey infrastructure. GI concepts represent the paradigm shift that recognizes the importance of and value in including the role of urban greenery [5]. In this way, sustainable infrastructure not only helps in maintaining environmental quality but helps in building resilience towards various environmental hazards. As we have seen from the previous studies, sustainability is a modern and current subject in infrastructure planning. Sustainable global talks depict its goal for recycling, sustainable development, self-healing towns, and saving energy and resources. The basic principles of sustainability are:

Table 2 Principle of Sustainability

Principles	About
Equity	Right & equal allocation of resources.
Environmental Responsibility	Treatment of resources, free of pollution & tackling climate change
Energy Efficiency	Consumption of less energy
Zero Carbon	Reduction of carbon footprint
Green economy	We are improving equity along with the reduction of environmental risk.
Zero Waste	3R principle
Sustainable Transport	Use of public over the private mode of transport.
Natural habitats & Wildlife	Protection of flora & fauna at the same pace of development.
Fair Trade	Increase in living income & living wages

III. UNDERSTANDING POLICIES AND SCHEMES

Building responsive institutions and governance structures is essential since sustainability is a complicated policy issue. Institutional capacity was found to affect the efficacy of the collaborative procedures favourably. When we talk about sustainable Infrastructure development, the land is a key element which leads to the various interventions made by the government, which further helps in the economic growth of the respective region. Looking back, various acts and policies support the procurement of lands to boost the economy and environmental upliftment. Land is an essential parameter in defining sustainable development. Equal and proper land allocation improves a region's productivity and efficiency [6]. There are various schemes related to infrastructural development, which UPAVP introduced,

- a) Grihsthan Yojana (House accommodation scheme)
- b) Malin Basti Sudhar Aur Nipatan Yojana (slum improvement and clearance scheme)
- c) Bhoomi Vikas Yojana (land development scheme)
- d) Sarak Yojana (street scheme)
- e) Bhavi Sarak Yojana (deferred street scheme)
- f) Prasar Yojana (expansion scheme)
- g) Bazar Yojana (market scheme)
- h) Barh Yojana (flood scheme)

The analysis of various acts supporting the urban development framework is elaborated on its financial risk, fund process and beneficiaries.

Table 3 Comparative Analysis of Acts/Schemes

Acts/Schemes	Contributors	Beneficiaries	Fund Process	Governance Body	Financial Risk
The Uttar Pradesh Special Area Development Authorities Act, 1986 (Awass Act)	Landowners, Development Authorities, Property developers	State govt, Development Authorities, ULBs(Urban Local Bodies)	The Authority borrow money by way of loans or debentures from the Central Government or state government, PPP Projects	State govt, The Authority	Central Govt, State Govt
The Uttar Pradesh Awass Evam Vikas Parishad Adhiniyam, 1965	Land Owners, Local authority, cooperative society, Developer	The Uttar Pradesh Awass Evam vikas Parishad	The board borrow money by way of loans or debentures from the State Government	State Govt, The Uttar Pradesh Awass Evam Vikas Parishad	State Govt
The Uttar Pradesh Urban Planning And Development Act, 1973	Landowners, Developers	Development Authority, ULBs	The fund collected from state govt. and from betterment fees as revenue.	State Govt, Development Authority	Authority, State govt
Landowners	Land owners, local authority	ULBs	Authority to state govt.	ULBs	Authority
The Uttar Pradesh (Regulations of building operations)Rules 1985	Land Owners	Development Authorities	Building Permit fees to development authority	Development Authority	Local Authority

IV. AWARENESS AND ACCEPTANCE AMONG RESIDENTS

Residents gained significant insight into the roles played by the many actors involved in the implementation as they went through the process. This study focused on assessing residents' awareness of and problems with spatial equity in Ayodhya city, their involvement in generating awareness, and the types of sources that influenced their choice to make the city a sustainable habitat to determine how residents perceived the city. Additionally, this study examined the justifications for encouraging public participation, perceptions of financial subsidies, the nature of interactions and issues encountered with various agencies, the viability of concepts regarding high-quality and simple governance, and the level of acceptance by residents with ongoing ULB governance.

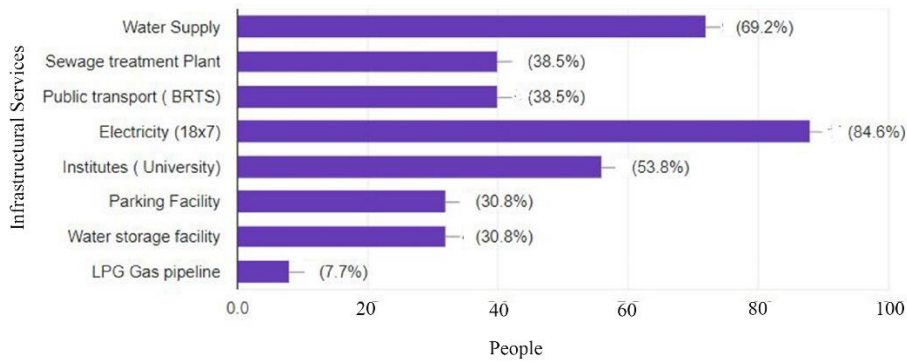


Figure 1 Infrastructure availability for the residents.

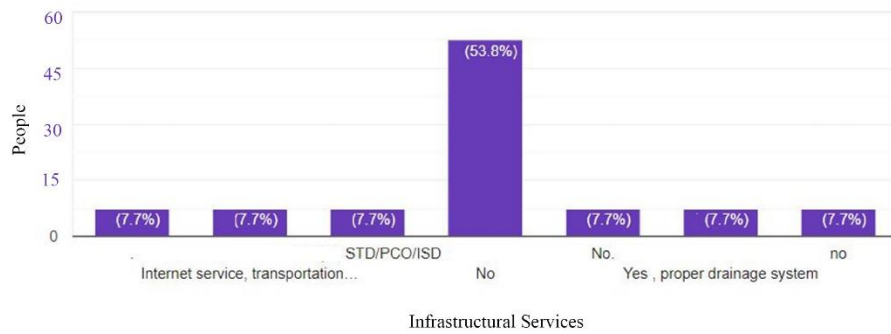


Figure 2 Services availed apart from basic one.

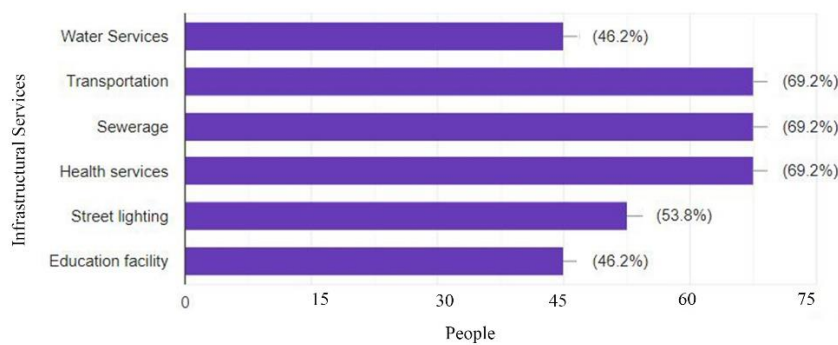


Figure 3 Perception of residents which sectors needed to be improved.

Following are the responses collected by the residents of Ayodhya in assessing the working of municipal bodies in terms of their duty and contribution to achieving efficiency in the city infrastructure.

Figure 1 shows that 85% of respondents were getting electricity efficiently. However, only 70% of respondents were getting the water supply. Around 30% of respondents are getting public transport facilities and think the city has an efficient sewage disposal management system.

Figure 2 presents the availability of other infrastructure services besides the basic one. In which most residents need other facilities. Figure 3 shows the sectors that must be improved; the data revealed that 70 % of respondents think that Transportation, sewerage and health services must be improved.

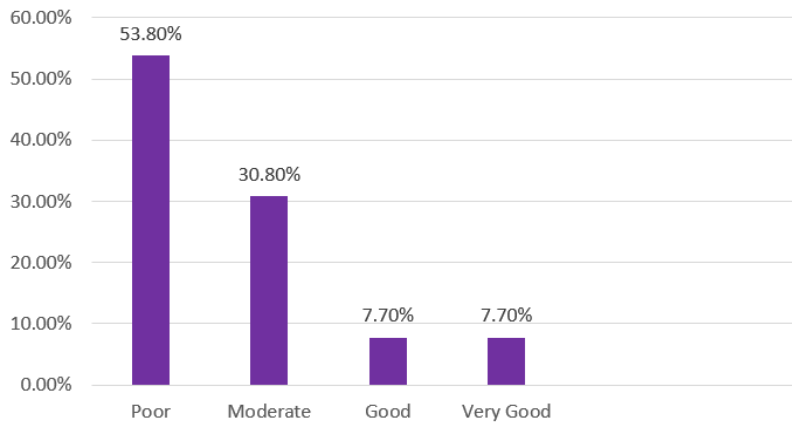


Figure 4 Resident response on pollution control measures taken by the governance body

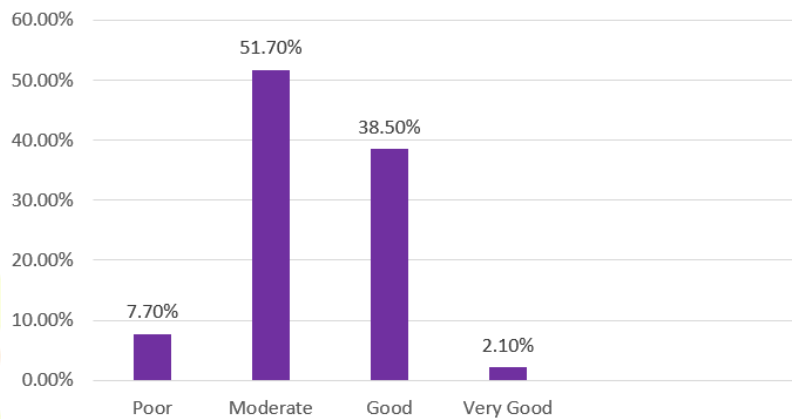


Figure 5 Perception of residents towards working on policies and schemes

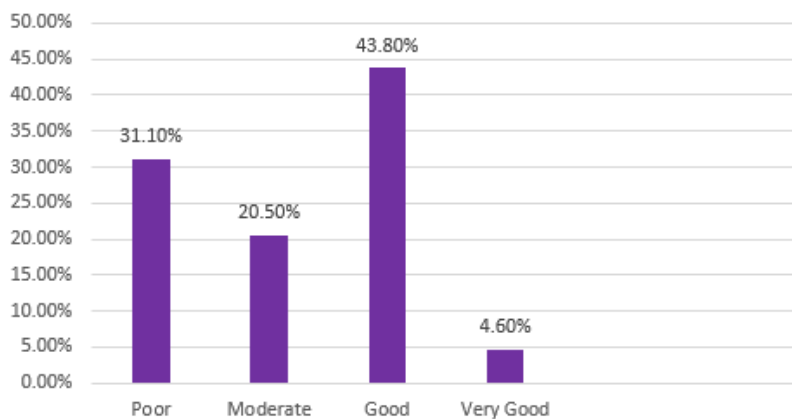


Figure 6 Perception of residents towards municipal bodies' working to improve city infrastructure.

And Figures 4, 5 and 6 talk about the working of governance, in which only a few respondents, 5%, think that urban development authority has taken efficient pollution control measures.

Figure 4 shows that 53.80 % of respondents thought that there are no pollution control measures by the government. However, only 7.7% of respondents were satisfied with the work of the local governing body.

Figure 5 shows that 7.70 % of respondents thought the local municipal bodies didn't work on the policies and schemes.

Figure 6 shows that around 48 % of respondents thought the local municipal bodies worked in favour of improving city infrastructure.

IV. RESULTS AND FINDINGS

Institutional frameworks supporting the active participation of various stakeholders, including an informed citizen, are necessary for sustainable urban development. Stakeholder involvement has become the guiding premise of the new public administration governance paradigm [1]. The significant findings of the study are discussed next.

1) Partial involvement of policies and schemes

There needs to be more participation among the authorities who make the policies and schemes; it is not implemented as it is likely to be. So a hand-to-hand approach must be considered for successful policies and schemes.

2) Lack of institutional coordination & association

Policy-makers must integrate institutional mechanisms to facilitate collaborative decision-making into the sustainable city initiative. The involvement of the Municipal Corporation of Ayodhya in developing it as a sustainable city was negligible.

3) Absence of public involvement

4) Suggestions for policy improvement - Certain issues must be reflected upon to improve the policy and make it more effective.

5) Issue of sustainability of renewable options

VI. CONCLUSIONS

At the city level, urban sustainability is a crucial policy topic. The concept of infrastructural sustainability city has evolved as an attempt to increase urban efficiency. It could alter how metropolitan regions respond to their requirements for physical infrastructure. Against this backdrop, this study examined the initiatives to make Ayodhya, India, a sustainable city. It was discovered that there needed to be more collaborative governance, flaws in the higher echelons of government entities, and very little engagement among city people. To achieve the desired policy outcomes, commitment to urban sustainability must be coordinated with initiatives for effective stakeholder involvement.

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