

Impacts of Urban Construction on Society: A Case of Elevated Road Project in Ajmer City

VRINDA PRAKASH*
HARSHITA UPADHYAYA**

ABSTRACT

A smart city is a new form of urban construction that has emerged gradually in the process of rapid urbanisation. The city of Ajmer is among 100 cities to be created as a smart city in India and to fulfil this mission, various construction projects are going-on in various parts of the city. Therefore, the case of elevated road project sanctioned under the Smart City Mission has been taken up in this paper as the conversion of earth's land surface to urban uses is one of the most irreversible human impacts on the biosphere.

This article attempts to evaluate the impacts of urban construction on the environment and how different segments of people in the city respond to such construction. To conduct the research, data have been collected from primary and secondary sources. Here, the data collected from the field survey shows dissatisfaction among people residing in the construction zone as it has affected the environment and caused various health problems.

Keywords: *Urban Construction, Smart city Mission, Urban Expansion, Elevated Road Project, Sustainable Development*

INTRODUCTION

Construction projects have unavoidable impacts on the surrounding environment, such as public safety, emergency response, noise and dust. These impacts are especially significant when construction projects are located in urban areas with little space and high population constraints. To solve traffic congestion, the Rajasthan Government has taken an initiative to build an elevated

*Research Scholar, Email: vrindaprakash26973@iisuniv.ac.in

**Head and Supervisor, Department of Geography, IIS (Deemed to be) University, Jaipur (302020).

road in the heart of the Ajmer city. This will undoubtedly provide unprecedented convenience for the traffic of the city, but at the same time, a series of problems have cropped up and the solution has not kept up with the development and the related issues can be seen in the newspaper reports and city's news channels.

An elevated road is a controlled-access highway that is raised above grade for its entire length. Elevation is usually constructed as viaducts, typically a long pier bridge. Technically, the entire highway is a single bridge which improves transport efficiency. An overpass is the solution to improve traffic flow or a more effective way to road intersection traffic congestion. But with its development, the drawbacks are progressively exposed.

This study analyses the current situation of urban construction in the city and the response of people regarding the same.

Study Area

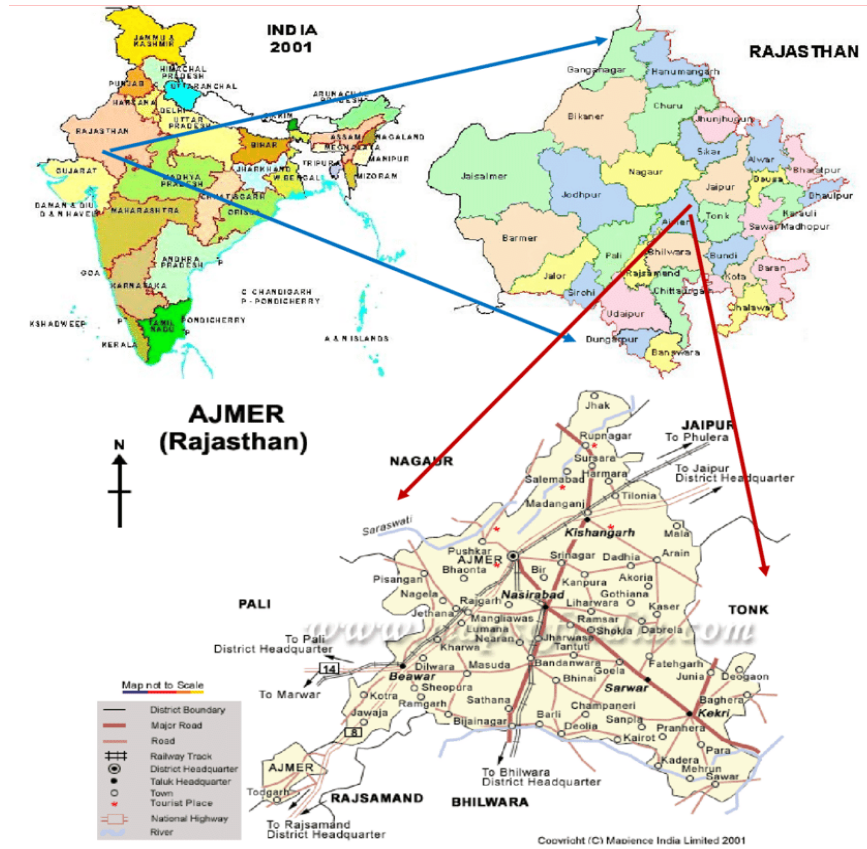
Ajmer district is located at 26° 27' N and 74° 44' E and is surrounded by the Aravali Hills. Situated in the centre of the state of Rajasthan on the lower slopes of Taragarh hill, the district is spread across an area of 8481 sq km. Nagpahar hills separates Ajmer from the Thar Desert which is the divisional headquarters of Rajasthan and includes three other districts namely Bhilwara, Nagaur and Tonk. To the north, its boundaries touch Nagaur; Tonk and Jaipur districts lie on the eastern side; Pali is located on its western boundaries, while Rajsamand is situated on the south. Map 1 shows the location map of the study area.

The climate of Ajmer can be placed under the semi-arid category with an average annual rainfall of 556.4 mm. Summers are long, hot and dry and start from the last week of March and continue till the end of June and winters are mildly cool and start from November and continue till the end of February. The temperature ranges between 22° C to 8° C in winter and 45° C to 25° C in summer and the monsoon season is from June to September.

According to the 2011 census, Ajmer has a population of around 551,360 in its urban agglomeration and 542,580 in the city (Figure 1). In average literacy, Ajmer occupies the 8th position among districts of Rajasthan. It has male literacy rate of 82.4 per cent and the female literacy rate of 55.7 per cent to have a combined rate of 69.3 per cent. Within the district, there are 12 subdivisions which are further subdivided into 16 Tehsils and nine Panchayat Samities.

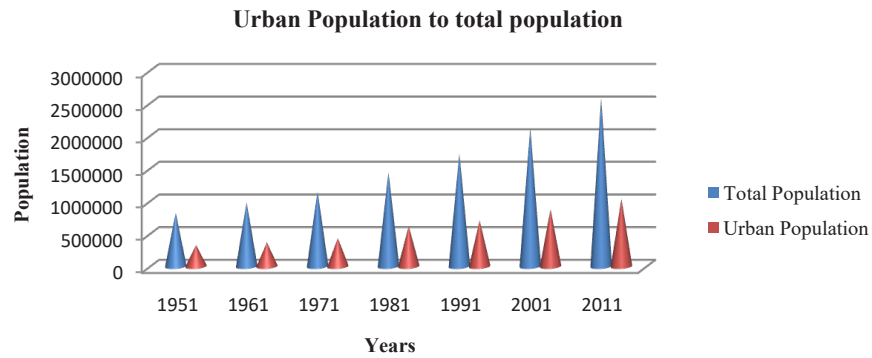
The city has a population density of 305 persons per sq km. During

Map 1: Location Map of the study area



Source: Pingale, S., Khare, D., Jat, M., and Adamowski, J., (2016).

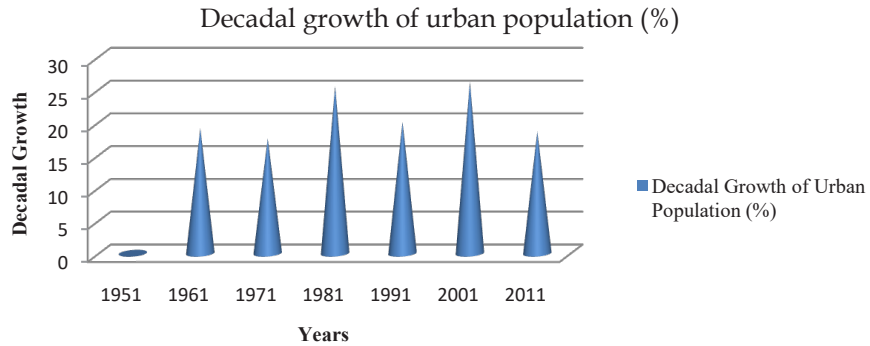
Fig. 1: Urban population to total population of Ajmer district (1951 to 2011)



Source: District Census and Statistical Handbook, Ajmer (2011).

the decade 2001-2011 the population growth rate of the district was 18.40 per cent as shown in Figure 2.

Fig. 2: Decadal growth of urban population Ajmer district (1951 to



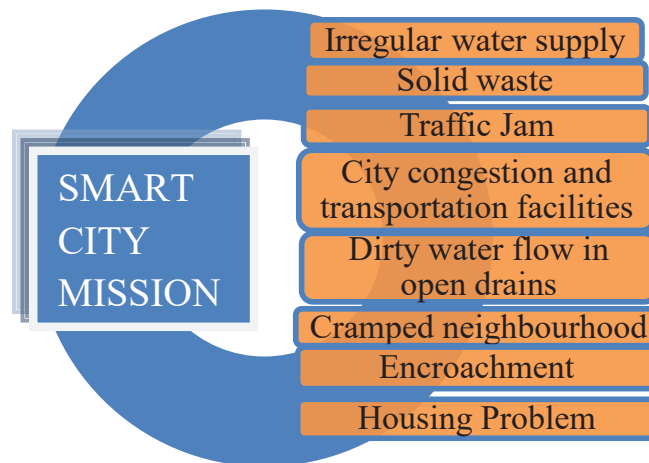
Source: District Census and Statistical Handbook, Ajmer (2011).

Elevated Road Project

This project which comes under the Smart City Mission focuses on how to shape future internet- based services and provide solution to the problems (Figure 3).

Construction work on an elevated road project in Ajmer under Smart City Mission was proposed in 4th Board meeting of Ajmer Smart City Limited (ASCL) held on November 30, 2017. After this Ajmer has become the third city in the state to have an elevated road. Map 2 shows a map constructed with the help of ArcGIS Online of the Ajmer City indicating the location of the elevated road. The total length of the road

Fig. 3: Smart City Mission and the Related Issues



Source: The Author.

Map 2: A map of Ajmer city indicating the location of the elevated road



Source: ArcGIS Online.

proposed is 2945 metres (2.9 km) and the total cost sanctioned by the government is 252 crores. The time given by the Rajasthan Government to complete the construction is 36 months. Out of 91 pillars of the elevated road, almost 75 per cent pillars are ready and steel bearings will be installed in eight to 10 months.

The elevated road will be of Y shape constructed in two phases (Figure 4):

- **4 lanes-** from Martindale bridge to Gandhi Bhawan and from

Fig. 4: Outlay of Elevated Road Project in Ajmer



Source: Head Office, Ajmer Smart City Limited.

Gandhi Bhawan to Agra Gate (length- 1.6 km and width- 19 to 25 metres).

- **2 lanes-** from old RPSC to Gandhi Bhawan and from Agra Gate to Mahavir Circle (length- 1.10 km and width- 12 to 22 metres).

Objectives of the Paper

1. To understand the demographic structure of Ajmer city from 1951 to 2011.
2. To study the shortcomings of the ongoing construction in the city;
3. To analyse the impacts of urban construction on society; and
4. To study the response of the population of Ajmer city on urban construction.

Methodology

Both primary and secondary data was collected from various agencies involved in the project like Ajmer Development Authority, Rajasthan State Road Development and Construction Corporation and Ajmer Smart City Limited with the help of a questionnaire and interview method. The data was also taken from the Census of Rajasthan and handbook of Ajmer district to analyse the demographic structure of the study area for the past 60 years. A field survey was conducted to study the response of the citizens regarding the construction and the respondents were selected through random sampling. The sample was taken from four areas in Ajmer. Out of four, three areas were selected where the construction has been going on that is Kutchery road, near railway station and Mahaveer circle and the selected fourth area was out of construction zone that is the locality of Panchsheel Nagar.

The survey was conducted in two phases and 50 respondents were selected for the study from each area making a total sample of 200. To carry out the first phase of the survey, respondents that have their shops in the area of the construction of elevated road were selected and for the second phase, respondents who do not reside in the area of the elevated road construction were selected to make a comparative study between the two. Issues related to satisfaction with the construction, expectations from the project, rising air pollution due to construction and related health problems, problem of traffic congestion, etc. were asked from the respondents and the result is represented in the form of pie charts.

Results and Discussion

The elevated road project in Ajmer has been under construction for more than a year now, affecting the markets as well as the traffic in the city. Shortcomings observed during the field survey are as follows:

1. Arrangement of utility shifting: sewerage lines, water supply lines, electrical and telephone lines.
2. Inefficient traffic management.
3. No provision for removal of encroachment and land acquisition around Martindale Bridge.
4. No ground utility and less manpower onsite.
5. There was no provision of protective gears for onsite workers provided by the contractor like safety helmets, shoes, jackets, safety belts, etc.

The first phase of the survey covered the area where elevated road project has been carried out (Figure 5). The primary data analysis has shown that maximum people residing in that area or have shops around that area were dissatisfied with the project stating that their business has gone down and are facing many respiratory problems due to the construction.

The second phase of the survey covered the area where the elevated road will not be built. The primary data analysis has shown that the maximum number of people residing in the area were very much satisfied with the project stating that this will boost the urbanisation in the city and solve many problems regarding traffic in the city centre (Figure 6).

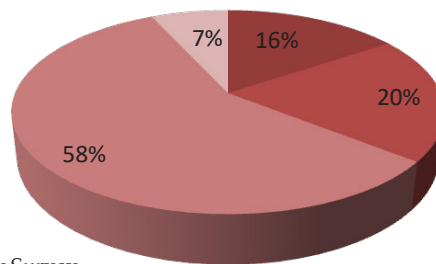
Fig. 5: 3D Model of Elevated Road Project



Source: Head Office, Ajmer Smart City Limited.

Fig. 6: Satisfaction level among people residing in the area of elevated road

Satisfaction level with the construction and its progress- Phase I
■ Very Satisfied ■ Satisfied ■ Dissatisfied ■ Very Dissatisfied

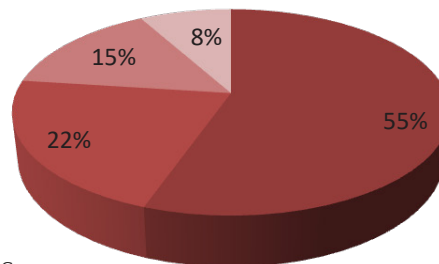


Source: Primary Survey.

The primary data analysis in Figure 7 shows that 92 per cent respondents agreed to the fact that road construction has caused damage to the environment at a large scale whereas eight per cent did not agree.

Fig. 7: Satisfaction level among people not residing in the area of elevated road

Satisfaction level with the construction and its progress- Phase II
■ Very Satisfied ■ Satisfied ■ Dissatisfied ■ Very Dissatisfied



Source: Primary Survey.

CONCLUSION

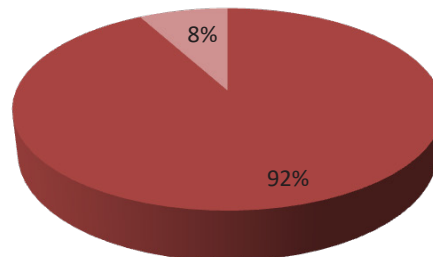
The smart city is the new trend of urban construction and development. In the process of urban modernisation, the pressure on the city is increasing. The following study helps to understand the perception of the people of Ajmer city regarding the urban developments in the name of the Smart City Mission and result analysis shows that majority of population specifically living near the construction site is facing environmental and health problems (Figure 8).

The elevated road project has created difficulties for the people because of the restricted movement. The same has been observed and the continuous delaying has added an extra burden and has given a negative

Fig. 8: People agreeing to the fact that urban construction impacts the environment

Impact of urban construction on environment

■ Agree ■ Not Agree



Source: Primary Survey.

Pictures 1 & 2: Difficulties faced by people during construction



Source: Field visit.

connotation in the minds of people. Pictures 1 and 2 show the difficulties faced by the people of Ajmer city due to the construction work. This project will facilitate an overall development of urban transportation, infrastructure development and public service. Additionally, if the project aims for sustainable development as well then it can prove even more profitable for the region.

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