

# Rethinking Strategies to Meet Sustainable Development of Peri Urban Areas: Case of Ashoknagar City

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**Abstract** - The world is currently dealing with peri-urbanism, a novel phenomenon. With the goal of obtaining free open areas for habitation, growth, and the establishment of new communities, there has been a progressive migration of the urban population from the more developed regions to the less developed ones as a result of population growth and urban infrastructure improvements. Periurban spaces have emerged as a result of the large-scale urban population mobility. The periphery of metropolitan centers that warrant exploration are the periurban zones, as they lack a clear demarcation line. In order to manage the detrimental impacts that urban sprawling poses to the periurban areas, a thorough understanding of the processes of urbanization is required. Urban sprawl is forming around the main urban centers in Ashoknagar city. To investigate the necessity of developing policies, a thorough analysis of the social, economic, and demographic makeup of the residents living on Ashoknagar periphery has been conducted. The paper's analytical strategy is predicated on an examination of the region's development and infrastructural challenges through the application of GIS mapping. The study's final conclusions address the concerns, challenges, and suggestions that are relevant to a planned and regulated development in Ashoknagar periurban areas.

**Key Words:** Peri urban Areas, Delineation, Urbanization, Planning, Development, etc.

## 1. INTRODUCTION

Due to the expansion of urban activity, peri-urban areas—the boundary between urban and rural regions—are currently undergoing significant changes. How these areas turn into contested zones is revealed by the quick expansion of the newly developed environment and the apparent shift of the socioeconomic structure. It is acknowledged that outskirts offer substantial advantages for accommodating the agglomeration for effective urban systems. As a result, the inflow of immigrants is changing neighborhood life, traditional culture, economic structures, and patterns of land usage. These difficulties are addressed in this research. This study is focused on peri urban growth, urbanization, and the advancement of urbanism on a theoretical level by concentrating on the instance of Ashoknagar (M.P.), one of small towns rapidly expanding urban areas. Peri urbanism has been the result of limited options of development within the existing urban boundaries which is the outcome of limited development possibilities within the current urban limits. In order to address the unplanned, unsystematic, and

significant effects of fast urbanization on the periphery of India's smart cities, a thorough investigation into the dynamics of peri urbanization in emerging nations like India is necessary. This is especially true given that most Indian metropolitan cities are experiencing the dynamic effects of peri urbanization, and that suitable strategies must be developed to integrate these periurban areas into the process of city growth and development in order to make the cities habitable, sustainable, and productive.

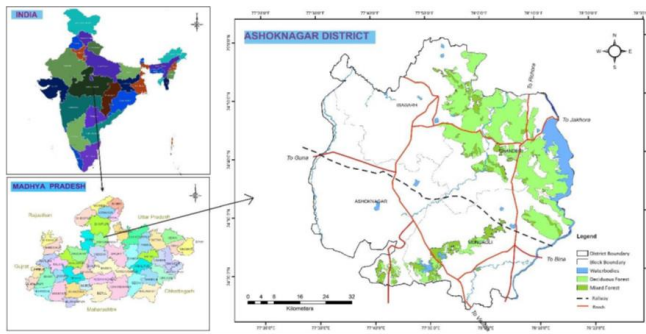
It is observed that peri urban areas are generally enriched with significant ecological, bio-diversity, landform, natural character, landscape and cultural/natural heritage values that are required to be rationally studied and planned with sensitivity (Simon, 2008). Evidences suggest that, appropriate measures need to be evolved to make them an integral part of the city growth and developmental process. From the above literature, it is clear that unplanned growth in urban areas has resulted in urban sprawl and this has led to shifting of population away from urban nodal areas to the less infrastructured and less developed peri urban areas.

The comprehension of periurban dynamics through changes in land use and research into the causes of the unplanned, uncontrolled development in the city's periphery. The paper's conclusions are expected to aid in the formulation of policies pertaining to urban development as well as a thorough framework for planning and development. Furthermore, the paper's recommendations will aid in the advancement of future study on the planned development of periurban land and its sustainable use at three levels: city, municipality or panchayat, and beneficiary.

## 2. STUDY AREA & CITY PROFILE

### 2.1. Geographical setting

The study is concerned with the Ashoknagar Urban Development Area. Ashoknagar covers an area of about 4,673.94 sq km & situated in the northeastern portion of the Madhya Pradesh. Geographically, the district is situated between the latitude 24.34 N and longitude 77.43 E. and falling in Survey of India toposheet nos 54 G, H & L. It is bounded in the North by Shivpuri district and east by Uttar Pradesh, in the south by the Rajgarh & in the west by the Guna district (Census of India, 2011). In the figure 1, the boundaries of Ashoknagar district are defined by two of the rivers, Sindh and the Betwa.



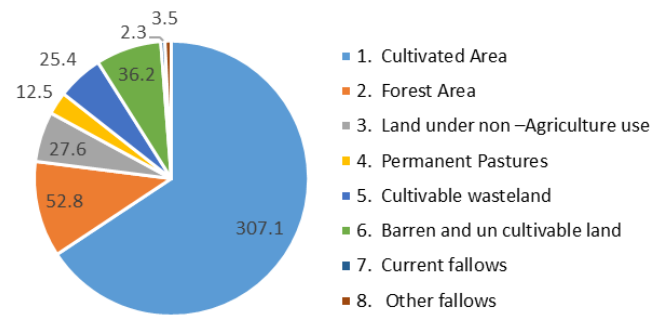
**Figure 1:** Geographical setting of Ashoknagar District, Source: Planning Authority, Ashoknagar

Ashoknagar district is comprised with 5 tehsils and 4 blocks. The total villages as per census 2011 counts as 907. District population is counted as 845071 (As per census 2011) with density of 147 persons per sq. km.

2.2. Land use and demographics

ITEMS	STATISTICS
<b>GENERAL INFORMATION</b>	
i) Geographical area (sq. km)	4,673.94 km <sup>2</sup>
ii) Administrative Divisions (As on 2013) Number of Tehsil/Blocks	05/04
Number of Villages	907
iii) <b>Population (Census 2011)</b>	845071
• Rural	691387
• Urban	153684
<b>LAND USE (Ha)</b>	
Geographical Area	467.4
1. Cultivated Area	307.1
2. Forest Area	52.8
3. Land under non -Agriculture use	27.6
4. Permanent Pastures	12.5
5. Cultivable wasteland	25.4
6. Barren and un cultivable land	36.2
7. Current fallows	2.3
8. Other fallows	3.5
<b>AGRICULTURE LAND USE Area (Ha)</b>	
i) Net sown area	68.3
ii) Area sown more than once	375.4

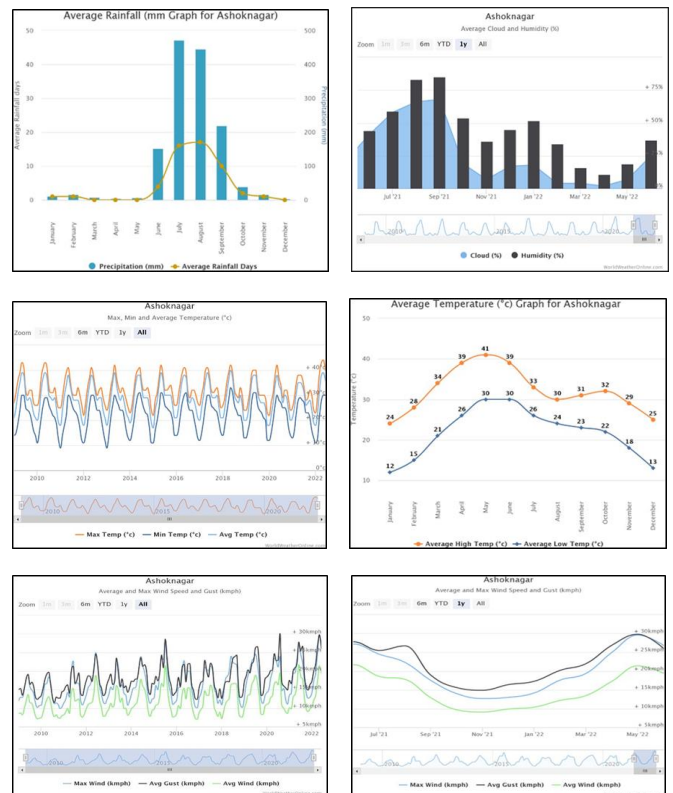
**Table 1:** Demographic data of Ashoknagar District, Source: (Census of India, 2011)



**Figure 2:** Land-use classification data of Ashoknagar

2.3. Climatic Conditions: Rainfall and Climate

The climate of Ashoknagar district is composite which is characterized further by a hot summer and general dryness except during the monsoon season. The annual rainfall of the district measures as 927.1 mm (The CGWB, Ministry of Jal Shakti, Govt. of India).



**Figure 3:** Climatic data, Ashoknagar

As shown in graph, the typical maximum temperature is found in May, which is 41.3°C, while the minimum temperature has is found in January month, which is 12°C. The wind rose diagram shows Ashoknagar district's average annual wind speed as 8.1 km/h.

### 3. DELINEATION OF STUDY AREA

The paper strongly emphasizes defining the study area, concentrating on a specific location to accomplish its research objectives, and thoroughly examining the need for strategy formulation for these periurban areas. The URDPFI Guidelines describe a set of parameters that must be considered (URDPFI, 2014). The population, population density, literacy rate, involvement rate in agriculture, and significant growth areas within our study area are all considered while defining our study areas.

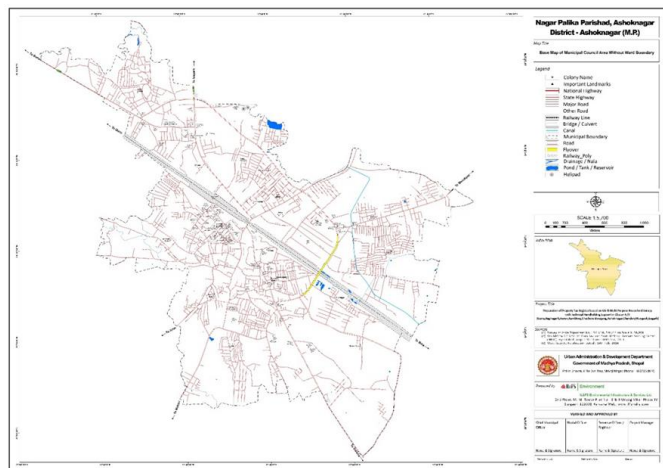


Figure 4: Map of Nagar Palika Parishad, Ashoknagar

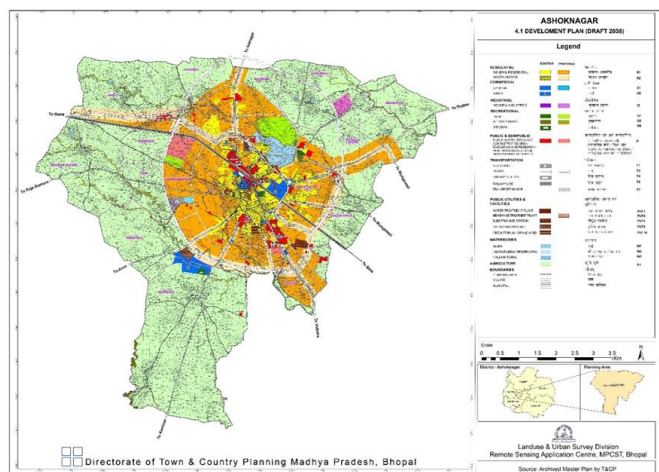


Figure 5: Ashoknagar Development Plan (Draft 2035)

As discussed in the paper, the population, population density, literacy rate, agricultural participation rate and the important growth areas within our study area are being analyzed to zero down to the regions that will be used for studying and framing strategies for the planned development of peri urban areas.

#### 3.1 Population distribution and density:

The paper has analysed the population distribution and population density panchayat wise within the study area.

Total district population of Ashoknagar as per Census 2011 is 845071, in which Rural is 691387, male- 443837 and female – 401234. Population density in city is near city core.

#### 3.2 Agricultural Participation Rate:

The major agricultural activities are being undertaken in the southern and southwestern regions of the study area. The recommendation of the research paper should be careful not to affect the agricultural activities undertaken in our study area. The map defines the major growth zones within the fringe area. The areas considered has the following output –

1. High population distribution & density,
2. High literacy rate and low agricultural participation rate.

Taking into consideration of the above outputs, the most suitable areas has been obtained. Since the areas have been marked in a scattered manner, a close knit grouped area has been considered as the study area.

#### 3.3 Development pattern of the study area:

A study of spatial patterns of land use changes for the delineated region for the last decadal year has been conducted. It is observed that there has been an increase in the commercial and mixed land use. Further, residential land use development has been dominant in expanding peri-urban areas. There has been a spontaneous conversion of vegetation and agricultural land into new urban development spaces. A significant chunk of development is occurring within the delineated region towards residential development. Therefore, this is a significant attraction for people who want to invest in the area to buy or rent a property since investing within the urban nodes is very costly. As explained by Simon & David, 2008, Wehrwein G., 1942, the Rural-Urban Fringe areas are “the transitional areas between designated urban areas and areas for agriculture.” Therefore, these fringe areas can be considered transition zones where one can find upcoming mixed land-use development.



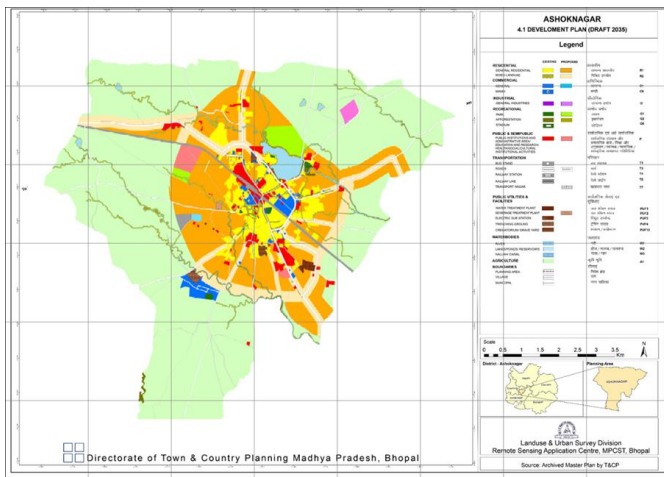


Figure 6: Ashoknagar land use map

### 3.4 Assessment of existing physical and social infrastructure:

An assessment has been done which shows the existing social and physical infrastructure (panchayat wise) for the delineated fringe area. These observations are supported by the data's obtained from the respective panchayats and the municipality. The map clearly indicates that the physical infrastructure facilities are sparsely available in the region whereas, the social infrastructure facilities is in a satisfactorily position in terms of availability.

### 4. MAJOR FINDINGS

The study of land use changes and infrastructure availability in the delineated region provides us the following major findings:

- A. The growth of settlements has seen mainly along the transit corridors, NH-46, SH-10 and also near the major growth centers, Bina and Guna.
- B. The village's natural resource base has been affected as a result of the formation of the peri-urban interface as grazing areas and ponds have been purchased to satisfy the needs of the city.
- C. The fringe characteristics vary from one zone to the other in terms of availability of infrastructure facilities, income generation, density and connectivity.
- D. The authorized and unauthorized constructions have gained momentum in fringe areas due to increase in demand of land and housing.
- E. The majority of the people are investing as the land value is lesser in the fringe than in the city limits.
- F. The agricultural lands in the peri urban areas are being converted into urban use at a greater extent due to the high demand.

### 5. PROBLEMS & RECOMMENDATION

Level	Parameters	Problems & issues	Recommendations
City level	Affordability and the availability of land.	Lack of Affordable land inside city limit and city center. As a result, preference towards the fringe area with expectation of a better and affordable option for housing.	A systematic peri urban development by legalizing the procedure of land acquisition process to be performed by Ashoknagar development authorities.
	Extremely high land cost along transport corridors	High speculation due to high land price along the transport corridors which needs to be controlled.	Appropriate measures for conservation of the agricultural land and rural livelihood.
Panchayat s level	Systematic & planned development	Violation of zoning regulations.  Lack of power to regulate unauthorized developments	Clear and transparent guidelines to be framed for rural-urban components.  There must be appropriate regulatory structure to bring harmony in land utilization.
Beneficiary level	Controlled development	Lack of proper social and physical infrastructure. (school, park, hospital, road, network, drainage, water supply, etc.)	Planning authorities should look-into at local and regional level.

Table 2: Issues and Recommendations

## 6. CONCLUSIONS

This article attempts to examine the issues and problems of unplanned and uncontrolled development in the urban area of Ashok Nagar. It has been observed that the proportion of agricultural land has decreased in the last decade, whereas land cover has increased (CDP Ashoknagar 2030). The decrease in the proportion of agricultural land in the suburbs of urban nodes is an effect of semi-urbanization. The study also reveals the unplanned development in the fringe areas of the city.

Therefore, rapid, unplanned, and dispersed urbanization threatens urban growth and infrastructure development (Kumar & Kumar, 2014). In order to control this unplanned spread, it is necessary to establish an urban regulatory system that ensures the use and management of the land, water bodies, and natural environment. Activities carried out by the state authorities and local bodies such as municipalities, panchayats, and beneficiaries of urban development should get due good and vital roles. Analysis of the study area towards changes in land use policy in Madhya Pradesh is also examined as Ashok Nagar has undergone significant changes in land use, favoring major land acquisitions. Implementation of appropriate policies will help control unplanned, unregulated, and underdeveloped peri-urban areas surrounding the Ashok Nagar area.

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