

**ENVIRONMENTAL PROBLEMS IN URBAN AREAS OF RAJASTHAN.**

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**ABSTRACT**

*There are a number of severe environmental difficulties that are faced by metropolitan regions in Rajasthan. These challenges are the result of growing urbanization, the increase of industrialization, and demographic shifts. The purpose of this abstract is to investigate specific problems that are prominent in the metropolitan areas of Rajasthan, focusing on the environmental impact and ramifications of these problems. The pollution of the air is one of the most important concerns. There are significant levels of particulate matter (PM10 and PM2.5) in cities such as Jaipur, Udaipur, and Jodhpur. These high levels are caused by the emissions from vehicles, the operations of industrial facilities, and the dust from construction. Not only does this pollution have an impact on public health, but it also plays a role in the destruction of historical monuments and structures, which are key cultural assets in these towns. Another significant problem is the lack of available water. Despite the fact that Rajasthan is known for its dry environment, the state's metropolitan regions are experiencing severe water shortages, which are made worse by the rapid rise of the population and ineffective water management policies. Many cities are strongly dependent on groundwater for domestic and industrial reasons, which leads to issues in terms of long-term sustainability. Groundwater depletion is a critical concern that needs to be addressed immediately. The rapid pace of urbanization has also led to the loss of habitat and the fragmentation of habitat, which has an effect on the biodiversity of the local area. The growth of cities frequently results in the encroachment of natural habitats and agricultural lands, which in turn reduces the amount of green space and alters ecosystems. Not only does this loss of biodiversity pose a threat to native flora and wildlife, but it also upsets ecological balances, which are completely necessary for maintaining environmental stability. Managing waste continues to be a difficult and ongoing task. On a daily basis, urban areas produce significant quantities of solid waste; nevertheless, the collection, segregation, and disposal technologies that are currently in place are insufficient. An further factor that contributes to the deterioration of the environment and the hazards to public health is the use of improper disposal practices, such as open dumping and the burning of waste. It is becoming increasingly apparent that the urban heat island effect is occurring in the cities of Rajasthan, particularly during the summer months. The expansion of concrete structures, decreased foliage cover, and heat-retaining materials all contribute to an increase in temperatures, which in turn leads to an increase in the amount of energy used for cooling reasons and causes occupants to feel uncomfortable. In order to effectively address these environmental concerns, integrated solutions are required. These strategies should prioritize sustainable urban development, improved infrastructure, enhanced public transportation systems, and effective waste management methods. Furthermore, in order to promote sustainable lifestyles and reduce environmental footprints in urban Rajasthan, it is essential to make the community aware of the importance of community engagement and awareness. There are substantial environmental difficulties that are brought about by urbanization in Rajasthan, despite the fact that it brings about chances for economic growth and development. In order*

*to ensure a sustainable and livable future for urban people while also maintaining the cultural and ecological heritage of the state, it is vital that these concerns be adequately addressed.*

**Keywords:** *environmental problems, urban.*

## **Introduction**

Rapid urbanization, demographic transitions, and industrial growth are all factors that are contributing to the deep alterations that are taking place in metropolitan areas in Rajasthan, as they are in many other regions of the world. As cities grow and their populations increase, they are confronted with a wide range of environmental concerns that pose a threat to both the well-being of people and the ecological viability of the environment. The purpose of this introduction is to investigate the intricate interaction of elements that contribute to environmental problems in metropolitan Rajasthan. Specifically, this overview will investigate the historical context, the existing reality, and the potential for sustainable development in the future.

## **OBJECTIVES**

1. To study urbanization in Rajasthan.
2. To study environmental challenges.

## **Historical Context of Urbanization in Rajasthan**

Over the course of the last several decades, Rajasthan, which is famous for its desert landscapes and historical wealth, has experienced a considerable increase in the number of metropolitan areas. Over the course of history, the urban centers of Rajasthan, including Jaipur, Jodhpur, and Udaipur, have traditionally played an important role as centers of commerce, culture, and administration, first as part of princely states and later as a part of independent India. Industrialization, migration from rural areas, and administrative decentralization were some of the reasons that contributed to the acceleration of urbanization after independence. However, the pace and extent of urbanization intensified after independence.

There is a correlation between the expansion of urban areas in Rajasthan and the implementation of strategic economic strategies and the development of infrastructure. It was the intention of the development of industrial estates, notably in the vicinity of Jaipur and Udaipur, to stimulate the economies of the surrounding areas and to generate employment possibilities. These activities, in conjunction with expenditures in infrastructure such as roads, power, and water supply, not only established the groundwork for the rise of metropolitan areas, but they also paved the way for environmental difficulties.

## **Demographic Shifts and Urban Dynamics**

The process of urbanization in Rajasthan is intricately connected to demographic developments, which include population growth and migration within the state territory. A steady increase in the state's urban population can be attributed to the state's possibilities for economic growth and improved access to various

facilities. The urban infrastructure and services have been put under strain as a result of this inflow, which has resulted in overpopulation in particular areas and unequal development throughout cities.

The demographic dynamics of Rajasthan's urban areas are reflective of broader trends that are observed in developing countries, where urban growth is increasing at a faster rate than rural development. This trend is further complicated by the youth bulge in India, which is characterized by a sizeable proportion of the population that is under the age of thirty looking for opportunities in urban centers. The population pressure that has resulted has ramifications for housing, employment, and social services, and it has the potential to exacerbate environmental difficulties such as the management of waste and limitations on water supply.

### **Environmental Challenges in Urban Rajasthan**

1. **Air Pollution:** Air pollution is one of the most urgent environmental problems that are currently being faced in metropolitan Rajasthan. Cities such as Jaipur, Jodhpur, and Kota routinely exceed the allowed limits for particulate matter (PM10 and PM2.5) as a result of emissions from vehicles, industrial operations, and dust from construction. The arid climate makes the issue worse by reducing the dispersion and dilution of pollutants, which in turn has an impact on both the quality of the air and the health of the general population.

The effects of air pollution are not limited to respiratory ailments; they also include the burdens on the economy and the destruction of cultural property. Historical monuments, such as those in the walled city of Jaipur, are prone to corrosion and discoloration as a result of particulate deposition. This highlights the junction of environmental degradation and the preservation of cultural heritage.

2. **Water Scarcity:** The state of Rajasthan is notorious for its water scarcity problems, which are made worse by the state's dry environment and low quantity of surface water resources. Because of their heavy reliance on groundwater extraction, urban areas have considerable issues when it comes to supplying the demand for water. In spite of this, indiscriminate groundwater pumping has resulted in falling water tables and the depletion of aquifers, which poses a danger to the sustainable availability of water in the long run.

Water shortage has an impact on the day-to-day lives of urban people, making it more difficult for them to obtain clean drinking water and sanitary services. The activities of the industrial and agricultural sectors are also hampered, which reduces the chances for economic growth. In order to address the issue of water shortage, it is necessary to implement sustainable water management practices. These activities include the collection of rainwater, energy-efficient irrigation methods, and conservation measures.

### **Urban Growth in Rajasthan**

More than seventy-five percent of Rajasthan's population resides in rural areas, making the state primarily a state that is controlled by agriculture and service industries. The percentage of the population that resides in urban centers is approximately 25%, which is lower than the national average of urban population, which is approximately 28%. During the census that took place in 2001, it was found that out of the total population of 68.62 million persons in the state, 17.08 million were living in urban areas. This is a 3.87 million increase from the year 1991 census. Despite this, there are a few urban centers in the state that

have experienced a significant increase over the course of the past century, particularly when the state gained its independence and more specifically over the course of the last three decades, while other urban centers have not experienced any development at all.

At the beginning of the twentieth century, the state that was once known as Rajputana had 104 towns and a total urban population of 1.55 million people, which accounted for 15.06 percent of the existing population. The overall population reached 2.12 million by the year 1941, while the number of towns had climbed to 124 by that year. The first significant growth in the urban population during this pre-independence era occurred during the census that was conducted in 1931. At that time, the total population was recorded as 1.73 million, which represented a 17.18% increase over the previous decade. Additionally, the number of towns was recorded as 119. Despite this, the percentage of people living in urban areas fell to 14.71% of the total population, down from 15.06% in the census taken in 1901.

As of the census taken in 1951, the state contained 147 towns and cities, each of which had a population of 2.96 million people, which accounted for 18.50 percent of the state's total population. It is possible that the quick increase was brought on by fresh hopes; nevertheless, this growth also included an influx of population from Pakistan following the partition of the country. It's possible that the enumeration was also somewhat influenced by the fact that the western portion of the state had at least four droughts ranging from moderate to severe between 1946 and 1951. These droughts led people to seek refuge in the towns in order to obtain food and a means of subsistence. Over the course of that time period, the urban centers and the urban population have been gradually growing. It was estimated that there were 7.21 million people living in urban areas throughout 201 towns and cities by the year 1981. This represented 21.5% of the total population of the state.

It has been discovered that Jaipur experienced the most rapid expansion, whilst Udaipur, Bikaner, and Jodhpur experienced slower growth. This might be attributed to the fact that these cities had less developed infrastructures, which prevented them from attracting investment and possibilities. Surprisingly, Hanumangarh and Ganganagar, two of the newly established class I cities, witnessed remarkable rates of population growth. Due to the fact that these cities are situated in the granary of the state, which is surrounded by very productive agricultural fields, it is important to take note of the rapid growth of the two cities because of the consequences that it has. According to a report that was recently distributed by the Government of Rajasthan and compiled by Price-WaterhouseCoopers (PWC), "this is in line with empirical research that suggests that regions with higher agricultural productivity experience faster urbanization as they can support a larger population in non-farm employment" (Anon., 2003).

At the time of the census in 2001, the state of Rajasthan had 29 class-I urban centers, five of which had municipal corporations. It presents the population of each of the 29 urban centers that are classified as class I.

### **Changing Structure of the Urban Settlements**

Historically, the majority of the urban centers in Rajasthan have developed either as modest business hubs (such as Hanumangarh), as locations of pilgrimage (such as Pushkar), or as capitals of kingdoms (such as

Jodhpur and Nagaur). As a consequence of this, the settlements were densely packed and tightly linked, and their shape ranged from almost round to semi-circular. The most densely populated area of the town was a Central Business District (CBD) that was located close to a palace, a fort, or a temple. This CBD featured a variety of land uses, including residences, business houses, and markets. Because of the restricted options for making a living in the CBDs, as well as the limited variety and selection of opportunities available in the towns, residential neighborhoods along the radial highways that surround the CBDs did not really spread out very much. Because of this, the arterial routes that led to the neighboring towns and major villages did not attract rapid expansion of the towns outward, and the peri-urban fringe evolved at a relatively gradual pace. The people were required to reside as close to the central business district (CBD) as feasible in order to minimize travel time and ensure their safety. The vacant spaces within the town limits were more in demand for new residences than any outside development along the arterial highways. As a consequence of this, the majority of the cities had a compact and semi-circular shape, which was of great significance for the efficiency of their functional operations. There were many neighborhoods inside a town that served multiple purposes, including residential and commercial areas, as well as a variety of amenities and utilities. Residents were able to maintain better social contact within the neighborhood, share the shared resources in a manner that was both amicable and prudent, and maintain the resources as a responsible member of the close-knit society because of the compactness of the settlements. They were able to travel to their places of employment in a short amount of time, without expending a significant amount of energy or resources, thanks to this development.

Jaipur, which was the best planned city in the country during the pre-colonial period, was the most conspicuous exception to this rule. Other outliers included towns such as Nasirabad, Ajmer, and Beawar, among others, where a significant presence of the British administration allowed for the experimentation of separating the central business district (CBD) from residential regions, which ultimately resulted in the development of sprawl towns. Nevertheless, the towns, particularly Nasirabad and Ajmer, were developed in a planned manner before they were built. A number of cities, such as Abu Road, Phulera, Pali-Marwar, Bandikui, Mavli, and Reengus, came into existence or expanded along the railway lines as a result of the opening of the state to neighboring regions by railway lines beginning in the latter quarter of the nineteenth century. This was also the time when options for making a living began to increase.

### **Livelihood Opportunities as Determinant of Urbanization**

One of the most prominent characteristics of human settlements in Rajasthan is migration in search of a means of subsistence. This is particularly true because of the high vulnerability of agriculture in the state, which is enforced by the unpredictable behavior of the monsoon in a semi-arid and desert landscape. One further significant aspect that contributes to migration is the growing number of employment possibilities that are made available by the mining and manufacturing sectors. These sectors have grown and begun to proliferate since the 1970s, particularly as a result of the expansion of infrastructure and the amount of capital investments that have been made in the state. The most significant influxes have occurred in class-I cities such as Jaipur, Kota, Jodhpur, and Ajmer; but, a number of other smaller towns have also become centers of urban expansion. Both the opening of mining areas and the establishment of small and medium-sized companies that are primarily dependent on mining or the processing and assembly of light industrial products have emerged as the primary drivers of economic growth. In general, the towns and cities that are located to the east of the Aravallis in the semi-arid tract have been the centers of industrial expansion

(for example, Bhilwara and Dausa). On the other hand, the towns and cities that are located to the west of the Aravallis in the dry tract have primarily experienced growth associated to mining (for example, Jalor and Barmer). The mining activities have also resulted in the establishment of a few new small centers, such as Gotan and Balesar. Only a handful of towns have experienced expansion as a result of agricultural marketing or agro-industries, particularly in the northern irrigated alluvial plains (for example, Ganganagar, Sangariya, Hanumangarh, and Suratgarh). The oilfields and coal mines that are located in close proximity to Barmer town may soon cause the area to undergo amazing expansion. It is possible that Sanchor town will experience rapid expansion as a result of the Narmada Canal being put into operation.

As a result of the commissioning of the Delhi-Mumbai Industrial Corridor (DMIC), it is anticipated that the rate of urbanization in the state will quicken, with the industries and allied sectors being the primary drivers of this process. A little over 58 percent of the state is included in the DMIC. In the long run, it is hoped that the DMIC will be beneficial to class-IV to class-VI municipalities that have had a negative growth rate of 25-30%. In the event that these smaller towns are unable to attract investments in the industrial and service sectors, they may be able to limit the movement of people to larger cities with populations more than 50,000, so contributing to the facilitation of a greater urban environment that is more well distributed and better supplied.

A significant policy and management intervention is required in order to achieve a healthy urban growth in the state. This intervention is necessary in order to restrict migration from rural areas and from small towns moving to large cities. During the period of 1971 to 1981, approximately 16.4% of the total number of migrants in the state resided in urban areas, according to the statistics obtained from the census. In the years 1981–1990, the percentage increased to 22.4%, and in the years 1991–2001, it reached 25.4%.

It was gradually realized beginning in the 1990s that the creation of livelihood opportunities in cities and towns, particularly in the class I, class II, and class III categories, was occurring at a faster rate than anticipated. This resulted in the rapid spread of townships and the development of slums in larger cities as the demand for various types of services began to increase. There was a decline in the quality of amenities and services, the transportation to places of employment and market areas got more challenging, time-consuming, energy-intensive, and expensive, and the safety situation became extremely insecure. Due to the fact that urban sprawl had become somewhat chaotic and unmanageable, it was necessary to reevaluate and re-design it through the implementation of a more effective planning approach.

### **Impacts of urbanization on environment**

As a result of urbanization, there is a growing demand for land, which, when combined with a limited supply of land, is a major contributor to the increase in the number of disputes that occur over land usage throughout the natural vegetation. The following are some of the most significant effects that urbanization has had on the city of Ajmer:

Large tracts of land that were previously used for agricultural purposes and contained a significant quantity of ground water are currently being transformed into a concrete jungle. Agricultural activities were originally carried out on the fertile area, but it has since been transformed into a market place.

The lack of access to planned space for the urban poor has led to encroachment on the hill slopes, particularly on the Taragarh hill, as well as on water bodies. By encroaching on hills, particularly along the path of natural drains, pollution and clogging of the drains are caused. Additionally, the encroachment causes a shift in the path of the drain, which in turn alters the amount of water that flows into the lakes.

Marble manufacturing is primarily concentrated in the Kishangarh region of India. The marble industries have not only been responsible for the employment of a significant number of individuals, but they have also been the driving force behind the tourist industry's attraction to the dumping yard that is located in the RICCO Industrial area. Over the course of a year, the region grew in size, which resulted in the removal of all of the vegetation that was present there. The destruction of the soil cover and contamination of the ground water caused by marble slurry makes it impossible for plants to grow (Lall V., 2007).

The land surface, topography, soil fertility, and pattern of land use are all significantly altered as a result of the mining activities that are taking place in this region. Agricultural land and forest land have both been subjected to the potentially dangerous effects of mining activities. As a result of the cutting down of forests and the relocation of agricultural activities in mine regions, the pattern of land use has also been disrupted.

As a result of the population growth, several associated difficulties have been alleviated, including a severe lack of housing, both residential and non-residential, traffic congestion, a lack of sanitation, and various community facilities and amenities, amongst others.

Urban areas have a significantly high cost of living compared to rural places. Consequently, the proliferation of illegal resident communities, which are exemplified by slums and squatters, occurs when this is combined with growth that is both unpredictable and unanticipated, as well as widespread unemployment. The city of Ajmer has 59 slum areas, according to the Census of 2001.

## CONCLUSION

After having reached the pinnacle of industrialization, the countries of Europe are now returning to their agricultural interests. mainly due to the fact that they have come to the realization that, in the long run, the nation needs to be self-sufficient in all aspects, including industrial as well as environmental. Due to the country's growing population and urbanization, India is currently seeing significant shifts in the pattern of land use across the entire country. This is despite the fact that India has a significant potential in the agricultural sector. Although urbanization provides a number of benefits, including the creation of employment possibilities, advancements in technology and infrastructure, improvements in transportation and communication, higher quality educational and medical facilities, and higher standards of life, there are also certain disadvantages associated with urbanization. However, the majority of the outcomes that result from significant urbanization are negative. In the absence of adequate planning, metropolitan cities are confronted with a number of environmental challenges, including the depletion of natural resources, the destruction of the environment, pollution, the degradation of land, and the exploitation of natural

resources respectively. Because of the high population, there is a shortage of work opportunities, housing, and other essential infrastructure, like education, health care, sewage, and water supply. As a result of this circumstance, cities also become the locations of significant concentrations of poverty and the formation of slum villages. In a scenario like this, there is a substantial requirement for urban planning in order to ensure that cities are able to function effectively. Because we are currently living in an urban era, we demand cities that are both sustainable and environmentally friendly. These cities should be able to fulfill the needs of the people who live there without compromising the environment.

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