

# Rural-Urban Fringe Development in Kerala Context

Aswathi V<sup>1</sup>, Shahina Muthu S<sup>2</sup>

<sup>1</sup>M.PlansStudent(Urban planning), TKM College of Engineering, Kollam

<sup>2</sup>Corresponding Author: Shahina Muthu S  
Assistant Professor, TKM College of Engineering, Kollam

Date of Submission: 20-08-2022

Date of Acceptance: 31-08-2022

**ABSTRACT:**The rapid urbanization trend in the global scenario is a challenge to the surrounding Rural-urban fringe areas. The spread of the growth to nearby rural-urban fringe areas, reduced forest cover, resulting in the loss of rural landscapes, decreased water fields, and increased demand for built space in rural regions are all major impacts. Urbanization impacts rural areas with long-term social, economic, and environmental consequences. Housing development, population increase, and land-use changes.

In Kerala, rural-urban periphery growth is typically uneven, with heavy pressure on some areas with the distribution of sufficient infrastructure, a peripheral territory with Rural-urban to the city, and cheap land value. In the case of the sample places chosen, such as Trivandrum, Ernakulam, and Kozhikode city, this development trend around an available resource is analyzed with respect to growth patterns. The unplanned development results in negative environmental consequences as well as a loss of the rural landscape. The fringe's characteristics shift from primarily rural to largely urban over time. The purpose of this paper is to Prepare guidelines as solutions for the development of the rural-urban fringe in Kerala.

**KEYWORDS:**Rural-Urban fringe, Urbanization, Urban sprawl

characteristics shift from primarily rural to largely urban over time. At the municipal border of the rural-urban fringe, sub-urbanization occurs.

Rapid urbanization is a global trend that is growing rapidly. Cities are changing at a fast pace. They are expanding in terms of both territory and people, as well as taking on a new character.

[5] Globally over 50% of the population lives in urban areas today. By 2045, the world's urban population will increase by 1.5 times to 6 billion. Today, some 55% of the world's population – 4.2 billion inhabitants – live in cities. This trend is expected to continue. By 2050, with the urban population more than doubling its current size, nearly 7 of 10 people in the world will live in cities.

The availability of infrastructural facilities necessary to serve such dense populations lags far behind the rate of urbanization. As a result, there is a significant lack of water, sewerage, developed land, housing, transportation, and other infrastructure in all cities. The character of neighboring rural areas is changing as a result of the city's expansion trend. People are moving to the outskirts as a result of rapid urban growth and sprawl. This paper is about the research of the rural-urban fringe, with an emphasis on studying the characteristics of the rural-urban fringe and determining development potential.

## I. INTRODUCTION

In settlement geography, the rural-urban fringe is a crucial term. The rural-urban fringe is the area outside of the city limits where rural and urban land uses to coexist. It's the place where the city and the rural mix. It is a transition zone between agricultural and other rural land uses and urban land uses. The fringe, which is located well inside the urban sphere of influence, is defined by a diverse range of land use, including dormitory towns that house middle-income commuters who work in the central metropolitan area. The fringe's

## II. URBANISATION IN INDIA

India's urbanization is neither unique nor exclusive, but rather a global phenomenon. Urbanization in India has progressed in the same way that it has elsewhere in the globe as a result of and as a result of economic change. One aspect of the change is the transition of employment from agriculture to urban-based industry and services. Another element is new industrial investments and service industry expansion in new locations.

[3] As for the magnitude, in 1901, only 25 million people constituting 10.84 percent of the

population lived in urban areas in India. In the 100 years since then, the urban population has grown 12 times and it is now around 285 million people constituting 28 percent of the total population. In the following 20

years (2001-21), the urban population will nearly double itself to reach about 550 million. According to the (division, 1998), the urban population in the year 2025 will rise to 42.5 percent (566 million).

The transition from rural to urban uses is well progressing in the fringe area. Another factor is a shift in the mindset of those living on the fringe. Although rural attitudes predominated, city influences have begun to infiltrate and societal transformation is taking place as a result of urbanization.

The distinction between urban and rural populations is not yet amenable to a single definition that would apply to all countries or, for the most part, even to countries within a region, due to national disparities in the traits that separate urban from rural areas. In the absence of regional suggestions, countries must define their own definitions based on their own needs.

### III. RURAL-URBAN URBAN FRINGE DEVELOPMENT CONCEPTS IN KERALA CONTEXT.

Kerala is located on India's southernmost point and is bordered on the west by the Lakshadweep Sea and on the east by the Western Ghats. It is comparable to the industrialized world in many dimensions of socioeconomic progress. Kerala has a high pace of urbanization despite a moderate rate of population growth. Kerala's settlement pattern is unique in that it includes both urban and rural areas.

Kerala is known for its diverse human habitat. The State's human settlement pattern is characterized by houses being built on individual plots distributed throughout the habitable area. Almost every other region of India has a nucleated built-up area surrounded by rural areas. However, Kerala exhibits an urban-rural continuum with a reasonably uniform distribution of dwelling units, as well as an urban-rural settlement pattern. In comparison to other parts of India, Kerala has a relatively low population density development in urban areas and a relatively high population density in rural areas. Many development challenges have arisen as a result of this unique structure of the human habitat.

Kerala is a culturally diverse village. Kerala's rural-urban continuum (rurban) pattern of

urbanization is supported to a greater extent by the state government's comprehensive public policy of "spatially continuous distribution of social infrastructure." There are both rural and urban parts in it. The Kerala Model, the state's human development strategy, resulted in the building of social infrastructure throughout the state, including public distribution networks, schools, hospitals, agriculture offices, and so on.

The unique physical layout of Kerala's towns and villages has aided the development of the rural-urban continuum. Kerala has a thinner divide between rural and urban areas than the rest of the country.

### IV. REASON FOR THE FORMATION OF RURAL-URBAN CONTINUUM SETTLEMENT IN KERALA.

#### Historical factors

Smaller kingdoms and trade decentralization were the key reasons for this development trend in the past. More than 100 principalities ruled Kerala. Each of these kingdoms was self-contained, with its own state capitals and a trade and commerce system. Some of the kingdoms' kings constructed major ports in urban areas such as Kannur, Thalassery, Calicut, and Cochin. Aside from these major ports, there were 33 minor ports for plantation products, spices, coir, and timber commerce. As a result, each of these port settlements began to grow into local urban centers, preventing the creation of a single port settlement development.

#### Physio geographical factors

Kerala's distinctive linear shape, with widths ranging from 11 to 121 kilometers (east-west) and a length of 590 kilometers along the coast (north-south), caused the settlement to develop in a ribbon pattern.

Except for the forest parts in the east, Kerala has a more habitable climate due to sufficient water supply from heavy rainfall, a high water table, fertile terrain with moderate tropical temperatures (no extremes), and 42 rivers. As a result, villages could appear in any habitable territory, and people began to live in their own compounds, preventing heavily populated areas from developing.

#### Economic factors

Agro-based industrial development: Kerala has a small number of industrial establishments. The majority of these industries arose after independence, and they were mostly small-scale agro-based firms dealing in coir and plantation crop

commodities. Due to the abundance of raw materials and labor resources, they were founded in rural areas. This made it impossible for a single large-scale industrial town to grow together.

Kerala households' income levels and budgets increased with the large-scale migration of skilled and trained laborers to the oil-rich Middle East in the 1970s. As a result, the united family structure began to disintegrate. This, along with people's demand for controlled growth, resulted in low-rise uniform density patterns rather than dense high-density zones.

Plantation crops provided work, and the construction of a significant number of hydroelectric projects attracted migrant laborers from urban areas to the less developed rural portions of the highland and midland regions, especially after independence. People were drawn to these areas for agricultural purposes since the land was available at a low cost. As a result, there was a reverse migratory movement, which helped to form the RUC settlement pattern.

#### Political factors

Resources were distributed in a more or less equitable manner to both urban and rural communities. In Kerala, resource disparities are minor in different parts of the state. These policy efforts increased the quality of life in rural areas and improved the distribution of facilities, preventing people from migrating to cities.

#### Land ceiling act of 1963

The purpose of the Land Ceiling Act of 1963 was to redistribute land from landlords to the poor. Kerala is one of the few states in India where the Land Ceiling Act, which declares that no individual can own more than 12 standard acres of land, is rigidly enforced. Subdivision and property fragmentation are fairly common in Kerala. The average size of an operating holding was 0.49 hectares in 1976-77, but it had declined to 0.23 hectares by 2005-06. The fragmentation of terrain allowed the vast scattering of settlements.

**Better road and river connectivity:**  
Transport systems were built to suit the physiographic features, with two national roads running north-south and six national highways running more or less east-west. Aside from that, a road network circuit is formed by multiple state highways, key district roads, and panchayath roads.

### **V. DEVELOPMENT OF KERALA**

Kerala has consistently worked to reduce interregional disparities, enacted progressive legislation on land tenures and agrarian relations,

reduced mortality and fertility rates, halted population growth, promoted educational growth with significant support to private sector initiatives, and modernized the healthcare sector since its beginnings in 1956. Kerala's performance in the materially productive sectors of agriculture and industry has been disappointing. Large-scale emigration, which began in the early 1970s, has kept Kerala's economy on pace and resulted in near-revolutionary changes in purchasing habits, housing conditions, academic performance, and health status.

[1]Kerala is experiencing rapid urbanization without corresponding physical effects, which is another peculiarity. Kerala's urban content is 47.71 percent, with a decadal growth rate of 82.23 percent, according to the 2011 census. Kerala is a land full of peculiarities. It has a rich cultural legacy, strong social development indicators (life expectancy, infant mortality, literacy rate, and so on), and a per capita income that is comparable to that of a developed country. The planned development in practically every section of the state supported the urban-rural continuum, a Kerala-specific habitation pattern.

The history of Kerala's population growth rate reveals that the urban population has always grown faster than the total population, demonstrating the state's rapid urbanization. Kerala saw the highest degree of urbanization in its history from 2001 to 2011 (an increase of 83.82 percent over the previous decade). The main cause for the high level of urbanization observed here is areal reclassification (the declaration of a previously rural region as an urban due to a shift in occupational structure). Kerala's low population growth rate combined with increasing urbanization will reflect in the society's lifestyle.

The main reason for urban population growth in Kerala is not population concentration in existing urban areas, but rather an expansion in the number of urban areas and urbanization of the outskirts of existing major urban centers. Kerala is seeing a spread of urbanization rather than a concentration.

Urbanization's high level and expansion may result in the diversion of potential agricultural land to non-agricultural uses, as well as the depletion of forest cover and water bodies. For a sustainable future, urban development must be optimized.

According to the 2011 census, Kerala's total urban population is 15932171 people. The most urbanized district of Kerala is Ernakulam, whereas the least urbanized district is Wayanad. Urban content exceeds 50% in six districts

(Ernakulam, and Urban content exceeds 50% in six districts (Ernakulam, Thrissur, Kozhikode, Kannur, Alappuzha, and Thiruvananthapuram).

Thiruvananthapuram, Kochi, and Kozhikode, the state's main urban centers, are positioned at nearly equal distances from one another, offering uniform facilities to residents and reducing the burden on a single center within the rural-urban continuum, especially along the coast.

The Kochi Urban Agglomeration is the state's first-order urban center. As the state's first order settlement, it must serve the whole population of the state. As a result, both in terms of land and population, this will be the state's largest urban region. Thiruvananthapuram urban agglomeration and Kozhikkode urban agglomeration are the state's second-order urban areas.

### **Thiruvananthapuram**

Thiruvananthapuram is the capital of Kerala and is located in the state's southernmost district. According to the 2011 Census, the Thiruvananthapuram district comprises 5.60 percent of the state's total area and is a place of residence for 10.31 percent of the state's population.

[4] Rural areas account for 46.33 percent of the population, while urban areas account for 53.66 percent. It has a literacy rate of 92.66 percent and generates 11% of the state's revenue. The majority of people work in the secondary and tertiary sectors.

Land use has undergone considerable changes from 1966 to 2011 and conversion between different land use types took place frequently, especially among paddy fields, built-up lands, and wasteland sand scrub lands.

The built-up land got increased and spread to the outskirts of Trivandrum city. The growth in the built-up area accounted for the reduction in agricultural land.

**Water supply:** Water transmission and distribution infrastructure are insufficient and inadequate. As the population of the urban center grew, the situation became more complicated, resulting in a water shortage.

**Sewerage & Sanitation facility:** This city has a 40 percent sewer efficiency. The sewage plant, which was intended for an 8 mld capacity, was completed in 1945, but it is currently overloaded with 6 times the amount of sewage. Due to a lengthy sewage load and a lack of maintenance, the soil has lost a significant amount of porosity. As a result, the raw sewage remains stagnant within the field for an extended period of time, causing septicity. The stagnation of wastewater was a potential cause of groundwater contamination, and the city's status in

the early years of the past decade was one of the health dangers and ecological threats.

**Drainage:** Another issue in Thiruvananthapuram was poorly managed drainage, which was affected by significant waterlogging and blockage. The lack of a proper network of interconnected drainage canals was the primary cause of inadequate drainage. The discharge from the canal stays in the river water for a long time, which is caused by solid waste dumping in the canals, which obstructs the free flow of water. Solid waste management was characterized by a lack of clear institutional roles, a shortage of professional staff and equipment, and financial constraints.

**Spatial Connectivity:** Thiruvananthapuram's urban road network is crowded due to inadequate traffic engineering and management. As the population grows, so does the complexity of the transportation network. In this city, there were some issues with urban institutions, such as poor urban infrastructure and urban services, which were caused by an insufficient institutional framework. The reason for this was that there was essentially no structure for administering services exclusively for municipal entities, and local capacities for urban management were limited.

**Economy:** The economy plays a significant role in the growth pattern. Technopark in Kazhakoottam, as well as significant destinations such as Medical College, Kochuveli Industrial Development Centre, and Pappanamcode Industrial Estate, are just a few examples of how economic prosperity has altered growth patterns.

**Demography:** The rise in the number of census towns in 2011 has clearly resulted in a considerable increase in the number of towns. A census town is defined as an area that is not statutorily designated as a town but has urban characteristics such as a population of more than 5,000 people, a population density of at least 400 people per square kilometer, and a minimum of 75 percent of male workers employed outside the agricultural sector.

### **Ernakulam**

Ernakulam is the central portion of the city of Kochi in Kerala. In 2011, Ernakulam had a population of 3,282,388 people, with male and female populations of 1,619,557 and 1,662,831 respectively. In comparison to the population in 2001, there was a 5.69 percent increase in the population. Ernakulam District's population increased by 9.35 percent between 1991 and 2001, according to India's last census. The Average literacy rate is 95.89 percent. The expansion in urbanization is accompanied by a decline in water

bodies and vegetation, as well as the extension of growth to rural fringe areas, as seen by the landcover map. This transformation can be seen as a result of land reclamation of the backwaters, as well as the conversion of previous plains into built-up areas.

With the commencement of major development initiatives such as the International Container Transshipment Terminal (ICTT), Metro Rail, Liquefied Natural Gas (LNG) Terminal, Kochi International Airport, Smart City, and Info Park, the city's land cover increased significantly.

**Water supply:** The Periyar river supplies water to 95 percent of Kochi households, which is delivered after treatment by the Kerala Water Authority. Kochi has a number of water-related issues, many of which have been worsened by growing urbanization. Water loss in the distribution network, groundwater depletion, groundwater contamination due to unsafe sanitation and unscientific solid waste management, salinity intrusion into inland areas, decrease in the flow of the Periyar river, regional floods due to improper stormwater ,water management, and so on are some of these issues.

**Sewerage & Sanitation facility:** Septic tanks and other regional waste water management methods are the most common. Sewerage coverage in Kochi is extremely limited. Sewerage service is only available in areas of Kochi's core business centre and along the coastal drive. Only about 5% of the city is connected to the sewer system. The lack of oversight of onsite sanitation and septage management, as well as poor regulation, is a severe public health risk over the entire urban agglomeration.

**Drainage:** Only 41% of the total land is covered by area drains. Flooding occurs when the canal system's carrying capacity is reduced as a result of encroachment, canal conversion to roads, rubbish dumping, and obstruction caused by utility wires and silting. Storm drains are turned inefficient by the dumping of solid waste and wastewater flows, making them vulnerable to pollution hotspots.

**Spatial Connectivity:** As the world has become more urbanized, vast areas have been developed as urban expansion. To accommodate the rising traffic demand, many highways were built in phases. The city has taken on a fragmented urban shape that has spread along main transportation lines. Congestion on arterial highways is caused by unplanned development, small streets, congested

intersections, unorganized parking, and other factors that obstruct traffic movement. Even with today's traffic demand, most bridges and important corridors are no longer able to keep up.

**Economy:** The growth pattern related to the economy of Ernakulam is concentrated in InfoParkKakkanad, CIAL Nedumbassery, International container transshipment terminal (ICTT), Metro Rail, Liquefied Natural Gas (LNG) Terminal, Smart City etc

**Demography:** The rise in the number of census towns in 2011 has clearly resulted in a considerable increase in the number of towns.

The city's physical growth is concentrated in the northern and eastern sides, along important transportation routes (NH-66 and NH-544, state highways, and minor district roads). As a result of the IT & ITES (including SEZs) expansion, Kochi's urban growth is shifting to the east. A similar increase is expected in the fourth coming years along Kochi City's northern outer quadrant, due to a host of large-scale integrated projects planned there. Parsvnath IT Park (Proposed-100 acres) and Emaar MGF (160.83 acres) are two examples.

### **Kozhikode**

Kozhikode is situated in northern Kerala that spans 2344 square kilometers. Kozhikode's IT and real estate boom has resulted in an increase in intra-state migration. The incorporation of urban-like peripheral areas into urban outgrowths has resulted in the development of new municipal towns. As a result, the effective urbanized area and population have grown even more.

The urban population percentage is 67.15, whereas the state average is 47.72. Between 2001 and 2014, Kozhikode experienced yearly population growth of 7.6 percent, urban area expansion of 15.2 percent, and total built-up area growth of 14.8 percent. The population of Kozhikode Corporation is 6, 08,255 people, with a sex ratio of 1091 (2011 Census). The city is spread out over an area of 118.59 square kilometers. The Corporation's literacy rate is 96.40 %, while the District's is 95.08 %. The population density in the Corporation area is 5129 people per square kilometer, whereas the population density in the District is 1317 people per square kilometer.

**Landuse:** Land undergoes significant changes as a result of urbanization, industrialization, and agricultural use, all of which have diverse effects. Changes in land use have an impact on the

ecosystem in terms of land cover, land quality and capability, weather and climate, sustainable land supply, and, in short, the entire population and socio-economic factors.

**Water supply:** Water shortages are widespread in the Corporation's coastal belt, elevated areas, and a few wards. For more than 4% of the population, access to water is limited to less than one hour every day.

**Sewerage & Sanitation facility:** The Kozhikode Corporation area lacks a functioning sewerage system. Unsolved civic issues include solid waste management. Inadequate waste management puts residents in danger. Another big issue is ground contamination caused by on-plot installations. Contamination causes health problems in the Corporation's densely populated urban areas. The combined flow of sillage and storm water also causes contamination in open drains, canals, back waterways, and rivers.

**Drainage:** Rapid urbanization has resulted in the conversion of low-lying terrain, allowing for the temporary storage of water until it is discharged into main drainage routes. The flooding of these low-lying areas has resulted from the filling of these areas without proper drainage services.

**Spatial Connectivity:** In traffic and transportation management, Kozhikode faces issues such as increased vehicular and pedestrian traffic, as well as a constantly growing floating population.

**Economy:** The economic growth of Kozhikode city is concentrated around the cyberpark, Medical college, Commercial area, etc.

**Demography:** The Corporation's population had been increasing for decades. In terms of density variation over time, both the Corporation and the municipalities in the district display a similar pattern.

Kozhikode district's urban component increased from 38.25 percent in 2001, compared to 25.51 percent in the state, to 67.15 percent in 2011, compared to 47.72 percent in the state. It may be observed that the district's urban content is expanding due to population concentration in smaller towns and the outskirts of the district's major urban centers, rather than expansion in the district's already established urban local governments.

## VI. GUIDELINES

### CITY LEVEL

- Achieve maximum efficiency for development in city itself.

- Promote vertical development rather than horizontal development.
- Improve decision-making and plan execution in fields of Infrastructure, basic amenities, land use development, and the physical environment.
- Creating a healthy balance between all relevant interests and competing land in order to unite competing demands on space and development.
- Improve cities infrastructure facilities, Solid waste treatment, Water supply, Drainage, and Transportation facilities to avoid migration of people from the city to neighboring fringe areas.
- Readjust/increase the FAR to meet the city's expanding demand.
- Proper monitoring & Management of Programmes and schemes for better implementation.

### FRINGE LEVEL

- Prepare Extended development plans for fringe areas for planned development.
- Proposal for an outer ring road to improve the transportation network and connectivity to fringe areas.
- A holistic policy framework is required for fringe development, taking into account all demographic, social, topographical, economic, environmental, and governance factors.
- Development must be restricted to ecologically sensitive areas, Forests, Agriculture lands, and Water resources based on environmental studies.
- To ensure the planned expansion of the fringe areas, The areas are required to divide into zones depending on their development potential.
- Infrastructure provisions, Basic services, and transportation facilities would be extended to the fringe zone at the stages of development prescribed by Zonal Plans.
- The ribbon Development Prevention Policy to regulate development along the corridors.
- Introduce high development charges in the major potential locations of fringes to control unwanted development.
- Establish a new wing of The Development Authority to monitor and develop particular standards for fringe areas.
- Protect existing green spaces, ecology, & environment.
- Create policies to preserve forest cover, water bodies, agriculture & resources.
- Encourage people to participate in planning to aware people of the importance of saving rural character in fringe areas.

- Implementation of Transfer of Development rights(TDR) in undisturbed sensitive zones in fringe areas.
- Programmes to stimulate agriculture production.
- Increase connectivity of the fringe areas by providing linkages to other important towns and cities.
- Special rules for fringe area development.

## **VII. CONCLUSION**

The study helps to understand the importance of preventing uncontrolled growth patterns in rural-urban fringe areas in order to protect the existing rural landscape. and also analyses the major impacts due to urbanization and the effect on the fringe areas. The study was an attempt to formulate planning guidelines for rural-urban fringe development in the Kerala context. In Kerala, rural-urban periphery growth is typically uneven, with heavy pressure on some areas due to the distribution of sufficient infrastructure, a rural-urban to the city peripheral territory, and moderate land value.

## **REFERENCES**

- [1]. (2011). CENSUS OF INDIA . Delhi.
- [2]. division, U. P. (1998). World urbanization prospects, the 1996 revision : estimates and projections of urban and rural populations and of urban agglomerations. Newyork.
- [3]. K C Sivaramakrishnan, B N Singh. (2007). A Handbook of Urbanisation in india. Urbanisation .
- [4]. Reghunathan, C. (2013). Population Growth and Land Use Change.
- [5]. The world bank. (2020). Urban Development. <https://www.worldbank.org/urban-development>.