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Evolution of Slum Settlements in Kota City (1991–2021): Land Use Conversion Patterns and Urbanization Pressures

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ABSTRACT

This study traces Kota city's slum evolution from 1991-2021, when coaching hubs transformed farmland into homes for families chasing opportunity. Built up areas surged 1,227% while agriculture lost 78% (54 sq. km), growing slums from 12% to 35% of 1.2 million residents mapping resilient settlements on riverbanks and highways via census data and satellite imagery. Key patterns reveal regional migrants (70%) in coaching support roles, consolidating brick homes despite floods, 60% lacking sanitation, and tenure insecurity issues. However, self-help groups thrive, signalling community strength amid urban pressures. Beyond statistics, it honours human stories urging in-situ upgrades, job linkages to the education boom, and river restoration with dignity. Evidence guides inclusive planning, so Kota embraces all builders of its future.

***Keywords**: Urbanisation, Slums, Land-Use Conversion, In Situ Upgrades.*

Introduction

This paper examines the changing nature of slum settlements in the city of Kota over three decades and assesses the impact of rapid urbanization on the conversion of agricultural and open spaces into slum settlements. The study is based on data from Census 2011, satellite imagery analyses using Landsat/IRS, and slum reports of the government to analyze the spatial, socioeconomic, and policy-related aspects of the growth of slums in Kota. The study outlines the increasing urbanization of Kota: the built-up area grew 1227% from to 1991-2021, and by 2021, 35.2% of the urban population lived in slums, up from 12.3% in 1991, extending into 54.3 km2 of its agricultural land and undermining traditional agriculture-based rural livelihoods. Notwithstanding sufficient state support and patronage, Kota nonetheless witnessed a proliferation of slums, an evolution now theorized not as an urban governance failure, but as a political structural adjustment of urban poor settlements in the making of India's premier educational and coaching hub. Simultaneously, it contextualizes slum settlement patterns within wider land use processes and provides data-driven models for sustainable slum upgrading that integrate the concepts of development, environmental protection, and inclusive urban governance.

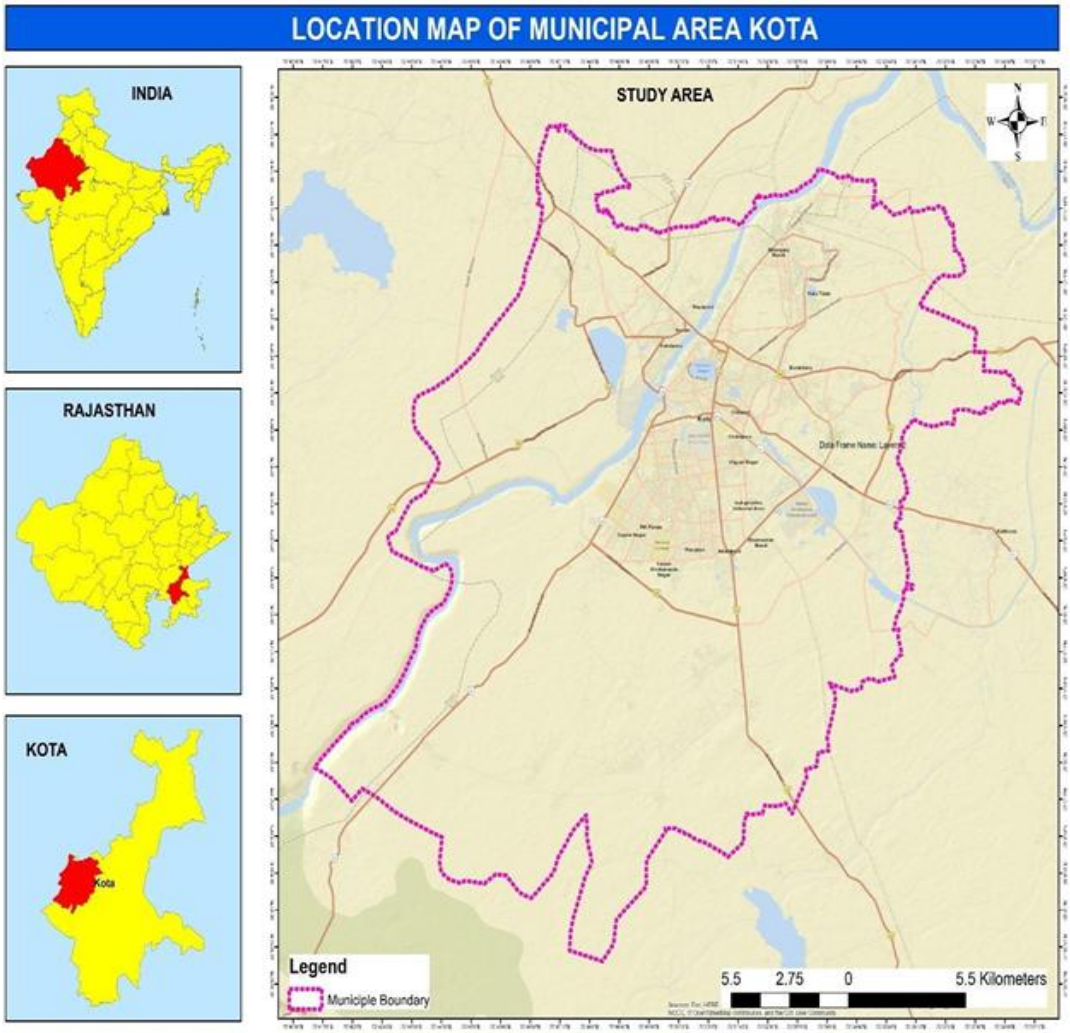
Urbanization and Informal Settlements in Indian Cities

India's rapid urbanization has created a paradox where cities provide new options for income generation but simultaneously create deep spatial inequalities in the form of slums. India's slum population rose from 52.9 million to 65.5 million people between 2001 and 2011, recording a 25.1% increase, outstripping the 19.9% growth in the total urban population. Such disproportionate growth is indicative of the failure of formal housing supply to keep up with demand born out of migration and forcible shifting of the poor household to informal, unauthorized settlements on the edges of the city riverbanks, railway corridors, drainage channels, and hills. Kota, Rajasthan's third largest city and the country's top education center for competitive entrance exams sees this trend in extreme. Kota's built-up area expanded 1,227% from 3.39 sq. km in 1991 to 45 sq. km. In 2021, the slum population rds. from

about 12.3% of the total urban population, and it is currently 35.2%, which is not less than saying it nearly tripled in proportional Are. This unparalleled form of change demonstrates how a single economic specialization (coaching-driven education) can drive unique patterns of urbanization that seemingly reconfigure the city, land use patterns, and social makeup of the city.

Kota as a Case Study: The Education Hub Phenomenon

- **Study Area:** Kota is situated along the eastern bank of the Chambal River, Kota lies at **25°18′ N** latitude and **75°83′ E** longitude, with an elevation of approximately 271 meters above mean sea level. Located in the southeastern part of Rajasthan popularly known as the Hadoti region or the "land of the Hadas" Kota enjoys excellent connectivity with Jaipur and other major cities across Rajasthan and India through road, rail, and air networks. The rise of the coaching industry in Kota transforming it from a previously small city to the "coaching capital" of India has led to fast and uneven development. The population increased almost twice from 537,371 in 1991 to 1,195,551 in 2021, as a result of in-migration of students and education workers. Since the late 1990s, the emergence of coaching institutes such as Allen, Resonance, and others has generated a massive demand for services and labour, drawing rural and urban poor into the informal sector (construction, domestic help, vendors). Cheap land, frequently along the Chambal River, NH-52, or railroad tracks has been the easiest housing option slum settlements.



Sources: Sources: Socioeconomic Condition of Slum Dwellers in Surveyed Slums in Kota City, District Kota, Rajasthan Anisha, Professor Dr. Rajesh Mali

Unlike the slum expansion in cities like Mumbai or Delhi, driven by general rural to urban migration, Kota's slum growth is distinctly influenced by its specialized coaching economy, pulling an array of highly mobile, aspiring migrants. This particular economic context is why Kota has experienced & nbsp;such an extreme increase in slum population (15.44% in 2001 to 31.88% in 2011) compared, nationally.

Research Objectives

Based on these considerations, the study addressed the following questions: The questions addressed in this paper are as follows:

- How the structure of land use in Kota has changed during the period 1991 to 2021 and what has been the role of expansion of slum settlements?
- What are the spatial trends in the slum distribution in Kota, and how do location-specific variables (riverfront, transport corridors, hazard zones) influence settlement formation and consolidation?
- What is the demographic, economic, and institutional determinants of slum growth in Kotas unique context as an education hub?
- Are there policy and planning regimes that encourage sustainable upgrading of slums without compromising environmental and agricultural sustainability?

Through a combination of land use mapping, demographic analysis, and spatial characterization, this study adds to our knowledge of urbanization in secondary Indian cities and sheds light on evidence-based policy recommendations for urban planners and development agencies.

Methodology and Data Sources

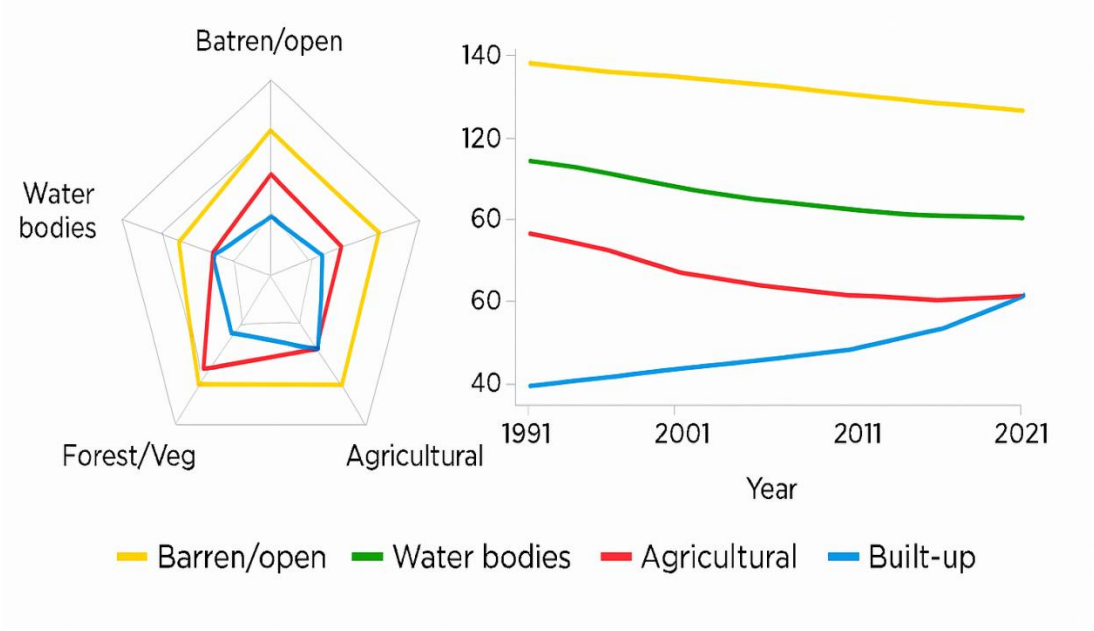
This study uses secondary data for reproducibility and accessibility, primarily sourced from:

- **Census Data (2001, 2011)**: Provides slum population, household counts, and demographics. Census 2011 recorded 66,413 slum households (319,309 persons), representing 31.88% of Kota's municipal population. Data facilitates estimating 2021 figures.
- **Satellite Imagery and Land Use Classification**: IRS Landsat data (1991, 2001, 2011) and Landsat 8 (2020–2021) were used in studies to map Kota's Land Use/Land Cover (LULC) changes. Bhuvan portal datasets and multi-temporal classification document urban expansion patterns.
- **Government Reports and Policy Documents**: Includes Rajasthan Slum Development Policy (2012, 2020 update), Kota Municipal Corporation records, Rajasthan Urban Development Authority reports, and Census 2011 Primary Census Abstract for Slums. Sources provide definitions, notified/non-notified lists, and policy interventions (NULM, PMAY-Urban).
- **Academic and Research Studies**: Peer-reviewed studies on Kota's urban morphology, slum characteristics, and land use dynamics provide ground-truthing and interpretation frameworks. The 2024 study on **"Urban Morphology and Demographic Characteristics of Kota City"**&**"Socio-Economic Condition of Slum Dwellers in Surveyed Slums in Kota City, District Kota, Rajasthan"** employs visual survey analysis and provides physical characterization of residential colonies, transportation networks, and slum clusters.

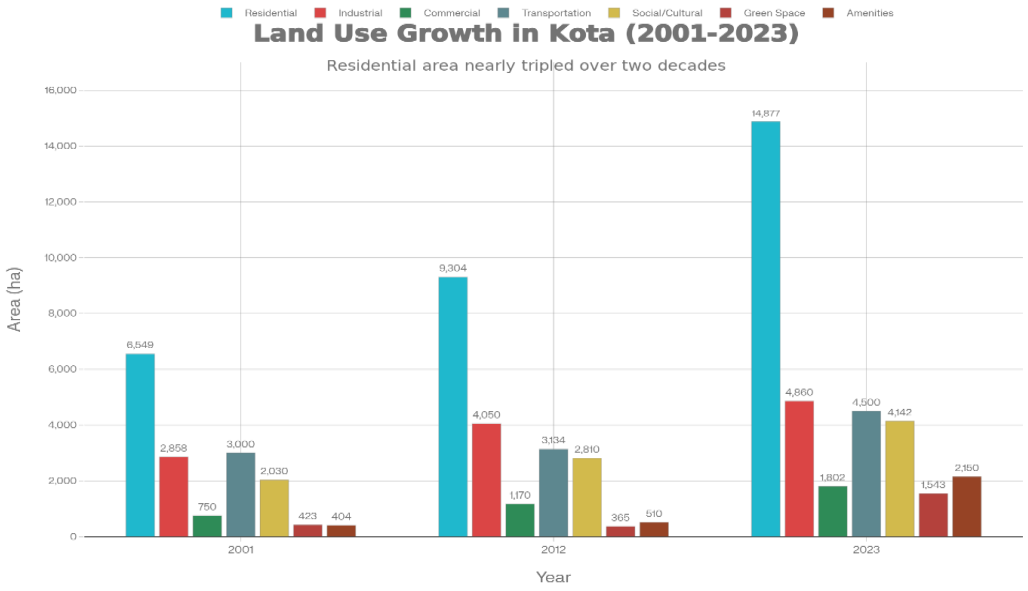
Data Processing and Analysis Methods

- **Spatial Analysis:** Satellite imagery (1991–2021) classified land use (built-up, agriculture, vegetation, water, barren/open land) to calculate decadal absolute and percentage changes.
- **Temporal Analysis:** Decennial population data (1991–2021) analyzed growth. Slum population percentage relative to municipal population was calculated, fitting exponential and linear models to study acceleration.
- **Spatial Characterization:** GIS mapped slum locations (riverfront, transport, hazard, hilly areas). Morphology was classified based on international literature concerning physical and social structure.

Kota's Land Use Transformation (1991–2021)



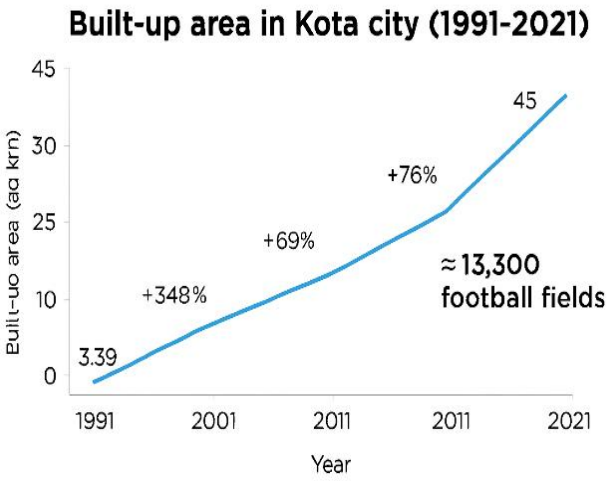
Kota Radar Chart (Spider Plot) & Line Chart (Multi-Series)



Source: Kota Master Plan (2001 & 2021)

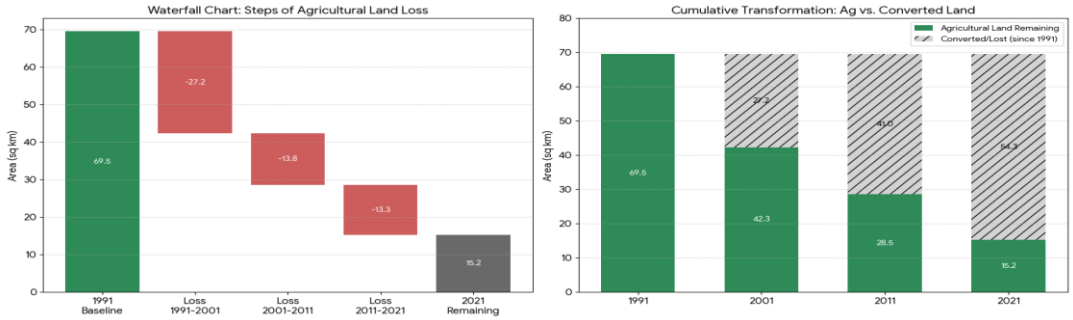
Built-up Area Expansion: The Quantified Urbanization

Kota underwent drastic urban sprawl during the period 1991–2021, where the built-up land soared by 1227%, from 3.39 km² (3.39 × 105 m²) to 45 km² (4.5 × 106 m²). This means that the 1991 size of the area would have grown to the size of 13, 300 football fields in 2021. The growth accelerated after 2001 with the emergence of Kota as a coaching hub. Decennial increases in built-up area were 348% (11.81 sq km) in 1991–2001, 68% (10.4 sq km) in 2001–2011, and 76% (19.4 sq km) in 2011–2021, suggesting intensifying land use.



Agricultural Land Decline: From Rural to Urban

Built-up expansion in Kota's case, has been matched with the loss of its farmlands. Farmland shrunk from 69.5 km^2 in 1991 to 15.2 km^2 in 2021, representing a loss of 54.3 km2 or 78.1% of the 1991 baseline. This is not just land conversion but a reconfiguration of the urban-rural boundary. Land that once supported farming communities, delivered livelihood security, and preserved ecological services, has been taken over by urban uses.



Between 1991 and 2001, the decrease was quite slow (decrease of 27.2 sq km, or 39% of 1991 base line), but between 2001 and 2011 it soared (decrease of 13.8 sq. km, or 33% of remaining), and between 2011 and 2021 it further increased (decrease of 13.3 sq. km, or 47% of remaining). As a result, by 2021 less than 1.3% of Kota's land area was used for farming, a figure that renders the city almost, if not wholly, non-agricultural.

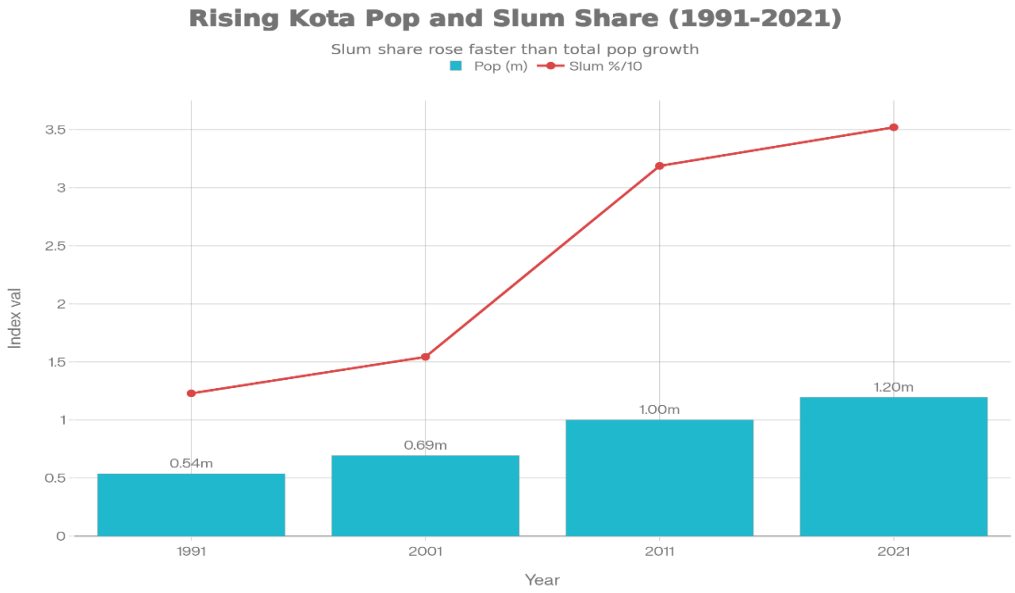
Forest and vegetation: a slight recovery under urban pressure

In the face of intense urban expansion, the vegetation cover of Kota varied between 12.68 km2 in 1991 and 18 km2 in 2021, with a peak of 22.1 km2 in 2011. This means that the loss of rural land is balanced by urban formal green spaces. However, the quantity of green space per capita has been dramatically reduced due to rapid population growth, and the city is considered to be less "green." Green areas, such as City Park and Chambal Garden, existing sporadically, do not fulfil normal per-capita requirements.

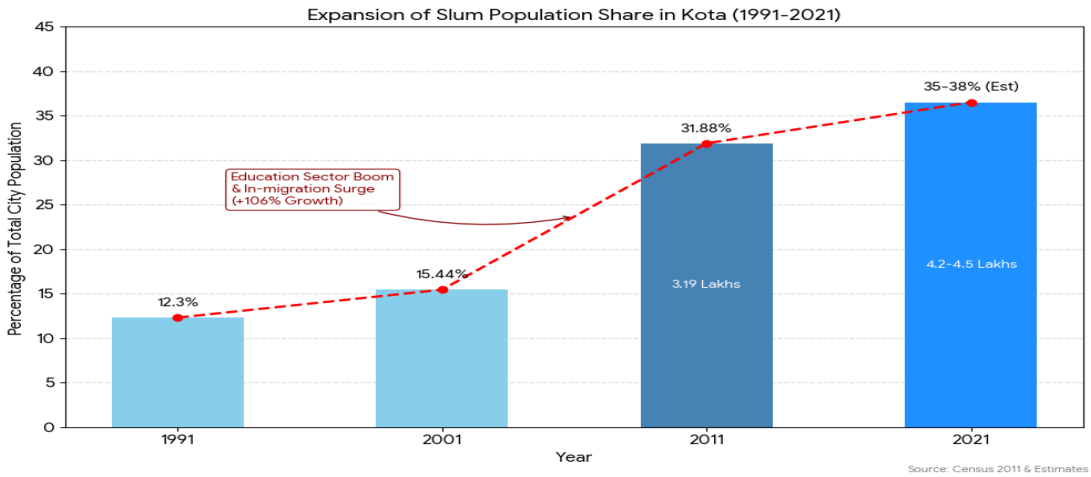
Water Bodies and Wasteland: Ecological Deterioration

Between 1991 and 2021, the water bodies were drastically reduced (25.7%, from 4.04 km2 to 3 km2) owing to rapid urban sprawl and water diversion through the Kota Barrage for agriculture and industry. Polluted, and low in the dry season, the Chambal River. There was also a dramatic decline in fallow and marginal land (add 57.4 km² to include 38.8 km² of used land converted to built-up land, including slums, or to agricultural land).

Slum Settlement Evolution: Population and Distribution



Slum Population Growth: From Marginal to Mainstream



In 2011, Kota city's slum population was 319,309 (66,413 households), accounting for 31.88% of the city's total– an unusually high figure comparable to major cities. This concentration of poor informal workers exists despite the city's high literacy (82.80%) and economic development. By 2021, the slum population is estimated to have grown to 420,000–450,000 (35-38% of the urban population). The share of the population living in slums rose significantly from 12.3% in 1991 to 15.44% in 2001, and then dramatically to 31.88% in 2011. This surge (106% growth in share between 2001-2011) is attributed to a strong influx of migrants and informal settlement expansion fueled by the education sector boom.

Spatial Distribution: Location-Specific Settlement Patterns

The Government of Rajasthan has administratively divided Kota city into two parts: Kota North and Kota South.

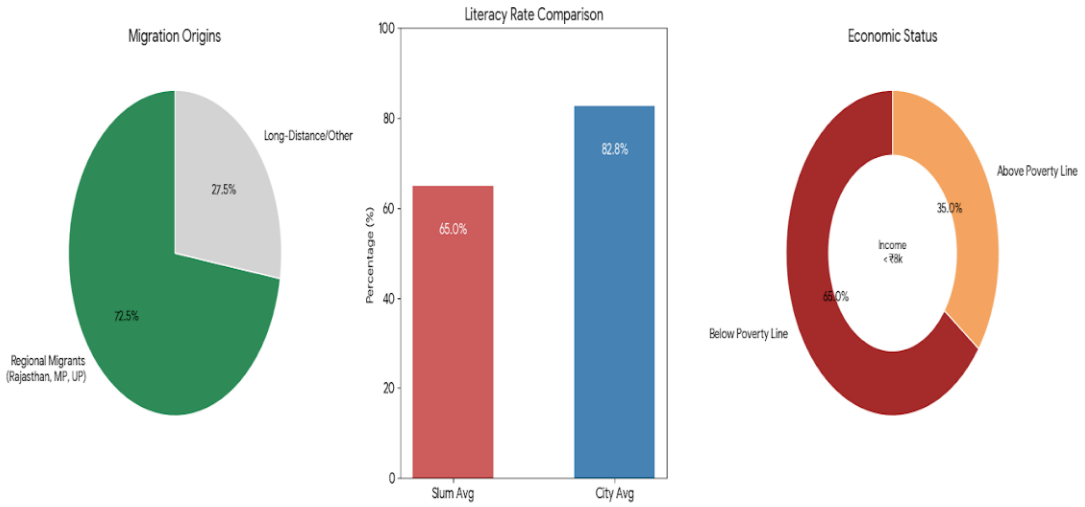
- Kota North comprises 70 wards with a population of 457,540.
- Kota South comprises 80 wards with a population of 544,154.

Within these administrative divisions, slum settlements represent a significant component of the urban landscape. As per the 2011 Census, Kota city contains 97 slum pockets. Of these: 59 slums fall under the jurisdiction of the Urban Improvement Trust (UIT). 38 slums are managed by the Nagar Nigam Kota (Presently known as KDA).

The slum population is recorded at 315,794 individuals, residing in approximately 66,413 households. This accounts for 31.88% of the total population of Kota city, underscoring the magnitude of informal settlements and the associated challenges of housing, sanitation, and infrastructure provision. The spatial distribution of slums across both Kota North and Kota South reflects the broader dynamics of urban growth, migration, and socio-economic disparities within the city. Kota's slum settlements are not randomly distributed; they concentrate in specific ecological and economic niches shaped by land value, accessibility, hazard exposure, and proximity to livelihoods:

- **Chambal Riverfront Settlements (22% of slum population):** These offer low-cost land and proximity to informal labor (e.g., sand mining) but face high flood risk and environmental degradation due to dense, unplanned construction.
- **National Highway 52 Corridor:** Linear sprawl along this economic route, near markets and transit, houses construction/transport/service workers. They are exposed to pollution and traffic hazards.
- **Railway and Industrial Edges (15% of slum population):** Located near the Central Railway and industrial areas, these provide job access but expose residents to pollution and accidents. Land ownership is frequently disputed.

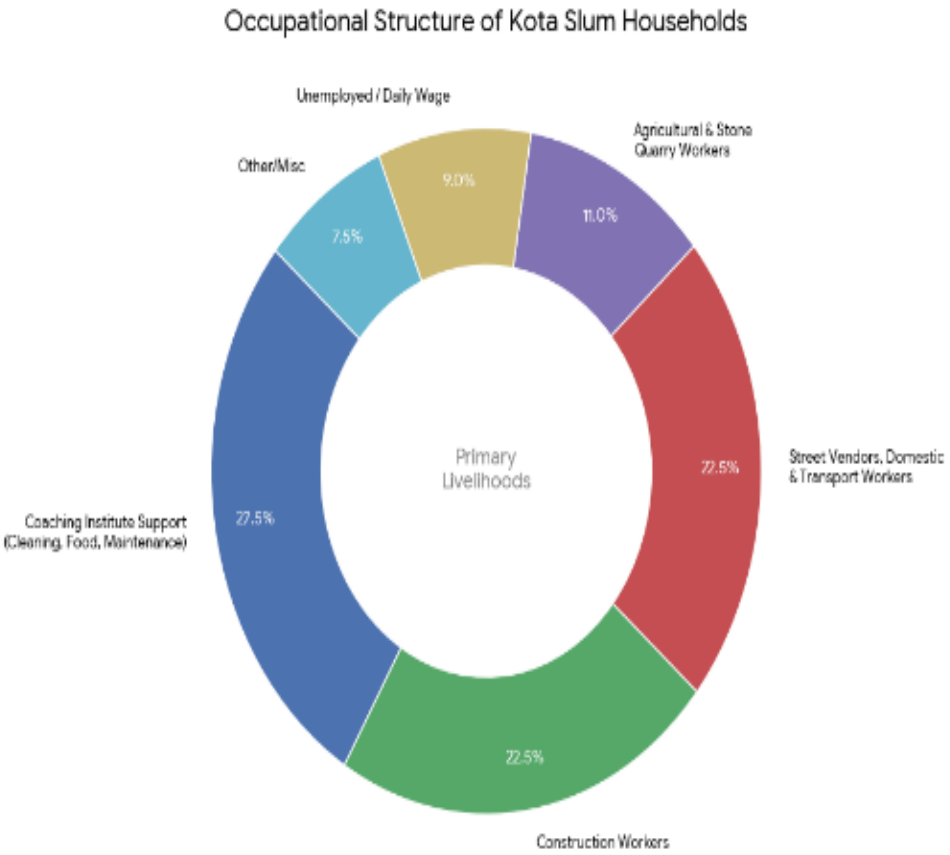
Demographic Characteristics: Migration, Occupation, and Household Structure



Research on Kota's slum residents reveals distinctive demographic patterns shaped by the education hub economy:

- **In-migration and Origins**: Approximately 70–75 percent of slum household heads are in-migrants from within Rajasthan (the bordering districts of Bundi, Baran, Jhalawar) or from adjoining states (Madhya Pradesh, Uttar Pradesh). Contrary to very-long-distance migrants from Bihar or Odisha dominating slums in Mumbai or Delhi, Kota's slum migrants are primarily regional, indicating that values of transaction costs and social networks retained with origin areas are more than sufficient. The mean length of stay in slums is 8–12 years for them, showing that slum dwelling is not a temporary existence for them.
- **Occupational Structure**: A large proportion of slum dwellers are coaching institute workers. They work in the institutes either as support staff (cleaning, maintenance, food service) or as service providers to the institute functioning. The second-largest category of occupation is construction workers, at 20–25%, sustained by ongoing infrastructure building. Street vendors, home workers and transport workers (auto-rickshaw drivers, cycle-rickshaw pullers) make us

another 20–25%. Agricultural workers and stone quarry workers make up about 10–12 percent, representing the vestiges of rural income. Unemployment and informal wage work (daily laborer) continue to dominate (8–10%).

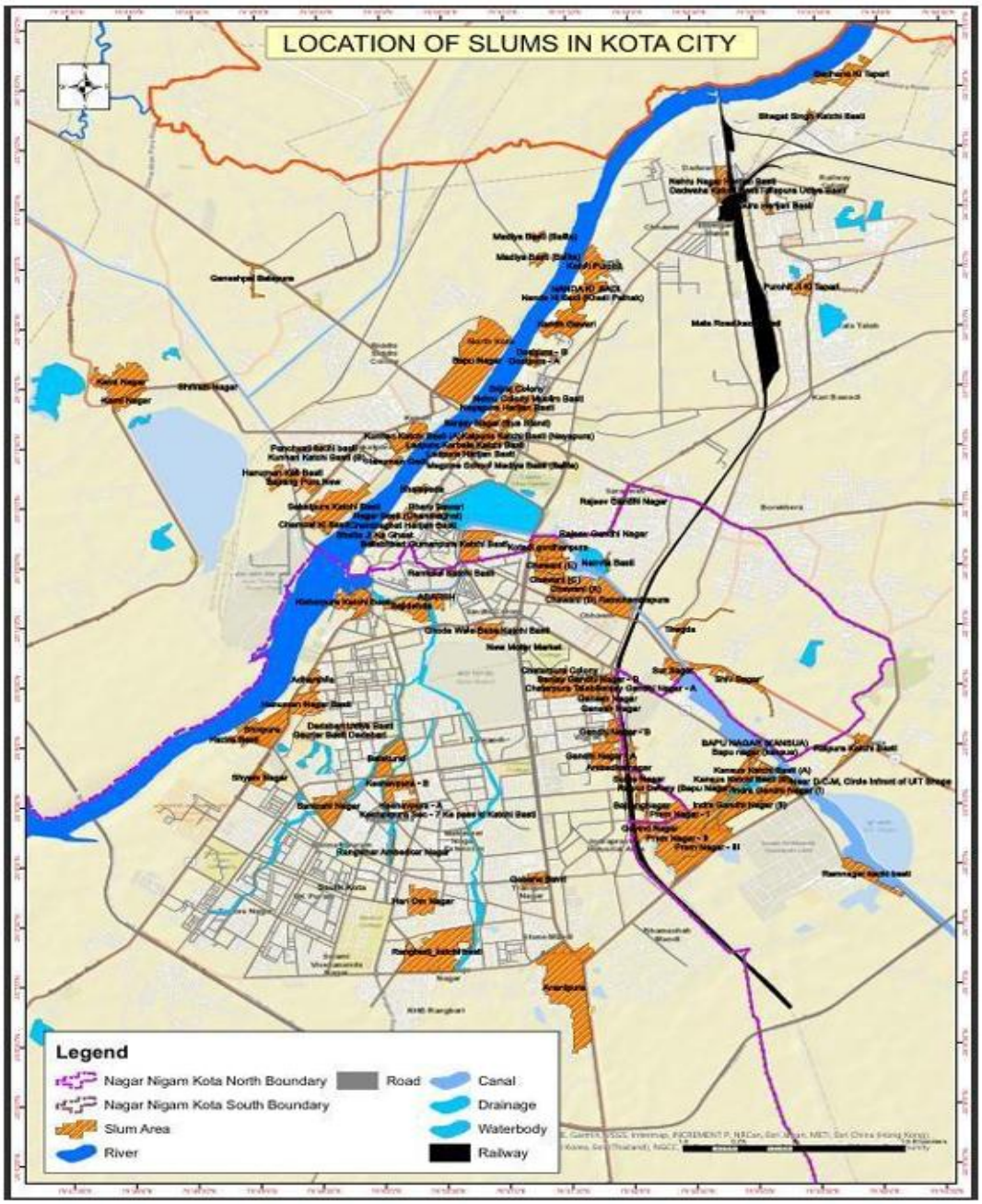


- **Household Structure and Economic Status**: Size and composition of household: the average size of a slum household is 4.8 persons (which is slightly higher than the city average of 4.5), representing a younger migrant population and more children per family. Female headed households make up 12–15% of the slum population and are usually formed by widows or women who have been abandoned. Slum dwellers are at a severe educational disadvantage with literacy rates ranging from 62–68% against the city average of 82.80% (148), due primarily to migrants. Monthly per household income in slum areas is Rs. 6,000 – 8,000 (USD 72 – 96), 60 – 70% of which falls below the national poverty line.

Slum Land Use Conversion: Mechanisms and Drivers

- **Institutional and Market-Driven Land Conversion**

The proliferation of slum settlements in Kota is due to a composite of factors. The first major impact came with the expansion of coaching institutes, which generated need for housing, teacher aides, and laborers, in the process starting informal student hostels in adjacent slum clusters and creating work and debt dependencies linking settling to the nearest slum. Second, farmers were displaced for the acquisition of their land by the State and private developers for educational and industrial (power plant expansion) as well as commercial (malls, office) purposes, forcing them to move into slums. Thirdly, Kota Municipal Corporation's poor urban planning and management, coupled with contestation from other entities (Kota Development Authority, State Housing Board, and rural gram panchayats) in encroaching peri-urban villages, resulted in regulatory gaps that made it easier for unauthorized settlements to flourish.



Source: Socio-Economic Condition of Slum Dwellers in Surveyed Slums in Kota City ,District Kota, Rajasthan Anisha, Professor Dr. Rajesh Malik

- **Environmental and Ecological Factors**

Slum location was determined by the biophysical setting. The variable flow of the Chambal River (dry May-June, odious August-September) and unclear possession of river-bank land allowed for squatter settlement. Inaccessibly, outlying, poorly-drained, hazardous hilly slopes were not raised to planned standards and became slum areas. Unplanned water and sanitation at the city fringes also boosted informal settlements as residents sought to avoid paying the fees for municipal services, a situation that became particularly acute during the gluttony years of 2001–2011.

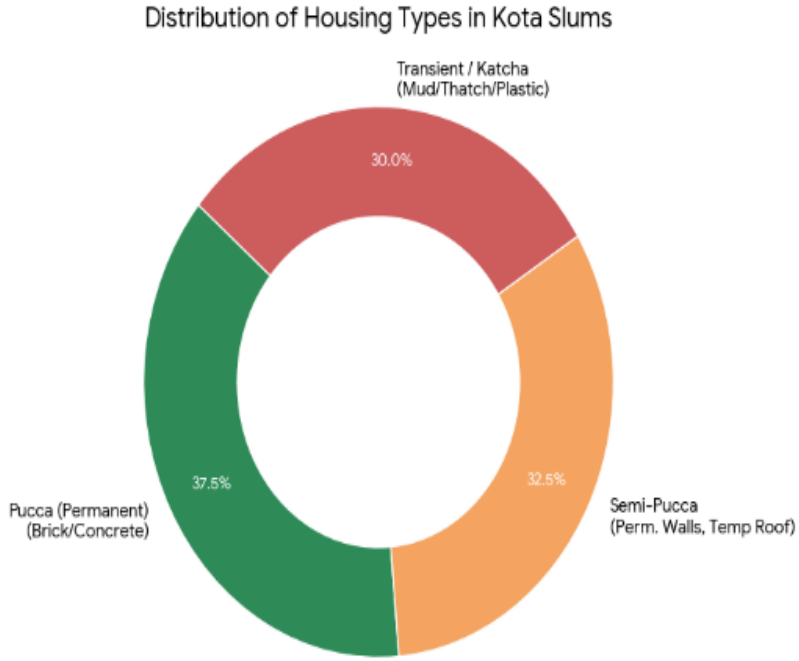
- **Patterns of Conversion of Agricultural Land**

During the period 1991-2021, 54.3 km 2 of agricultural land was lost due to conversion through various pathways. 8–10 km² of land was taken by the government for public and industrial use. Private developers and state housing schemes bought up 10–12 km² for formal residential colonies. Educational faculties occupied 3–5 km² of land. The largest component (about 30–32 km 2) was converted through squatting on derelict land, slum formation managed by private landlords, or through de classification to non-agricultural use without formal conversion or compensation-the main driver of slum related conversion.

Infrastructure Deficits and Living Conditions in Slums

- **Housing Stock and Physical Conditions**

Housing and physical conditions: 35-40% of houses are permanent (Pacca), constructed over a period of time. 30-35% are semi-permanent, with roofs made from asbestos/tin. The rest are 25-30% are fugitive (mud/thatch/plastic), reflecting new settlement or abject poverty. Standard slum dwellings (11-17 m²) are far smaller than the average city dwelling (32.5-37 m²). The population is dense: from 800 to 1,200 people per hectare in the established slums versus 200 to 300 for the city.



- **Infrastructure Gap:** Basic infrastructure remains difficult to access. 15-20% slum dwellers enjoy individual household water connections (vs 65% city-wide). A further 40-50% depend on public standpipes/tube wells and wait 30-60 minutes every day. 30-35% use tanker water but at a price (Rs 200-400 per tanker) and spend up to 8-12% of income. 60-65% defecate in the open or use shared community toilets (1 for 100-150 people), a sharp contrast to the city's 78 per cent coverage with individual toilets. 20-25% of slums have sewerage connection, the waste water frequently contaminating surface drains or the Chambal River. This absence of sanitation results in 2 to 3 times higher disease rates (diarrhea, typhoid, malaria, dengue) than that of the city.
- **Access to Transportation and Markets:** Slums are disadvantaged in location, hindering their mobility. The riverfront bustees have no roads for cars and those who live there walk on makeshift footpaths. The peripheral slums on NH-52 are linked but treat with pollution and accident threats. Colonies near railways lines are barred by level crossings and lack in number of underpasses. Slum residents travel 45 to 90 minutes a day to work (in overcrowded buses and on cycle rickshaws) and spend 4 to 6 percent of their income on transportation, so they have little time left for earning or studying.

Policy Context: Slum Designation, Upgrading Initiatives, and Governance Challenges

- **Notified and Non-Notified Slums**

Under the Census of India and guidelines of Ministry of Housing and Urban Affairs, slums are broadly classified as notified or recognized slums by the municipal authorities and are entitled to slum improvement schemes or non-notified slums in which the existence of slums where people reside but they are not recognized. Census 2011 also gave a figure of 66,413 slum households in notified slums in Kota, there are an estimated 30–40% of informal settlements that are non-notified, implying that the actual slum population might be more than what the official numbers say by 15–25%. This is an important distinction: notified slums have access to Rajasthan Slum Development Policy schemes, PMAY-Urban housing subsidy, NULM livelihood programmes and water/sanitation upgrade. Non-notified slums face eviction threats and are denied any official assistance. It creates a tiered system where some poor families are entitled and visible, while others are invisible and unrecognized.

- **Rajasthan Slum Development Policy and Government Schemes**

The Rajasthan Slum Development Policy 2012, updated in 2020, commits to in-situ development with community participation as the preferred strategy, recognizing slum dwellers' property-like claims and community cohesion. Key schemes include:

  - **Rajasthan Housing Board Slum Rehabilitation Schemes**: Provide low-cost housing (~250 square feet) at subsidized rates for eligible slum dwellers. Between 2015 and 2020, approximately 3,000–4,000 slum households in Kota were relocated to newly constructed colonies on city periphery, often 15–25 km from original settlement, leading to livelihood disruption and vacancy rates of 20–30% as residents returned to original slum locations.
  - **PMAY-Urban (Pradhan Mantri Awas Yojana-Urban)**: Relocated 3,000–4,000 Kota slum households (2015–2020) to subsidized, low-cost (~250 sq. ft.) houses 15–25 km away, causing livelihood disruption and 20–30% vacancy as residents returned.
  - **NULM (National Urban Livelihoods Mission)**: Provides self-employment assistance, skills training, and group-based livelihood programs. In Kota, NULM has supported approximately 3,000–5,000 slum residents through street vending collectives, tailoring training, and agricultural product cooperatives, with variable sustainability (estimated 40–50% continuation rate after subsidy period).
  - **RAY/Rajiv Awas Yojana (preceding PMAY-Urban)**: Between 2011 and 2015, supported slum upgrading in approximately 25–30 notified slums in Kota, with water connection, drainage construction, and community toilet provision.

Kota's slum administration is failing due to several systemic issues: **Coordination Failure** (agencies working at cross purposes), **Funding Limitations** (insufficient budgets), **Gaps in Community Participation** (decisions forced from above), **Sustainability Issues** (poor infrastructure maintenance post-project), **Livelihood Insecurity** (upgrading housing does not boost income and risks eviction/rent hikes), and **Eviction Threats** (perpetual demolition risks deter home improvement).

Discussion: Interpreting the Slum-Urbanization Nexus in Kota

- **Slums as Structural Feature, Not Anomaly**

Kota's slum expansion (12.3% to 35.2% of the population, 1991–2021) is a spatial fix for uneven development, not a failure. The city's growth as an educational hub attracted migrants, but the formal housing market could not meet the demand from the poor and working-class. While planned areas accounted for most of the 1,227% built-up area increase, formal urbanization and slum growth evolved in tandem. Slums function as a low-cost labor deflationary force. This structural view moves beyond pathology, seeing slums as functional, albeit unjust, urban subsystems.

Loss of 78.1% (54.3 km2) of farmland displaced 15,000–20,000 peasant families, fueling rural depopulation, urban migration, and slum expansion. Slum growth and agricultural loss are thus two sides of city capitalism. Despite insecure tenure, slum dwellers invest heavily, with 35–40% of housing being permanent, driven by long-term residence (8–12 years) and hope for legalization. Consolidated slums differ from newer squatter settlements, demanding varied upgrading strategies: in-situ infrastructure for consolidated areas, and mobile services/livelihood training for highly mobile communities.

- **Ecological Implications and Environmental Justice**

The reduction of 54.3 km² arable land, siltation of 25.7% of water bodies, and minimal changes in vegetation indicate Kota's environmental deterioration, worsened in dry months and threatening food and water security. Slums near unstable areas exacerbate destruction: raw sewage enters the Chambal, blocked drains intensify flooding, and hillsides erode. Slum inhabitants face higher environmental risks from floods, factory emissions, and air pollution. The solution is ecological restoration and slum upgrading, not destruction: relocating riverfront dwellers, restoring the river, implementing green infrastructure (wastewater management, rainwater harvesting), and promoting transit-oriented development.

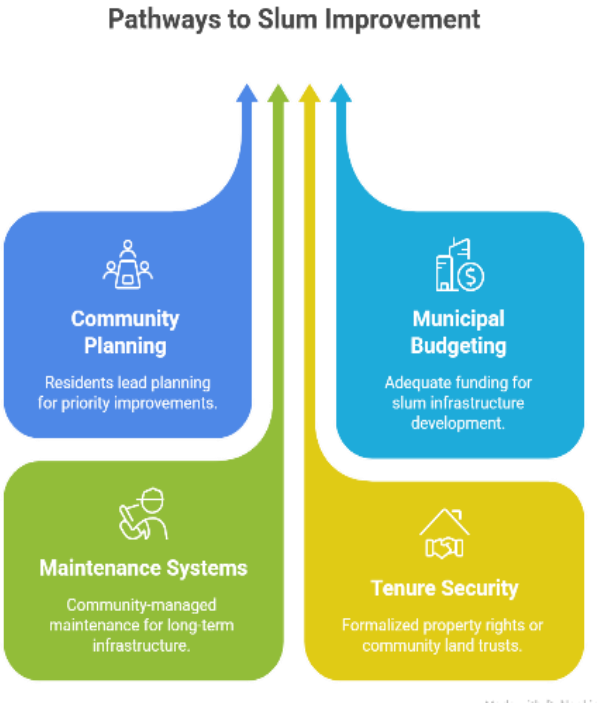
Synthesis: Policy Recommendations for Sustainable Slum Development

- **Integrated Land Use Planning with Slum Recognition**

The master plans and development control regulations of KMC must acknowledge slums not as aberrations to be eradicated but as existing components of the city fabric requiring infrastructure. These and other recommendations are: comprehensive slum mapping and legalization; an explicit reservation of 15 to 20% of new residential layouts for the poor to discourage segregation; creation of mixed-income communities to promote social cohesion; and concentrating transit-oriented development in public transit corridors.

- **In-Situ Upgrading with Community Leadership**

Instead of disruptive relocation, the government should prioritize in-situ slum upgrading with infrastructure improvements. This necessitates:



- Community-led planning, with government facilitating
- resident-determined improvements.
- Adequate municipal budgeting (15–20% of civic expenditure) for slum infrastructure.
- Maintenance systems supporting community management of installed infrastructure.
- Tenure security via formal property rights or collective land trusts.

- **Livelihood Integration and Economic Inclusion**

Infrastructure alone is insufficient; sustainable slum improvement requires livelihood enhancement. Recommended actions include:

- Targeted skill training linked to actual labor demands (coaching institutes, construction, hospitality, retail);
- Microfinance and group-based livelihood organizations that build on existing informal economic structures;
- Support for formalization where applicable (for example, certification of street vendors, organized groups of construction workers);
- Inclusive education programs ensuring slum children have school access, reducing intergenerational poverty;
- Healthcare provision through mobile clinics and community health worker training.

- **Environmental Integration and Ecological Restoration**

Slum upgrading in tandem with environmental rehabilitation needs to be managed on several fronts. Some main approaches are: the resettlement of riverfront slums in conjunction with the flow restoration of the Chambal River; the installation of green infrastructure including community-scale wastewater treatment gardens and stormwater management practices within slum neighborhoods; the reduction in reliance on vehicles by increasing the availability of public transit; the improvement of water security through rainwater harvesting and groundwater recharge; and the protection of farmland by restricting non-essential conversion.

- **Institutional Coordination and Democratic Governance**

Good slum governance under a model of e-governance and decentralized governance involves Unified Slum Governance Authority (USGA) at city level shall coordinate with the municipality, the development authority, the housing board and civil authorities. Key reforms would be compulsory

democratic representation of slum dwellers on planning and monitoring bodies; open and transparent beneficiary selection mechanisms that discourage elite capture; and institutionalized community audits (annual) of infrastructure and monitoring accountability. Building up the capacity of local municipal officers dealing directly with slum dwellers would also be key for success in implementation.

Conclusion

The transformation of Kota city between 1991 and 2021 exemplifies the urbanization patterns emerging in secondary Indian cities, characterized by rapid growth driven by specific economic specialization, notably the education hub phenomenon. This transformation has resulted in uneven spatial development, creating geographic inequality, and the emergence of slum settlements as affordable housing reserves for migrant workers providing low-wage labor. The 1,227% expansion of built-up areas and the 78.1% decline in agricultural land are unprecedented in pace, reshaping the city's ecology and social geography. Concurrently, the increase in the slum population from 12.3% to 35.2% reflects not a policy failure but an institutional inadequacy: the formal housing market has not accommodated rapid migration, governance systems have not regulated informal land use, and development policies have not integrated environmental sustainability with poverty reduction.

This paper documents the spatial distribution, demographic characteristics, and living conditions of Kota's slums, situating them within the broader land use transformation. The research reveals that slums are not temporary phenomena to be eliminated but are consolidated communities that serve essential economic functions and deserve recognition, investment, and upgrading support. Furthermore, slum upgrading cannot succeed through housing schemes alone; it requires integrated approaches combining housing, livelihood support, infrastructure development, environmental restoration, and democratic governance. For Kota to achieve sustainable and inclusive development—where the education hub economy offers genuine opportunity rather than merely reproducing inequality—slum residents must transition from informal, precarious settlements to recognized community members with secure tenure, livelihood opportunities, and a voice in city planning.

The research contributes to broader understandings of urbanization in India's secondary cities and offers evidence-based pathways for other education hubs, manufacturing centers, and service-sector cities facing similar challenges. By treating slums not as problems to solve through demolition but as communities to develop through sustained, respectful engagement, cities can build the inclusive, sustainable urban futures that India's rapid urbanization demands.

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