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Impact of Labour Influx on Urban Sprawl in Agra City since 1991

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Abstract

Since 1991, Agra has experienced rapid population growth and outward expansion driven by labour in-migration linked to the footwear/leather complex, construction and tourism services, and connectivity improvements (notably the Agra–Lucknow and Yamuna expressways). The city's built-up footprint has sprawled into peri-urban villages while dense worker housing clusters and slum settlements have proliferated within the municipal area. Synthesising Census data (1991–2011), cluster diagnostics, master-plan materials, and remote-sensing studies, this paper traces the channels through which labour influx has shaped Agra's spatial form, infrastructure pressures, and environmental risks, and proposes policy responses for inclusive, compact, and productive growth.

Key words: Population growth, Urban sprawl, Labour influx, Build up area

1. Introduction

Agra—global tourism magnet and one of India's largest footwear hubs—has undergone a three-decade transition from a compact core anchored by heritage assets to a polycentric city with expanding peripheral settlements. This period coincides with India's liberalisation (post-1991), MSME dynamism in leather/footwear value chains, and major expressway investments that lowered travel times and widened labour-shed catchments. We examine how labour influx (both inter- and intra-district migration) has contributed to Agra's urban sprawl, using demographic, sectoral, and spatial evidence.

Study Area

Situated in the extreme southwest corner of Uttar Pradesh, Agra stretches across 26° 44' N to 27° 25' N and 77° 26' E to 78° 32' E. Its borders touch Rajasthan to its west and south, the district of Firozabad to its East and the districts of Mathura and Etah to its North. The Area of the Study will be Agra city of Uttar Pradesh to examine the impact of population growth on urban sprawl from 1991 to 2011. Agra is situated on the bank of Yamuna River of Uttar Pradesh, India. Agra is 206 KM south of Delhi. Agra is 4th largest city of Uttar Pradesh and 23rd of India with population 15,85,704 with literacy rate of around 70% (according to 2011 Census). The total area of Agra is 4,041 sq. Km (3,793.04 sq. Km Rural area and 247.96 sq. Km Urban area). It has semi-arid climate continental type of climate with low monsoonal rains. The study area which is a uniform upland falls in the doab of Yamuna and Utangan rivers. Ravine land along the Yamuna & Utangan river is a common feature of this study area making the land unsuitable for agriculture. Loamy soil is predominant in this area.

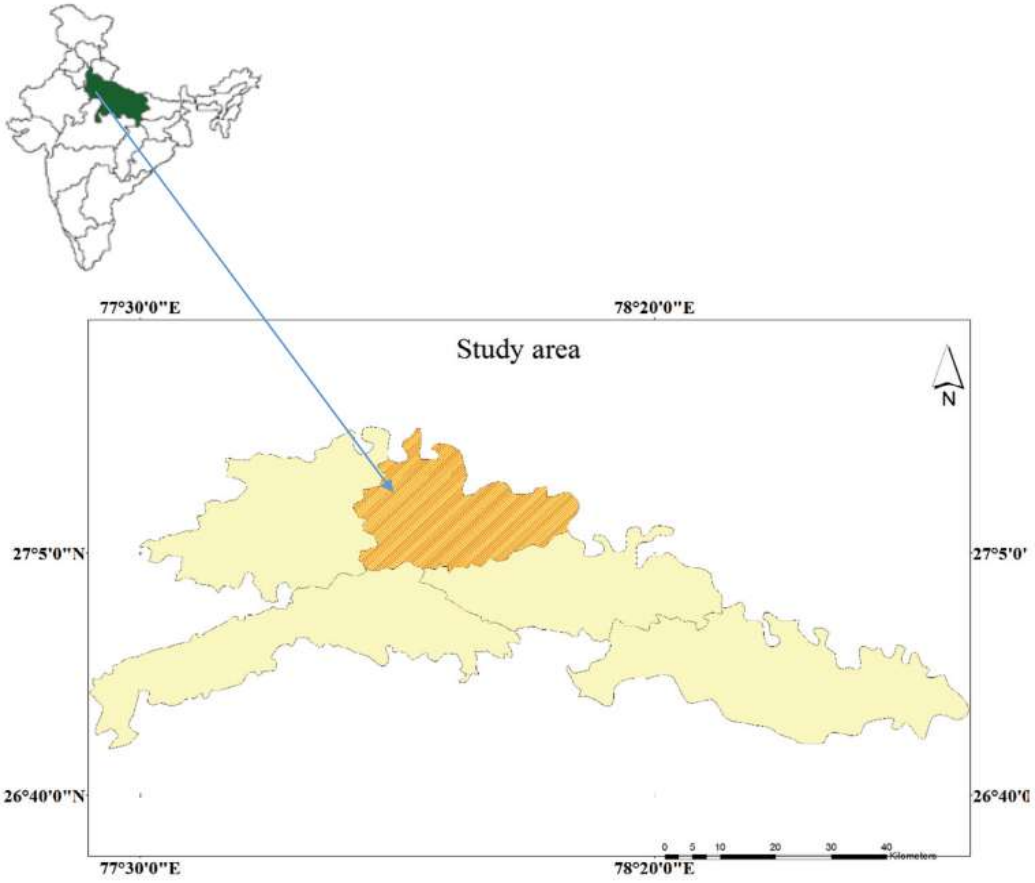

Figure 1. Map of Agra City Source- Nagar Nigam, Agra

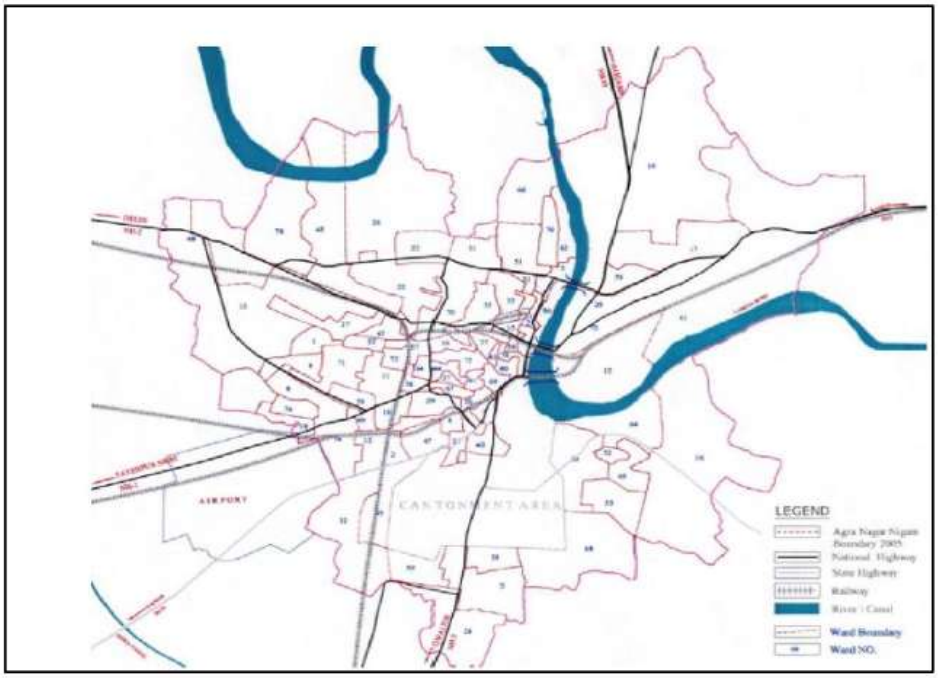

Figure 2. Map of Agra City with Wards (Total 80) Source- Nagar Nigam, Agra

3. Data & Methods

- Demographic baselines: Census of India (1991, 2001, 2011) for city, UA, and district counts; D-series migration tables for Uttar Pradesh trends; slum tallies from urban datasets.

- Sector & labour demand: MSME/cluster diagnostics for the Agra footwear cluster; policy briefs and industry notes.
- Planning & land use: Agra Master Plan 2021 and related official material; ward/corridor design reports.
- Spatial growth evidence: Remote-sensing/RS-GIS studies on Agra's built-up expansion and land surface changes (1991–2020).

4. Agra's Demographic & Spatial Trajectory Since 1991

4.1 Population growth and urban form

Agra, located in Western Uttar Pradesh, has population 1585704 as per the 2011 census. Agra population consists of 53% male and 47% female residents. Agra city has a literacy ratio of 75.11%, which is above the national average of 74%. Agra city crossed a million mark reaching 1275,134 in 2001. During 1991–2001 the highest ever urban demographic growth rate was recorded at 42.98%. Agra underwent rapid urbanization while aiming to taping into a tourism economy. City's population reached 1585,704 in year 2011 and decadal growth showed signs severe decline being at 24.35%. Agra Cantonment Board's population has 49,755 in 1991 to 50,968 in 2001 and to 53,053 in 2011. The estimated population of Agra Urban Area for 2022 is 1902, 000 and city is expected to have a population growth rate of over 19.95% during 2011–2021.

Table 1.

Year	Population	Decadal Growth
1991	891790	-
2001	1275134	42.99%
2011	1585704	24.4%

Source: Agra Municipal Corporation

Peripheral urbanisation: Between 1991 and 2011, several surrounding settlements were designated census towns or upgraded, indicating suburbanisation (e.g., Dhanauli, Dehtora, Deoretha). This reflects diffusion of population/jobs into the fringe.

Built-up expansion: RS-GIS studies detect substantial increase in built-up area from the early 1990s through 2020, with notable conversion along Fatehabad Road, Shamshabad Road, Sikandra corridor, and industrial belts; surface temperature patterns indicate intensified urban heat islands consistent with densifying and sprawling fabric.

4.2 Conceptual Framing:

Labour Influx → Housing & Land Markets → Sprawl

Urban sprawl is the low-density, discontinuous expansion of built-up areas into fringe zones. In labour-absorbing cities, employment booms attract migrants faster than formal housing supply can respond, pushing workers into (a) inner-city informal settlements near jobs and (b) peripheral colonies where land is cheaper but infrastructure is thin. In Agra, this mechanism is intensified by:

- Industrial clustering (footwear/leather components) that locates along arterial corridors and brownfield pockets;
- Tourism services concentrated around the Taj-East/West gates and Fatehabad Road; and
- Expressway-led accessibility that makes longer commutes feasible and enables conversion of agricultural land at the edge.

General profile of the Labour Posts in Agra

Table 2

S.No	Name & address of the Labour post	Name of the Ward	Age of the post (in Yrs)	Estimated Number of workers Male	Female
1	Water works Chauraha, Baleshwar Road, Agra	Trans Yamuna	2	30	0
2	Shahganj Chowk, Shahi Market, Agra	Shahganj	40	435	15
3	Paschimpuri, In front of Water Tank, Kargil Petrol Pump, Agra	Sikandra	10	200	20
4	Eent Mandi, Hema Petrol Pump, Bodalapur, Agra	Bodla	20	500	0
5	Eent Mandi, Gadhi Jcewan Ram, Tedhibagiya, Agra	Gadhi Jcewan Ram	1	200	0
6	Chamarouli Police Chowki, 125 futa, Shamsabad Road, Kalal Kheriya	Barouli Ahir	12	60	0
7	Fatehabad Road	Barouli Ahir	5	150	0
8	Bio Vihar, Vichpuri Road, Bodala	Etmadpur	8	80	0
9	Rambag Chauraha Under bridge, Agra	Trans Yamuna	1	35	0
10	Sanjay Palace, Near Nagar Nigam office	Vazirpura	1	30	0
11	Kamla Nagar, Near Water tank, Baleshwar Road Agra	Kamala Nagar	20	400	50
12	Noulakkha Sadar market, Near Chhawani, Agra	Chhawani Agra	70	495	5
13	Shahadra Chungi, Near Bajrang Petrol Pump	Narayanpur	2	70	0
14	Belanganj Chauraha, Near Jain temple, Agra	Belanganj	50	250	0
15	Loha Mandi Chauraha, in front of Water Tanki Agra	Lohamandi	20	190	10
16	Fuhara Chowk, Kotwali, Kinari Bazar, Agra	Kinari Market	40	330	20
17	Sankargarh ki puliya, Near gol chhakar Agra	Kedarnagar	15	210	15

18	Rajpur Chungi, Near Allahabad Bank Shamsabad Road, Agra	Rajapur Chungi	30	395	5

Total: Male – 4060 | Female – 140

5. Labour Influx: Scale, Sectors, and Drivers

5.1 Migration context

While district-level 2011 migration micro-tables are limited in public release, state-level D-series evidence shows rising within-district and inter-state migration during 1991–2011, with work/employment and marriage as dominant reasons. Uttar Pradesh both sends and receives large migrant flows, and substantial intra-district movements (rural→urban) feed cities like Agra.

5.2 Industrial pull: the footwear/leather complex

Agra hosts ~5,500–6,500 footwear units employing >100,000 workers, spanning household, small workshops, and medium manufacturing, supported by component and tool-room ecosystems. This cluster has been a consistent magnet for semi-skilled and skilled labour from within UP and neighbouring states.

Recent policy thrusts (UP 2025 footwear & leather policy) aim to expand the sector and worker housing/support infrastructure, implying sustained or higher labour demand spilling into Agra's labour market.

5.3 Services & tourism pull

Expressway connectivity (Agra–Lucknow; Yamuna Expressway) has boosted tourism and hospitality services, widening employment in hotels, restaurants, transport, guides, and retail. Studies find significant positive impacts of expressways on tourism outcomes in Agra.

6. Channels Linking Labour Influx to Urban Sprawl in Agra

- Proximity Housing near Job Nodes:
  Clusters in Sikandra, Shahganj, Hing ki Mandi, and Fatehabad/Shamshabad corridors host worker rentals and dorm-style housing, often informal/sub-standard, to minimise commute and match low wages. High slum shares near Tajganj exemplify pressure in service-rich precincts.
- Peripheral Colonies & Informal Subdivisions:
  Migrants priced out of the core pivot to layouts beyond AMC boundaries where agricultural land is subdivided into small plots with incremental self-build housing. The surge in census towns and growth in UA population relative to AMC counts reflect this outward push.
- Corridor-led Sprawl:
  Expressways and arterial improvements lower generalised travel costs, making longer commutes acceptable. Land along expressway feeders (e.g., Fatehabad Road redesign area) witnesses conversion and ribbon development, facilitating leapfrog growth.
- Industrial Land & Ancillaries:
  As the footwear ecosystem expands, ancillary units, warehouses, and logistics yards seek cheaper peripheral parcels with truck access, reinforcing low-density edge growth patterns. Cluster diagnostics and state policy trajectories suggest further decentralised footprints unless guided by zoning and serviced industrial land.

7. Impacts

7.1 Infrastructure & Service Pressure

High migrant inflows stress water supply, sanitation, waste management, and transit, especially in high-density inner wards and unserviced peripheral colonies. Master plan materials and slum plans flag deficits in trunk and last-mile infrastructure provision.

7.2 Environmental Externalities

RS-GIS evidence of rising land surface temperature correlates with increased impervious surfaces and tree cover loss; peri-urban conversion raises flood and heat risks. Industrial clusters add air/water stress without adequate common effluent and waste systems.

7.3 Labour Market & Social Outcomes

Employment multipliers from footwear/tourism raise household incomes but informality dominates, with precarious housing and limited social protection for migrant workers. Concentration near heritage areas creates image and congestion trade-offs for tourism competitiveness.

8. Limitations & Further Research

The 2011 Census is the latest full release; India's 2021 Census is pending, limiting post-2011 quantification. Labour influx since 2011 must be inferred from sector trends, policy, and infrastructure openings (expressways). Ward-level migration microdata for Agra are limited in the public domain; future work should triangulate household surveys, mobile phone mobility data, and Landsat/Sentinel LULC to measure post-2011 sprawl and commuting patterns.

9.Conclusion

Agra's labour-absorbing growth model—anchored by footwear manufacturing and tourism—has clearly shaped its urban sprawl since 1991. Migrant workers have powered the city's economic expansion, but inadequate planning for rental housing, trunk infrastructure, and peri-urban governance has converted much of that demographic dividend into spatial inefficiency and environmental risk. With targeted worker housing, plan-led expansion, cluster consolidation, and transit prioritisation, Agra can convert labour influx from a driver of sprawl into a catalyst for compact, inclusive productivity.

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