



The Smart City Paradox: Gentrification and Displacement of the Adivasi Community - The study on Ranchi, Jharkhand

Stuti Priya Minz^{1*}, Dr. Khudrakpam Moirangleima²

^{1*}Department of Earth Sciences (Geography), Banasthali Vidyapith, Tonk Newai, Jaipur, Rajasthan.

Email id: Stutiminz7@gmail.com

²Researcher

Email id: mkhudrakpam@banasthali.in

^{1*}Corresponding Author: Stuti Priya Minz.

Abstract

The study examines the socio-spatial implications of Smart City investments in Ranchi, Jharkhand, a tribal-majority capital city undergoing rapid urban transformation. Drawing on the theoretical frameworks of smart urbanism and state-led gentrification, the research investigates whether infrastructure-led modernization reshapes land markets, demographic composition, and housing affordability. A ward-level longitudinal panel design is employed to analyse changes in infrastructure access, rent levels, land values, Tribal population share, and inclusion outcomes. The findings indicate significant improvements in service delivery, digital penetration, and overall infrastructure performance across wards. However, these gains coincide with rising rents and land price appreciation, contributing to measurable affordability pressures. Smart investment intensity is positively associated with market escalation; governance and inclusion-oriented policy mechanisms significantly influence distributional outcomes. The results suggest that urban modernization in Ranchi reflects a dual dynamic: infrastructure expansion enhances service access, and market-driven restructuring generates affordability tensions. Importantly, demographic concentration of tribal populations does not independently determine inclusion performance, underscoring the mediating role of institutional frameworks. The study contributes to debates on the “smart city paradox” by demonstrating that equitable urban transformation in indigenous contexts depends not only on investment intensity but also on governance responsiveness and regulatory safeguards.

Keywords: Smart urbanism, State-led gentrification, Indigenous urbanism, Housing affordability Ranchi.

1. Introduction

India's Smart Cities Mission (SCM), launched in 2015, represents a transformative model of state-led urban restructuring aimed at improving infrastructure, governance efficiency, and economic competitiveness (Harihar, 2020). The SCM is presented as a citizen-centric project, which facilitates the development of areas, digital governance, sustainable mobility, and integrated systems of infrastructure. Smart urbanism involves not only technological modernization but also a more profound reorganization of urban space and political economy. According to researchers, smart city strategies tend to reorganize the land markets, further develop real estate, and transform the governance regimes beyond service provision (Verrest and Pfeffer, 2019). These changes in an urban context may dramatically change the socio-spatial dynamics in emerging urban areas, especially in places where historically marginalized populations live.

Ranchi, the capital of Jharkhand, and this city is a good example to study these processes. Being an area of the Fifth Schedule and having a large Tribal population, Ranchi plays a special role in the Indian movement of urbanization. Socio-economic and cultural displacement has occurred for decades in Jharkhand as a result of industrialization, extractive forms of development, and state-imposed modernization (Pingali, 2022). Ranchi has experienced both economic possibilities and growth of



infrastructure because of urbanisation but has also accelerated land commodification and space restructuring (Hoda and Bansal, 2018). Introduction of smart city interventions is yet another dimension to this change as it will speed up investments in infrastructure and restructure land use in the urban context.

The international literature proves that urban intensification and infrastructural upgrading often result in land value increase and redevelopment forces (Sorensen, 2024). In most situations, these processes have been linked to increased rents, reorganization of the housing market and affordability. Displacement and inequitable development have been attributed to smart city projects in India, especially in fast changing urban neighborhoods (Dutta and Bhagat, 2018). These dynamics present major concerns on how intelligent urban policies intersect local socio-cultural settings, particularly in urban areas where a sizeable presence of indigenous people.

Smart urbanism is not only about digital technologies but also includes the reform of the city administration, redesigning the space, and repositioning the city in competitive global networks (Verrest and Pfeffer, 2019). In the meantime, the versions of gentrification led by the state are characterized by the active involvement of the governments in promoting redevelopment by increasing infrastructure, changing zoning regulations, and valuing land (López -Morales et al., 2023). The experiences of Latin America, China, and other countries show that the public institutions in most cases can be a powerful force behind the urban change, transforming the neighborhoods as the policy-driven redevelopment instead of the market-driven one (Can et al., 2024; He, 2019).

Ranchi especially applies considering that tribal land has constitutional safeguards and that it evolves its urban economy. According to Xaxa (2021), the concept of urban development in territories where most of the population is tribal has to be interpreted in terms of the historical land control and social-cultural identity. The process of urban restructuring in such a case can have not only a housing market but a demographic trend, livelihood structure and community cohesion. Moreover, the vulnerability of indigenous urban areas has multiple dimensions and includes economic, environmental, and cultural aspects (Nurse-Bray et al., 2022). With the process of infrastructural modernization of the city of Ranchi, it is important to question whether these developments contribute to the inclusive development of the city or create spatial inequality. Ranchi has experienced significant transformations in its public spaces as part of broader sustainability-oriented urban restructuring (Raipat, 2016).

Urban transformation does not inevitably produce exclusion. Legal and governance frameworks can mediate redevelopment outcomes and promote inclusive growth (Mc Cawley, 2019). According to evidence obtained in Ranchi, marginalized communities could be assisted in obtaining services and urban resources with the help of collaborative planning efforts and resilience-driven governance (Mohan, 2023). Besides, recent geospatial studies in the population density and resource pressures of Ranchi show that the growth of this urban area should be adjusted to the idea of sustainable planning (Das and Hosen, 2025). Such views emphasize the need to conduct empirical research than normative assumptions on smart urban development.

The increasing theoretical discourses about state-based gentrification and smart urbanism, scanty quantitative evidence such as new meeting new ST population influx, infrastructural access, and rent increases, and housing affordability is present in terms of quantification of investments in smart cities. The literature in Jharkhand is mainly devoted to the socio-cultural displacement or macro-level urbanization patterns (Pingali, 2022; Hoda and Bansal, 2018), whereas quantitative evaluations on the ward-level change remain limited. This gap needs to be filled in order to comprehend the way in which smart city projects engage with local urban realities.

The urban transformation of Ranchi to study the connection between the growth of smart infrastructure and demographic makeup, dynamics of land values, and affordability of housing. The study, which combines the knowledge of smart urbanism, state-led gentrification theory, and indigenous urban studies, adds to a more sophisticated perspective of the so-called smart city paradox in a tribal-majority capital city that is rapidly modernizing (Figure 1).

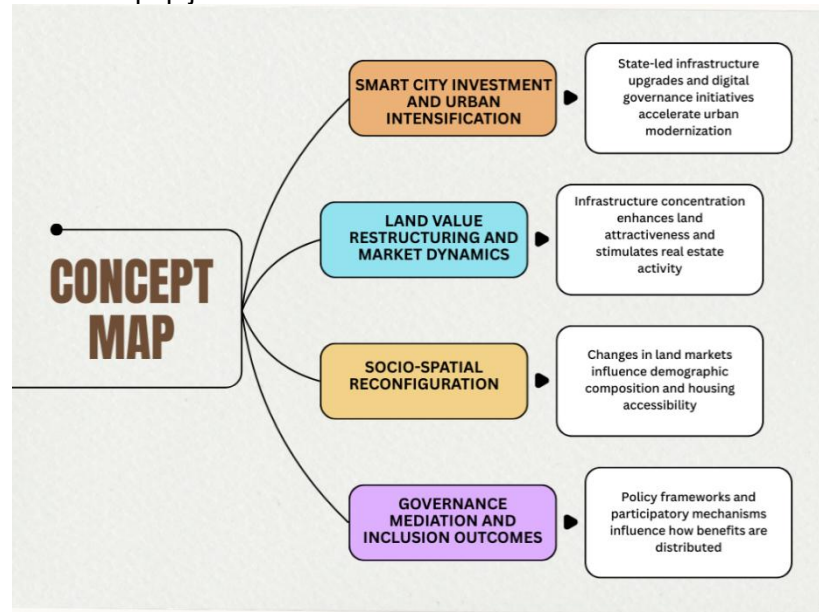


Figure 1: Conceptual Framework of Smart Urban Transformation and Socio-Spatial Dynamics in Ranchi

The concept map illustrates the sequential relationship between smart city investments, land value restructuring, socio-spatial transformation, and governance mediation. It highlights how infrastructure-led urban intensification shapes market dynamics and demographic patterns, ultimately influencing inclusion and affordability outcomes.

Research Objectives

1. To assess the impact of Smart City investments on ward-level infrastructure development in Ranchi
2. To examine the relationship between smart urban intensification and changes in tribal demographic distribution, land values, and housing affordability
3. To evaluate whether inclusion-oriented governance moderates the socio-spatial effects of smart city development

Research Questions

1. How have Smart City investments influenced ward-level infrastructure development in Ranchi?
2. What is the relationship between smart urban intensification and changes in tribal demographic distribution, land values, and housing affordability?
3. To what extent does inclusion-oriented governance moderate the socio-spatial effects of smart city development?

2. Methodology

2.1 Research Design

This study employs a quantitative longitudinal design that will analyze the socio-spatial impacts of the Smart City interventions in Ranchi, Jharkhand. A ward-level panel structure is embraced to identify the dynamics in infrastructure development, population structure, land value, and affordability of a house over time. Longitudinal approach enables the evaluation of structural relationships among smart urban investments and socio-economic outcomes as opposed to cross-sectional comparison.

2.2 Study Area and Unit of Analysis

The research is centered on Ranchi, the capital of Jharkhand that is a part of a Fifth Schedule region and has a large number of Tribal populations. The case of Ranchi, according to the choice made under the

Smart Cities Mission, renders the city suitable in analyzing the state-led transformation of urban planning in tribal-majority situation. The award is the unit of analysis, since wards are the smallest administrative unit at which the demographic, infrastructural, and land market changes can be thoroughly analyzed.



2.3 Data Sources and Variables

The study uses a ward-level panel dataset across four benchmark years: 2011 (pre-Smart City baseline), 2016 (early implementation phase), 2021 (mid-phase evaluation), and 2025 (post-implementation assessment). The final balanced panel consists of 80 ward-year observations (20 wards $\times$ 4 time points). The data source is secondary indicators which are usually found in the Census of India, the National Data and Analytics Platform (NDAP), Smart Cities Mission reports and municipal books. Infrastructure access indicators (water, sanitation, electricity, and internet), coverage of transportation, use of e-governance, average rent, price per square foot of land, tribal population share at the ward level, and the rate of work participation are all variables. Intensity Score: A Smart Intensity Score is used to evaluate the exposure to smart city investments, and Inclusion Policy Factor is used to evaluate the responsiveness of governance.

2.4 Operationalization of Key Constructs

Smart urban intensification is modeled by a normalized Smart Intensity Score of the relative concentration of infrastructure development and restructuring per ward. The pressure of gentrification is determined based on alterations in the average rent, land price, and a Housing Affordability Index. Tribal population share and its temporal change are used as indicators of assessing the indigenous demographic dynamics.

2.5 Analytical Strategy

The analysis was conducted in three steps. To analyse the temporal trends by wards, first, the descriptive statistics and the calculation of growth rates are employed. Second, Pearson correlation test determines relationships between smart intensity, land value developments, demographic developments, and inclusion results. Third, to assess the impact of smart urban intensification on inclusion and affordability, the panel regression models are estimated with the contributions of demographic and economic factors. The specifications are used to specify the fixed-effects in order to adjust the unobserved heterogeneity of wards, and the robustness checks are performed to test the validity of the model.

3. Results

3.1 Descriptive Analysis

Table 1 presents the descriptive statistics of key infrastructure, housing, and inclusion variables across 20 wards over four benchmark years (Figure 2).

Table 1. Descriptive Statistics (N = 80 Ward-Year Observations)

Variable	Mean	Std. Dev	Minimum	Maximum
Water Access (%)	72.85	20.03	17.6	100.0
Toilet Access (%)	64.09	23.76	8.2	100.0
Internet Access (%)	33.29	20.60	0.8	77.1
Housing Affordability Index	62.46	5.94	49.1	76.5
Inclusion Index	63.37	14.01	33.7	89.3



Infrastructure indicators indicate a wide range of difference between wards as illustrated in Table 1. The water access is at 72.85 on average with the internet access recording high growth with a peak of 77.1. The Inclusion Index documents an average of 63.37 which means a mediocre overall performance in terms of inclusion. But there are discrepancies in the housing affordability, which implies that market pressure is not evenly distributed on the wards.

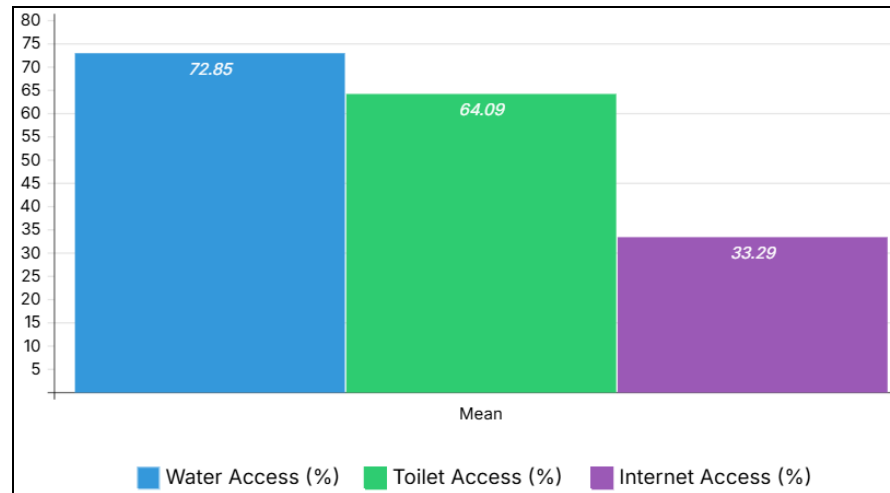


Figure 2: Infrastructure Access Improvements Across Smart City Wards in Ranchi

The figure illustrates mean ward-level access to essential urban services. Water access (72.85%) leads, followed by sanitation (64.09%), while internet access (33.29%) remains comparatively lower, highlighting uneven but progressive infrastructure expansion under smart city development.

3.2 Correlation Analysis

Table 2 reports Pearson correlation coefficients among smart intensity, housing market indicators, affordability, and inclusion outcomes.

Table 2. Correlation Matrix

Variable	Smart Intensity	Avg Rent	Land Price	Affordability	Inclusion
Smart Intensity	1.000	0.176	0.195	-0.087	0.101
Avg Rent	0.176	1.000	0.039	-0.826	0.361
Land Price	0.195	0.039	1.000	0.005	0.255
Affordability	-0.087	-0.826	0.005	1.000	-0.309
Inclusion	0.101	0.361	0.255	-0.309	1.000

Table 2 shows that smart intensity has positively correlated with rent ($r = 0.176$) and land price ($r = 0.195$), implying that the greater the investment exposure, the higher is the price of the property. It is seen that average rent has a negative association with housing affordability ($r = -0.826$) which establishes the



3.3 Panel Regression

Ward fixed-effects regression model was estimated to determine the determinants of inclusion outcomes. The model describes the variation in the Inclusion Index ($R^2 = 0.861$) as 86.1 percent, which is a high explanatory power.

Table 3. Fixed-Effects Regression

Variable	Coefficient	Std. Error	t-Statistic	p-Value
Smart Intensity	-8.081	9.349	-0.864	0.391
Inclusion Policy Factor	-6.944	2.926	-2.373	0.021
Average Rent	0.0172	0.0011	15.412	0.000
ST Share (%)	-1.109	0.911	-1.218	0.228

Note: Ward fixed effects included. $R^2 = 0.861$. *** $p < 0.01$, ** $p < 0.05$

The fixed-effects regression results indicate that Smart Intensity is not statistically significant ($p = 0.391$), suggesting that investment exposure alone does not independently determine inclusion outcomes once ward-level heterogeneity and market variables are controlled for. The Inclusion Policy Factor is statistically significant ($p = 0.021$) with a negative coefficient. Since the variable is coded such that higher values indicate weaker governance responsiveness, the negative sign implies that stronger institutional frameworks are associated with higher inclusion performance. These findings suggest that governance mediation, rather than infrastructure intensity per se, plays a decisive role in shaping equitable socio-spatial outcomes.

4. Discussion

The results of this paper demonstrate an orderly co-existence of infrastructure development and market intensification in the smart urban transformation in Ranchi. The empirical findings prove that wards that have elevated the smart investment exposure level achieve observable gains in service provision, digital coverage, and city infrastructural performance. Meanwhile, these wards are characterized by the improvement of rents and rising land prices which have a negative impact on the affordability of the housing. The two-sided dynamics justify what can be called the paradox of smart cities: the process of modernization is accompanied by the global forces of the market that has the potential to transform the socio-spatial setups.

The positive correlation between rents and inclusion results and the level of rent indicates that the upgrading of infrastructure is spatially clustered in the wards with high values. This trend is consistent with the literature on the gentrification of states, which underlines that the process of land valorization is often initiated and promoted by the state (López-Morales et al., 2023; He, 2019). City regeneration, especially within the context of smart cities, can be hardly considered neutral; it reorganizes economic space and increases its locational power. The results can be associated with comparative studies that state institutions often become agents of spatial restructuring due to the development based on infrastructure (Can et al., 2024).



Nevertheless, the insignificance of smart intensity to the regression model suggests that investment exposure in itself is not the determinant of outcomes of inclusion when, against ward-specific characteristics, investment exposure is considered. This implies that contextual factors including governance structures and regulatory framework mediate urban transformation. In this respect, the point of inclusion policy factor explains the importance of institutional design in determining social-spatial outcomes. The negative distributional impacts can be countered by legal and planning frameworks, based on the models of housing regimes and inclusive urban governance (Mc Cawley, 2019).

The great adverse correlation between rent and housing affordability is an affirmation that market-based intensification is a fruitful structural outcome of urban intensification. The processes of urban land valorization are highly reported in both Global North and Global South areas where infrastructure growth boosts property values and reforms tenure systems (Sorensen, 2024). The pressures are of special importance in Ranchi, where the native land systems coexist with the developing real estate markets. Historical patterns of socio-economic and cultural displacement during the industrial and urban expansion had been continuously recorded in Jharkhand (Pingali, 2022). Although the current results do not explicitly quantify the displacement events, the decrease in the affordability of the high-intensity wards may denote structural precursors that may lead to the demographic rebalancing in the long run.

The demographic findings, especially the non-significant influence of ST share in explaining variation in inclusion, indicate that native population concentration does not necessarily imply poor structure operation. This observation makes an easy assumption that tribal-majority wards are systematically marginalized in the enjoyment of modernization sound very complicated. Rather, the findings show that there are differentiated spatial impacts mediated by the intensity of investment and governance. This conforms to postulations that the urbanization of tribal areas should be viewed as a layered institutional and political context as opposed to deterministic schemes of exclusion (Xaxa, 2021).

In the framework of Indigenous urbanism, the findings can be added to the emerging theoretical discussions that require a reformulation of indigenous presence in the city. According to Dorries (2023), Indigenous urban theory should no longer rely on the narratives of marginality to acknowledge active engagement in urban change. On the same note, Hosagrahar (2012) stresses that indigenous modernities are a matter of negotiation and not outright resisting urban change. The changing spatial environment of Ranchi depicts this negotiation: infrastructural modernization does not necessarily wipe off the indigenous identity but cuts across the historically predetermined practices of place-making. Place and space in Ranchi are also considered through philosophical thought, and it also highlights the fact that urban transformation is sponsored by geographical imaginaries which are deeply rooted.

Simultaneously, the housing affordability results suggest that urban citizenship and belonging is still a materially structured property regime. The literature of gentrification always records how the costs increase to restrict the access of minorities to the improved urban space (Hosanagar, 2023). The effect of the architectural and spatial redesign processes can be the inadvertent marginalization of the traditional settlement and cultural expression (Gupta, 2024). In this respect, the decrease in affordability observed in the wards with higher rent can be the indication of a slow transformation of socio-cultural landscapes.

These dynamics are also put in the context of environmental and land-use transitions. Land-use and land-cover change studies at Ranchi reveal that there is a remarkable spatial reconfiguration in the context of urban growth (Ahmad et al., 2017). According to recent evaluations of the ecological transformation in cities, changes in plant community composition were observed to be measurable along the urbanization gradients (Ekka & Saikia, 2025). The quality of groundwater measurements also indicates that there is environmental stressor associated with urbanization (Mishra and Lal, 2023). These changes in the environment also coincide with modernization of infrastructure, which makes it clear that the development of smart cities should be considered not only in economic terms but also in ecological sustainability.

The general research on urban infrastructure standardization highlights that the smart city projects often focus on the efficiency, interoperability, and technological integration (Wang et al., 2022). Although this kind of standardization has the potential to improve service delivery, it will also standardize spatial



planning practices. The view presented by indigenous urbanism scholarship is that planning needs to be culturally responsive to support ethnocultural diversity (Nejad, 2018). The transformation of Ranchi therefore poses a normative question: is it possible to combine the technological modernization of the city and the cultural-based spatial practices?

The results indicate that the middle of the solution to this tension is through governance mediation. The inclusion policy factor is also important, which means that institutional responsiveness determines the effectiveness of the infrastructure expansion in producing equitable results. This is reminiscent of collaborative planning studies in urban settlements in Ranchi that prove the power of participative governance in supporting service resilience (Mohan, 2023). The implementation of smart city programs, however, cannot be viewed as necessarily non-exclusionary and necessarily not inclusionary; instead, the results of such projects rely on regulatory protection, land governing policies, and participatory planning frameworks.

Conceptually, the findings will add to a more sophisticated insight on the smart city paradox. As in other infrastructural fields, where innovation brings both benefits and threats at once (Luong, 2024), the urban reorganization in Ranchi demonstrates a twofold effect: on the one hand, the infrastructure benefits, on the other hand, the need to pay more, both of which are a part of the same spatial process. Market-based transformation does not necessarily exclude social growth but re-distributes it (Saenko, 2024). The empirical data reveals that the results of inclusion are on the increase with the increase in rents and this feature proves the fact that modernization and marketization are interdependent instead of each other.

The smart city project in Ranchi functions based on stratified interactions of modernization infrastructures, urban land appraisal, government mediation, and indigenous space bargaining. The findings are not biased towards a deterministic account of displacement and the blind worship of modernization. Instead, they disclose some elaborate tension inherent in state-initiated urban transformation within tribal-majority setting. To develop the theory of smart urbanism and Indigenous urban studies in the Global South, it is critical to understand this tension.

5. Conclusion

The paper discussed the socio-spatial consequences of Smart City investments in Ranchi in the context of ward-level longitudinal analysis and placed the results in the context of smart urbanism and state-led gentrification. These findings show that smart urban intensification has led to observable differences in the access to infrastructure, the provision of digital services, and general inclusion performance at wards. Meanwhile, these increases are coupled by an increment in rents and escalating value of land, which put a strain on affordability of housing. The concomitant presence of modernization gains and market runaway are indicative of a planned smart city paradox, a unidimensional phenomenon. Governance mediation and policy orientation emerge as more decisive determinants of inclusion outcomes than investment exposure alone. The results indicate that the infrastructural change in a capital city dominated by tribal groups does not necessarily produce the effect of demographic exclusion, as it creates the structural circumstances that can affect the affordability and spatial structure over time. The analysis will help to understand better urban transformation in the Global South, as it brings together both an empirical study with indigenous urban theory, and a focus on the theme that equitable smart development requires regulatory protection, participatory planning, and context-sensitive governance systems.



1. Ahmad, F., Goparaju, L., & Qayum, A. (2017). LULC analysis of urban spaces using Markov chain predictive model at Ranchi in India. *Spatial Information Research*, 25(3), 351-359.
2. Can, A., Jenss, A., & Fanton, H. (2024). State-led gentrification against the backdrop of urban authoritarian practices. *International Journal of Urban and Regional Research*, 48(4), 689-696.
3. Das, S. K., & Hosen, B. (2025). Spatial Dynamics of Population Density, Resource Pressure, and Groundwater Potential in Ranchi District, India: A Geospatial Framework for Sustainable Urban–Rural Planning. *JOURNAL OF ADVANCE AND FUTURE RESEARCH*, 3(10), 108-124.
4. Dorries, H. (2023). Indigenous urbanism as an analytic: Towards Indigenous urban theory. *International Journal of Urban and Regional Research*, 47(1), 110-118.
5. Dutta, T., & Bhagat, R. B. (2018). Urban development, smart cities and displacement. In *India migration report 2017* (pp. 98-116). Routledge India.
6. Ekka, P., & Saikia, P. (2025). Urban footprints on flora: assessing plant community dynamics across an urbanization gradient in Ranchi, Eastern India. *Urban Ecosystems*, 28(5), 198.
7. GUPTA, A. (2024). Design Dilemma: The Social Impact of Gentrification on Architectural Diversity. *INTERANTIONAL JOURNAL OF SCIENTIFIC RESEARCH IN ENGINEERING AND MANAGEMENT*, 08(05), 1–5.
8. Harihar, N. (2020). A critical analysis of the 100 Smart Cities Mission (2015-2020): implications for urban governance and planning in India.
9. He, S. (2019). Three waves of state-led gentrification in China. *Tijdschrift voor economische en sociale geografie*, 110(1), 26-34.
10. Hoda, N., & Bansal, T. (2018). Urbanisation and socio-economic transformation of tribal population of Ranchi.
11. Hosagrahar, J. (2012). *Indigenous modernities: negotiating architecture and urbanism*. Routledge.
12. Hosanagar, I. (2023). Gentrification and the Displacement of Minorities: Urban Citizenship. *Scholarly Review Journal, SR Online: Showcase*(Summer 2023 Pt 3).
13. López-Morales, E., Ruiz-Tagle, J., Santos Junior, O. A., Blanco, J., & Salinas Arreortua, L. (2023). State-led gentrification in three Latin American cities. *Journal of Urban Affairs*, 45(8), 1397-1417.
14. Luong, L. (2024). Innovating Smart Grid: A Utility Case Study of "Powering" Paradox. *Energy LJ*, 45, 307.
15. Mc Cawley, D. G. (2019). Law and Inclusive urban development: lessons from Chile's enabling markets housing policy regime. *The American journal of comparative law*, 67(3), 587-636.
16. Mishra, A., & Lal, B. (2023). Assessment of groundwater quality in Ranchi district, Jharkhand, India, using water evaluation indices and multivariate statistics. *Environmental Monitoring and Assessment*, 195(4).
17. Mohan, A. K. (2023). Contextualizing collaborative planning: Addressing water resilience in the urban poor settlements of Ranchi. *Planning Theory*, 22(4), 426-447.
18. Nejad, M. M. (2018). *City Planning, Design, and Programming for Indigenous Urbanism and Ethnocultural Diversity in Winnipeg* (Doctoral dissertation, University of Saskatchewan).
19. Nursey-Bray, M., Parsons, M., & Gienger, A. (2022). Urban nullius? Urban indigenous people and climate change. *Sustainability*, 14(17), 10830.
20. Pingali, G. (2022). The socio-economic, political, and cultural displacement of Adivasis: Implications of industrialisation, urbanisation, and gentrification in Jharkhand. *Journal of Adivasi and Indigenous Studies*, 12(1), 16-30.
21. Raipat, V. (2016). Re-imagining public spaces for sustainability: Ranchi, India. *Cities People Places: An International Journal on Urban Environments*, 1(2).
22. Saenko, V. (2024). Market-Driven Change and Social Development in Peripheral Rural Context.
23. Sorensen, A. (2024). Urban intensification and land value capture in Toronto: Conjunctural analysis, critical junctures, and developmental pathways in urban planning. *Environment and Planning A: Economy and Space*, 56(6), 1803-1819.



24. Verrest, H., & Pfeffer, K. (2019). Elaborating the urbanism in smart urbanism: distilling relevant dimensions for a comprehensive analysis of Smart City approaches. *Information, Communication & Society*, 22(9), 1328-1342.
25. Wang, J., Liu, C., Zhou, L., Xu, J., Wang, J., & Sang, Z. (2022). Progress of standardization of urban infrastructure in smart city. *Standards*, 2(3), 417-429.
26. Xaxa, A. (2021). Reimagining urban development in a tribal region: Readings on a fifth schedule area of India. In *Theorising Urban Development From the Global South* (pp. 81-99). Cham: Springer International Publishing.