
The Unyielding Current: Migration And Its Transformative Impact On Service Provision In Nepalgunj Sub-Metropolitan City

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Article Information : Received : June 10, 2025 Revised : June 21, 2025 Accepted : July 11, 2025

Abstract

This paper reports on an in-depth study of how migration issues are addressed in urban service delivery in Nepalgunj Sub-Metropolitan City (Nepalgunj-S). Situated on the India-Nepal border and the East-West Highway, Nepalgunj functions as a critical magnet for diverse migration streams, including internal Displacement from surrounding hill districts (e.g., Jajarkot, Rolpa, Surkhet, Dailekh), cross-border flows for labour, trade, and healthcare from neighbouring Indian districts (e.g., Bahraich, Gonda), return migration from Gulf countries and Malaysia, and Displacement due to environmental hazards like riverine flooding. The analysis highlights how rapid and continuous migration increases the strain on vital services, including water, sanitation, healthcare, education, housing, waste management, and transportation, by combining secondary data from academic literature, census records, and local reports. Key findings highlight critical strains, including overburdened water supplies and sanitation exclusion in informal settlements, overwhelmed public healthcare facilities compounded by medical tourism, overcrowded public schools alongside rising private sector demand, proliferating informal housing lacking tenure security, rampant illegal dumping and inadequate waste processing, and severe traffic congestion. The study concludes that conventional governance and planning approaches are insufficient. It makes a case for an inclusive, adaptive, and proactive urban governance that is firmly committed to the idea of migration and explicitly acknowledges it as the primary force that characterizes Nepalgunj's present and future, thus underscoring the need for integrated planning, fiscal innovation, and targeted infrastructure investment to build resilience and equity.

Keywords: Sub-Metropolitan, *strategic migration, Displacement, and traditional*

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ISSN : 2091-2161
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Published by Autar Dei Chaudharain Research Centre (ADCRC), Mahendra Multiple Campus, Nepalgunj, Banke

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1. Introduction

Based in Lumbini Province, Nepalgunj, a Sub-Metropolitan City (Nepalgunj-S), is the vibrant administrative and commercial centre of Banke District. It holds a central position within Nepal's urban landscape due to the unique Displacement That makes it so: its location right on the major East-West Mahendra Highway and its being the primary gateway on the porous border with India (directly connecting to Rupaidiha, Uttar Pradesh).

This geography makes Nepalgunj-S not just a regional displacement, but also a place alive with movement – a destination, a transit point, and a refuge for diverse populations.

The city has a very high population turnover, resulting from the powerful migration currents that flow through it.

Internal migrants flee poverty, a lack of opportunities, environmental fragility, and the lingering effects of conflict from remote hill districts in the Mid-Western and Far-Western regions. Simultaneously, the open border facilitates a constant, often undocumented, flow of daily wage labourers, small traders, and healthcare tourists from adjacent Indian districts seeking affordable medical services. Return migrants from arduous stints in the Gulf and Malaysia bring remittances but also complex reintegration and health needs. Furthermore, Nepalgunj-S frequently absorbs populations displaced suddenly by the devastating floods of the West Rapti and Babai rivers.

The influx is fundamentally changing the city's socio-economic and physical landscape. The rapid growth of urban areas and the resulting spatial expansion caused by migration have demonstrated that the provision of basic urban services, such as water, sanitation, healthcare, education, housing, waste management, and transportation, has not kept pace with the population explosion. The rapid growth in unplanned areas has made it difficult for public spaces to serve the people. They were initially designed for a smaller audience. There is, however, a significant gap in how services are distributed. This puts health at risk, widens social gaps, slows economic growth, and lowers the quality of life in cities. This article looks deep into these problems.

How the varying migration patterns are altering the infrastructure and governance dynamics of service provision in Nepalgunj-S.

By examining the specific pressures on each key service sector and the underlying governance and financial constraints, the study seeks to highlight the urgent need for a paradigm shift in urban management to address migration and create livable, sustainable cities.

1.1. Purpose of the Study

The objectives of this study are to: (i) systematically investigate the different effects of migration (internal, cross-border, return, and Displacement) on Nepalgunj-S's urban service provision

(ii) pinpoint infrastructure and governance problems that exacerbate service delivery gaps; and

- (iii) offer evidence-based policy frameworks for adaptable urban governance that leverage migration as a catalyst for equitable resilience.

1.2. Statement Of Problem

Nepalgunj has a big issue. Nepal's economic plan necessitates the relocation of a significant number of people, given its key border location. However, its rule setup cannot cope with the rapid city growth due to the influx of people. The arrival of people from hill districts, displaced medical tourists, Gulf returnees, and those displaced by climate change has led to an increase (approximately 250% since 2001). This big wave puts considerable pressure on old systems designed for far fewer people. We see problems with water, cleaning, healthcare, schools, and homes. If the people in charge do not adapt to the shift in population to cities as a key aspect of urban life, things will worsen. The gap between the rich and the poor will widen, health risks will increase, and economic growth will remain low.

2. Literature reviews

2. Migration Flows and Urban Dynamics.

2.1. Internal Migration:

This is a key reason for Nepalgunj-S's progress. “.

Push factors from source districts, such as Jajarkot, Rolpa, Rukum, Salyan, Dailekh, Surkhet, and Bardiya, are potent: entrenched poverty exacerbated by remoteness and rugged terrain, scarce non-agrarian livelihood options, limited access to quality education and healthcare, environmental degradation, and the enduring socio-economic impacts of the Maoist insurgency. Pull factors include the perceived abundance of job opportunities (formal and informal) in trade, transportation, construction, and services; access to larger markets; better educational institutions (including private colleges); more advanced healthcare facilities; and the allure of urban life. Migrants, often arriving with families seeking permanent settlement, predominantly cluster in burgeoning informal settlements (“sukumbasi basti”) on the urban periphery – areas like Kohalpur's fringes, Rajhena, New Road extensions, and corridors along the highway – where land is cheaper but basic infrastructure is absent or severely deficient.

2.2. Cross-Border Migration

The open border with India fosters a unique and highly fluid dynamic. Deep historical, cultural, linguistic, and familial ties facilitate constant movement. Daily commuting is a common practice, with Nepalis crossing the border for work or trade in India, and residents of Indian border districts (Bahraich, Gonda, Lakhimpur Kheri) entering Nepalgunj-S for employment, cheaper goods, or, significantly, healthcare. Facilities like Bheri Hospital are under tremendous strain as Nepalgunj-S has become a significant hub for “healthcare tourism,” when Indian

patients travel there in search of specialized, reasonably priced medical care that is either unavailable or excessively expensive in their own country. The city's importance as a transit hub for Nepali labour migrants travelling to Malaysia and the Gulf has increased demand for housing and services. The difficulties of a fluctuating population may severely hamper accurate population counting and effective service planning.

2.3. Migration Back.

There is a growing segment of Nepalis returning from work overseas, mainly to the Gulf Cooperation Council (GCC) countries and Malaysia. Savings, such as remittances that fuel local consumption, particularly in housing and private services, are returned; however, they also give rise to specific needs. Reintegration support, capital investment opportunities and healthcare for chronic conditions often acquired during hard labour overseas are among the measures taken. What is more crucial? Their presence, sometimes accompanied by dependents, exacerbates the burden on housing and specialized healthcare facilities.

2.4. Forced Displacement.

Environmental disasters, such as the repeated and severe flooding of the West Rapti and Babai rivers, force people from low-lying areas within the Banke district to neighbouring flood-prone districts. Nepalgunj-S often provides temporary or permanent shelter to displaced communities, leaving them with limited resources and resulting in acute demands for emergency shelter, safe water, sanitation (WASH), food, and immediate healthcare, which can overwhelm local response capacities during and after disasters.

When considering these diverse migration patterns, they contribute to explosive population growth, exceeding the Displacement that urban planning can accommodate. From 2001 to 2011, there were notable upsurges in Census numbers (ranging from 72,000 to a paltry 97.9% in 2011, while today's reading is likely to be over 250,000). This leads to the spread of development in areas that once had farms, and the densification of more buildings in the city centre. This significant change has altered the demographic composition and landscape, with substantial implications for the delivery of services.

3. Research Methodology

This work employed a blend of methods in its study to examine how relocating people impacts city service delivery in Nepalgunj Sub-Metropolitan City. By combining counts and stories, the aim was to gain a comprehensive view of how the flow of movers has impacted city services over different periods and social contexts.

3.1 Data Collection Methods

The study employed spatial analysis and was conducted in two stages: a quantitative phase and a qualitative phase.

Quantitative Phase: National population censuses (2001, 2011, 2021), municipal annual reports, Bheri Hospital records, and school enrollment statistics were used for secondary data analysis. These resources aided in the identification of infrastructural deficiencies, service demand patterns, and population changes.

ArcGIS was used for Geographic Information System (GIS) spatial mapping to evaluate changes in land use between 2005 and 2023. This made the expansion of informal settlements and disparities in service coverage more evident.

Quantitative data were analyzed with descriptive statistics in SPSS Version 28. A demand-capacity gap analysis was performed, and trend projections were created using exponential smoothing techniques.

Qualitative data were analysedanalyzed with thematic analysis in NVivo 14, using a deductive coding framework that focused on three areas: (i) governance capacity, (ii) infrastructure resilience, and (iii) social exclusion (Braun & Clarke, 2006).

Integrated analysis employed spatial regression modelling through QGIS and STATA to evaluate the link between settlement density and service decline.

Qualitative

The 32 key informant interviews comprised discussions with border security officers (n = 3), leaders of community organizations (n = 7), municipal officials (n = 12), and providers of health and education services (n = 10). These interviews aimed to gain a deeper understanding of governance concerns and the institutional responses to them.

Various migrant demographics, including internal migrants, cross-border migrants, returnees, and climate-displaced people, were discussed in focus groups (n = 8), with 6–8 members per group. Talking about experiences getting fundamental urban services was the aim.

3.3 Data Analysis Techniques

A combination of statistical, geographic, and thematic analysis methods was employed:

We used simple statistics to analyze the numbers, using SPSS Version 28, to determine the magnitude of the gap between need and supply. We also examined past trends to try to predict what will happen next.

4. Sectoral Analysis

Hits on City Help Adding many people from other places puts much strain on all key work groups in Nepalgunj's:

4.1. Water and Cleanliness

A local water network built for way fewer people now faces ongoing shortfalls and cuts. Net growth falls significantly behind as more homes are built on the outskirts, leaving a large group of people to rely on risky, shallow wells or costly, deep private wells. The last worsens the drop in underground water and ups the risk of arsenic in the water, a known danger in Terai water banks. Cleanliness is a significant issue: overloaded and worn sewer pipes often fail to function correctly, mainly during rain; tight areas with tank sewers contaminate the water deep underground; and open toilets are used in random homes due to a severe lack of affordable and easily accessible toilet facilities.

4.2. Health Help

Public health facilities, such as Bheri Hospital and Nepalgunj Medical College Teaching Hospital, are often overcrowded. Long lines, a lack of beds, a lack of needed drugs, and a lack of expert doctors, as well as worn-out staff, are standard. More patients from near Indian areas, known as “healthcare tourism,” bring cash to private clinics, but this may unfairly utilize public help meant for locals. Special areas, such as heart and kidney care, are in high demand. Migrants in near-city, low-income homes struggle to access affordable primary health care and state health plans. Language and way of life blocks may make it harder to use help. The health needs of mothers and children are limited, and outreach plans work diligently to keep up with vaccine aid and health education in fast-growing, underserved areas. High crowd sizes and poor cleanliness in migrant homes increase the risk of sickness spreading, such as diarrhoea, dengue, and lung illness.

4.3. Education.

Under severe circumstances, public schools are crowded and have an extremely high pupil-teacher ratio. An organizational reduction in instructional time and quality is achieved through the use of double or triple shifts. Poor and dilapidated infrastructure is a significant issue, characterized by inadequate classrooms, toilet facilities (including washing machines), insufficient water for sanitation (often available only at 3 am), and limited space for children to play. Textbooks and teaching resources are scarce. Teachers struggle with large class sizes and the diverse needs of students, including language barriers for children from different linguistic backgrounds (e.g., recent hill migrants). This drives demand for utilizing standardized private schools, exacerbating socio-economic stratification as migrant families often sacrifice heavily for private fees. In contrast, public schools become concentrated with the most vulnerable students, yet lack adequate resources. Children in informal settlements, those of daily wage labourers (often with unstable schedules), and from marginalized communities face significant obstacles to consistent enrollment, attendance, and retention.

4.4. Housing and Land

Informal settlements on public land, riverbanks and in areas deemed hazardous are being developed as low-income migrants cannot afford formal housing. Settlements like Kohalpur's periphery and Rajhena extensions, for example, are not legal tender, do not offer basic tenure security, and lack essential services such as water, sanitation, electricity, and waste collection. These services are also lacking. Why? The rise in demand for land, driven by migration and speculation, has led to real estate inflation, making it increasingly difficult for the urban poor and middle class to access formal housing and secure land ownership. In informal settlements, residents face the possibility of eviction due to a specialized fear of home improvements and municipal services, even when these services are physically available.

4.5. Solid Waste and Environmental Health

The waste produced by the growing population far exceeds the capacity of municipal collection. Why? The lack of collection service utilization and informal settlements often results in widespread illegal dumping in rivers, drains, vacant plots (tongue-infested areas) and public areas. The specified waste management facility is overcrowded and poorly managed. It poses significant health and environmental risks, including leachate contamination, air pollution (resulting from burning), and dangers to informal waste pickers. Formal recycling initiatives are minimal. Accumulated waste attracts disease vectors (flies, rodents, mosquitoes), creates foul odours, contaminates water sources, and contributes directly to the spread of illness, disproportionately affecting densely populated, low-income migrant neighbourhoods

4.6. Transportation

Urban transportation is characterized by chronic congestion. Roads, particularly the Mahendra Highway passing through the city core, are choked with vehicles, tempos, auto-rickshaws, cycle rickshaws, carts, and pedestrians, creating major bottlenecks and long delays. Formal public bus services are marginalized, unreliable, and poorly managed. Consequently, reliance on unregulated, informal transport (tempos, auto-rickshaws) is high, further contributing to congestion, pollution, and road safety issues. Plans for public transportation, urban mobility, and sufficient non-motorized transportation infrastructure (including bike lanes, safe streets, and crossings) are all lacking in the city. However, several challenges arise. The continuous movement of people and goods marginalizes the order, complicating traffic management.

5. Data Analysis

This section presents the empirical findings from the mixed-methods analysis, highlighting both quantitative and qualitative impacts of migration on service delivery in Nepalgunj.

Table 1

Service Gap Metrics

Service Sector	Key Indicator	Findings	Data Source
Water Access	Coverage in informal settlements	32% of households rely on contaminated shallow wells	GIS mapping + Settlement surveys
Healthcare	Patient-to-bed ratio	1:450 at Bheri Hospital (WHO standard: 1:300)	Hospital records + Observations
Education	Pupil-teacher ratio	58:1 in public schools (National norm: 35:1)	
<i>Waste Management</i>	Collection coverage	41% in migrant settlements vs. 78% in formal areas	Municipal logs + Spatial analysis
<i>Transport</i>	Peak-hour congestion	22 mins/km on Mahendra Highway (National avg: 8 mins/km)	

5.2. Migration on-Service Linkages

- Spatial regression analysis revealed a strong correlation ($R^2 = 0.87$) between the density of informal settlements and groundwater arsenic levels.
- The Service Gap Index indicated that border-adjacent areas experience 3.2 times higher pressure on health and education services.
- Remittance Impact: 68% of new housing construction is funded by Gulf returnees, but 92% lack tenure security (KIIs + land records).

5.3. Qualitative Insights

“We queue at 4 am for hospital tokens, but Indian-characterised priority through agents” (FGD3-Internal Migrant).

“My children miss school when I take daily wage work across the border” (FGD6-Cross-border Commuter).

“Municipal tankers come weekly, but water lasts only 2 days” (Observation Note: Rajhena Settlement).

5.4. Cross-sectoral Pressures

Medical tourism generates 28% of private clinic revenue but uses 42% of public hospital resources (financial records analysis).

Flood displacement spikes are characterized by 0% increases in waterborne diseases (as recorded in health clinic registers).

6. Discussion

6.1. The Big Move-Service

Our study reveals a significant finding: moving is crucial to Nepalgunj's financial flow—it is fueled by remittances sent home (34% of local GDP), trade, and health visits—yet it also overburdens the city's service systems. This aligns with the findings of Seddon et al. (2002) regarding places that rely on money sent home. However, we now observe a new mix of four types of moves (inside, across borders, back home, and due to weather) in a smaller city. Unlike significant places like Kathmandu (Butcher, 2019), Nepalgunj-S's border setting brings up three significant issues:

- **Invisible Crowds:** 63% of people who cross the border daily are not counted, which distorts the allocation of resources.
- **Old Systems:** Outdated setups (such as the 1970s water network) reach only 35% of the population, leaving many people out.
- **Uneven Services:** Service holes tend to concentrate in certain areas—zones near the border face 3.2 times more strain on health/education, while less formal areas receive only half the trash service of better-off areas.

6.2. Bad City Planning is a Key Problem

Usual city plans for fixed, known populations do not solve for Nepalgunj's high movement. Key talks revealed a split in control: city edges do not align with nearby needs, hindering region-wide solutions for transportation, water, and disaster management. Money issues exacerbate the situation; outdated tax systems and strict budget rules fail to account for sudden changes in people's circumstances. So, we see:

- **Healthcare:** Health visits account for 28% of private clinic revenue but utilize 42% of public hospital resources, exacerbating inequality.
- **Housing:** 92% of homes built with money from returnees lack proper rights, contributing to the growth of slums.
- **Disaster Help:** More floods mean a 60% rise in water sickness, too much for the few clinic staff.

6.3. Beyond the Usual Fixes: Toward Smart City Planning

The study tells us simple fixes (like more schools) will not work. Nepalgunj-S needs new ways:

- **See Moving as a City Plan:** Include Move Forecasts in All City Plans. Innovative urban plans should focus on robust infrastructure (such as weather-smart drains and local waste systems) and plan new areas with services in mind.

- Smart Data Use: A system to track real-time growth, service reach, and border moves is key. We need better move surveys, not old counts.
- Work Together Regionally: A formal city group should handle shared issues (like managing rivers, cross-border travel).
- New Money Ways: Utilise partnerships for waste/water setups, implement land taxes, and advocate for budget changes based on shifting trends.

6.4. Making Informal Formal: A Path to Fairness

Leaving out informal areas (32% use bad wells) is a danger to public health. Step-by-step upgrades—securing rights, adding basic setups (such as taps and toilets), and securing service access—can help close gaps. A person affected by floods said: “City trucks bring water once a week, but it runs out in 2 days”. Plans require input from people; migrant groups should help design upgrades.

6.5. Use Moving as a Boost, Not a Burden

Nepalgunj’s is at a turning point. Without new approaches to governance, migration will exacerbate existing divides, increase health risks, widen service gaps, and hinder economic growth. However, if used well, moving can start strong and achieve fair growth. This means viewing travel as what defines the city and adjusting planning, finances, and partnerships accordingly. Lessons from Nepalgunj matter for many growing cities in the Global South: going with the flow, not against it, is the key to keeping cities thriving.

7. Policy Recommendations

Addressing the service provision crisis in Nepalgunj-S requires transformative policy actions that proactively embrace migration as a central urban reality:

7.1. Governance & Planning Reinvention:

Develop & Implement Dynamic Integrated Urban Development Plans (IUDP): Create and rigorously enforce IUDPs that explicitly incorporate robust projections of migration trends (internal, cross-border, return). Plans must prioritize resilient infrastructure corridors, strategically planned expansion zones with service provision integrated from the outset, and climate adaptation measures, especially flood management.

Invest in Spatial Data Infrastructure: Establish a comprehensive GIS platform for accurate land-use mapping, real-time tracking of service coverage (including water, sanitation, and waste collection), monitoring of informal settlement growth, and effective asset management. Conduct regular, specialized surveys on migration patterns, drivers, and settlement dynamics.

Build Municipal Capacity: Undertake urgent recruitment and specialized training programs for

critical technical staff (urban planners, engineers, environmental officers, financial analysts, public health specialists). Invest in modern e-governance systems, project management tools, and data analytics capabilities to improve efficiency, transparency, and decision-making.

Strengthen Metropolitan Coordination: Establish formal, empowered regional coordination bodies involving Nepalgunj-S, Kohalpur Municipality, and key adjoining rural municipalities (e.g., Khajura, Narainapur, Rapti Sonari) for integrated planning on shared challenges: regional transportation networks (bypasses, public transport), water resource management (Rapti, Babai, groundwater), solid waste processing facilities, and disaster preparedness.

7.2. Strategic Infrastructure Investment

Water & Sanitation: Prioritize significant investments in the following areas: development of piped networks in underserved informal settlements (utilizable approaches); development of new, sustainable surface water sources with treatment plants; strict regulation and monitoring of groundwater extraction; promotion of rainwater harvesting; and construction of decentralized wastewater treatment plants. Massive, non-negotiable investment in expanding and upgrading sewerage and stormwater drainage infrastructure is critical for public health and flood resilience.

Healthcare: Significantly upgrade and expand the physical infrastructure and staffing at Bheri Hospital and primary healthcare centres, particularly in migrant areas. Strong in preventive and primary care, maternal/child health services, and outreach programs. Explore formal cross-border health agreements with Uttar Pradesh for resource sharing, information exchange, or fair cost-recovery mechanisms for foreign patients utilizing public facilities. Scale up community health worker programs focused on migrant communities.

Education: Initiate a pressing initiative to create new public school structures, prioritizing facilities (classrooms, restrooms, water, and libraries). More teachers must be employed and educated, particularly those proficient in the specialized languages spoken by immigrant communities (e.g., Magar and Tharu dialects).

Management of Solid Waste: Increase the frequency of coverage, especially in informal settlements, and invest in modern collection trucks. Create effective transfer stations.

Housing: Create and execute a thorough, specialized, and affordable housing program that utilizes workable models for rehabilitating

slums in situ and offers minimal tenure security to entice residents. Encourage the decentralized enforcement of zoning and building codes in all new formal developments, as well as the adoption of affordable, climate-resilient building approaches to enhance sustainability. Creation and implementation of a Comprehensive Urban Mobility Plan that emphasizes the expansion and regulation of formal public bus services, BRT-lite corridors, safe pedestrian and bicycle networks, and intelligent traffic management systems.

7.3. Fiscal Innovation and Resource Mobilisation

Enhance Local Utilizing Stems by updating property tax systems using GIS to ensure precise assessments and enhance efficiency in tax collection. Examine potential legally feasible alternative sources of revenue, such as property enhancement charges for infrastructure improvements, an impact tax on significant projects, and improved management of business taxes and user fees. All this is done through local government programs.

Utilizing a fair and equitable fiscal transfer mode by consistently advocating for an equal and predictable share of intergovernmental fiscal transfers. It is necessary to consider migration-related population growth, decentralization, and the cost of providing required services when calculating transfers. Obtain special national or provincial assistance for cities experiencing exceptional migration challenges.

Waste processing facilities, water treatment facilities and affordable housing

initiatives are well-suited for effective and well-structured PPPs as investments. The search for these partnerships is essential.

7.4. Osterling formalized and improved Data:

Recognized Upgrade Informal Settlements: Officially map, re-recognize and categorize existing informal settlements as a crucial first step toward upgrading them. Develop and implement participatory, incremental upgrading plans that focus on securing basic tenure (e.g., occupancy certificates), providing core infrastructure (such as water taps, communal toilets, specialized paved paths, and electricity), and enhancing disaster resilience.

Regardless of their official documentation status, ensure that all residents have access to specialized delivery mechanisms as part of your migration planning strategy. At important service locations, such as hospitals, schools, and government buildings, provide multilingual personnel and information. Simplify the registration process for necessary services without imposing stringent residency proof requirements. E.g

Boost Community Engagement: Through improved community-based organisations (CBOs) and public consultations, ensure that marginalized people living in informal settlements are meaningfully included in local planning and budget mobilization

Establish Cross-Border Cooperation Mechanisms: Establish formal discussions and cooperation frameworks with authorities in Rupaideha/Nepalganj, emphasize to manage cross-border flows, share real-time public health information (disease surveillance), coordinate disaster response (flood warnings relief), and explore potential collaboration on shared infrastructure challenges (e.g, regional waste management facilities, coordinated water resource management, cross-border transport planning). “.

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