Assessing Health Service Variations by Degree of Urbanization in Nepal

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Background: Nepal's 2015 federal restructuring instantly expanded the officially urban population from 17% to 66%, driven by political and administrative considerations rather than functional urban characteristics. This has yielded **three distinct settlement types**: areas that remained rural **(R→R),** areas that transitioned from rural to urban designation **(R→U)**, and areas with longstanding urban status **(U→U)**. Many newly-designated urban municipalities retain rural characteristics, raising questions about whether more granular measures of urbanicity and rurality may provide additional insights into variation in health needs and service access.

Objective: To examine **whether areas reclassified as urban following Nepal's 2015 restructuring differ from longstanding urban areas in health service access, utilization, and health-related indicators** and whether these differences suggest a need for differentiated public health strategies not based only on official administrative categorization.

Method: Descriptive analyses of Nepal Demographic and Health Survey (NDHS) data from 2011, 2016, and 2022 were conducted at the cluster level across **three analytical frameworks**:

- **rural-urban transition categories** (R→R, R→U, U→U), derived by intersecting pre- and post-2015 administrative boundary maps;
- the **Degree of Urbanization** (DEGURBA), a functional settlement classification based on population density, contiguity, and built-up structure, sourced from Nepal's National Statistics Office (NSO, 2024); and
- an **agrarian index** (scaled 0–1) constructed from DHS variables on agricultural occupation, land ownership, and livestock ownership.

Health service access, utilization, and selected health indicators were compared across settlement types. Variables examined included maternal and child health, child nutrition, household food insecurity, water, sanitation, and hygiene (WASH), and access to health services.

Results: R→R areas performed poorest across most measures, while U→U areas generally performed best. **Newly transitioned areas (R→U) showed substantial heterogeneity, resembling R→R areas on some measures but intermediate between R→R and U→U on others.** Stratifying R→U clusters using the agrarian index distinguished high-, mid-, and low-agrarian clusters ranging from rural-like to urban-like performance. **DEGURBA produced a consistent 3-tier pattern,** with rural, peri-urban, and urban clusters showing progressively better outcomes on most measures.

Conclusion: Overall, reliance on the **binary official categories masks substantial within-category variation.** Use of agrarian-based and functional classifications could support more context-appropriate planning for service delivery and more equitable resource allocation, particularly for R→U areas.