

Environment

Urban Sprawl in the Kathmandu Valley of Nepal from 1955-2003: A challenge for urban policy makers and planners

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This paper analyzes the conditions of the five cities—Bhaktapur, Kathmandu, Kirtipur, Lalitpur, and Madhyapur Thimi—that comprise the Kathmandu Valley conurbation and exhibit the typical characteristics of the nation's primate city (Bhattarai, 2003). It examines the patterns and causal processes of urban sprawl for the period 1955 and 2003 by utilizing both spatial and aspatial data. It analyzes the patterns of historical aspects of the Kathmandu Valley's settlements that acquired the characteristics of a European feudal urban agglomeration in the mid-18th century, combining political, administrative, and craft production functions (Bhattarai, 2003). Our analyses reveal that since the early 1970s, the Kathmandu Valley has become structurally differentiated into two distinct urban 'spaces' (KVMP, 2001). The first 'space' is the traditional urban core characterized by narrow alleys, cul-de-sac streets, and loops serving the densely populated area. The second 'space' surrounds the city core, a less populated periphery, with uneven residential densities, ranging from dense concentrations (>700 people ha⁻¹) to relatively open developments (10 person ha⁻¹) with rural interstices.

In the core areas, little open land is available for additional buildings; however, the peri-urban area is sprawling in an unprecedented manner. The unregulated process of urban sprawl is filling-in between neighboring peripheral settlements and forming a conurbation of an area, comprised of 52 Village Development Committees (VDCs)*. Nepalese urban planners and policy makers have not only struggled to regulate the

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* Village Development Committees (VDCs) are the lower level political unit comprising up to 20,000 people administrated by elected representatives. A VDC is divided into nine wards (hamlets) which are the lowest political organizations.

development of these rapidly sprawling, unplanned settlements in the periphery, but they have been unsuccessful in planning for, and providing, necessary urban services to the city core. The incoherent nature of urban sprawl has made this planning process very complicated. The core area is characterized by a high population density of $1,837 \text{ km}^{-2}$ with a 6% annual growth rate, compared to the national average of 157 km^{-2} with an annual growth rate of 2.25% (CBS, 2002; CBS, 2004; Aryal, 2006; Poudel, 2006; Pradhan & Perera, 2005). The contemporary onslaught of economic liberalization policies has contributed to social stratifications* (Wagle, 2005) in this rapidly growing urban area. “Grand symbols of Western modernity” (Shrestha, 1998:11) are erected in this urban mosaic of feudal and traditional buildings, while many live in the slum areas. Despite these living differences, rural-to-urban migration serves as a safety net for the rural impoverished underclass - with Kathmandu as the favored destination. The ongoing Maoist’s people war in Nepal’s rural areas has also contributed to the attractiveness of the Kathmandu Valley – it being a much safer location for many peasant families from the rural countryside (Neupane & Bhattarai, 2003). As a result, the built-up environment in the Kathmandu Valley has increased by 460% between 1955 and 2003, while the population has increased by 355% over the same period. The unregulated expansion of the Kathmandu Valley conurbation, with its substandard buildings, poorly planned transportation systems, sparsely provided service infrastructure, and poorly sited industrial concentrations in rapidly depleting available rural ‘green spaces,’ is creating many environmental problems. It is suspected that the cramped buildings without proper ventilation and the increased pollution from anthropogenic factors will have a substantial impact on the lives of urban dwellers. The winter temperature inversions in the valley have further exacerbated these problems (Shrestha, Kondo, Inoue, Sugisava, & Sapkota, 2004).

It is expected that the 26 kilometer Kathmandu Valley will expand farther east after the construction of the Banepa-Sindhuli (BP Highway) joining the Kathmandu Valley with the Tarai region. This new inter-

* The extent of poverty is often measured through a bench mark called the poverty line. The poverty line is defined as the income required providing adequate calories (2250 kilocalorie) for an average Nepalese to remain active. Based on this, the National Planning Commission (NPC) has endorsed that Rs. 4404 (\$61.00) per-person per year is the poverty line.

regional highway will provide greater accessibility to and from southern regions beyond the Valley. If such expansion does not follow a well-designed plan, demographic and environmental problems will be compounded. By analyzing the causes of urban sprawl from both a Nepalese and global perspective, we suggest that the narrow streets of the Greater Kathmandu Valley Conurbation be widened in order to provide emergency outlets to individual households in the event of a natural disaster, that strict building codes and geocoding systems be implemented, and that local communities be involved in the urban planning process.

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