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Social Organization, Population, & Land Use in Nepal

Based on the peer-reviewed publication by Axinn and Ghimire 2011, in *American Journal of Sociology*¹

New research conducted by the University of Michigan reveals more about how humans interact with their environment in Chitwan, Nepal. Human influences have important impacts on changes in land use – changes which have important local and global environment implications. Shifts in land use over time can be influenced by changes in populations, households, and local services. In Nepal, characteristics of social organization and population may determine if land is used for vegetation or for the built environment.¹

This policy brief summarizes the findings from a study linking changes in social and population processes and land use in Nepal, highlighting

findings that allow a better understanding of the population-environment relationship and the development of appropriate policy and programs.

“Human beings are the agents affecting the quality and quantity of the natural environment. To affect human behaviors, policies and programs will have to address the microlevel causes of those behaviors.”

- Axinn and Ghimire

Research Context

- Examines how land has been used in a 92-square-mile area of Western Chitwan that was cleared and settled in the mid-1900s.
- Describes rapid social transformations in Chitwan over the past three decades.
- Analyzes how population growth and development dramatically changed the social and economic organization of Chitwan and the resultant use of land from 1995 to 2005.
- Examines the dynamic interactions of the environment and the population.¹

Data Source

This policy brief is based on a peer-reviewed publication¹ that analyzes data from the Chitwan Valley Family Study (CVFS) – a comprehensive mixed-method panel study of individuals, families, and communities in the Western Chitwan Valley of Nepal.

The CVFS investigates the relationships between changing social contexts, environmental factors, land use, and population processes. CVFS data include full life histories for more than 10,000 individuals, tracking and interviews with all migrants, continuous measurement of community change, 21 years of demographic event registry, and data linking human and natural systems.

Findings: Social Changes Impact Environmental Changes

In general, land use takes two primary forms: land covered by vegetation, and land covered by private buildings (e.g., homes and businesses) and public infrastructure (e.g., schools, temples, and roads). Areas under vegetation are farmland, forests, pastures, and park areas – and include common areas used by community members for grazing and for fodder and fuel wood collection.

Shifts in social organization and the number of people, households, and births can re-shape the distribution or intensity of land use.

Changes in **social organization**, such as the location and number of community services² may impact land use by increasing the built environment at the expense of the natural environment.

- The addition of social and infrastructure services are associated with less land devoted to vegetation.

Population growth may impact land use by requiring more resources – built or natural – to maintain a larger community.

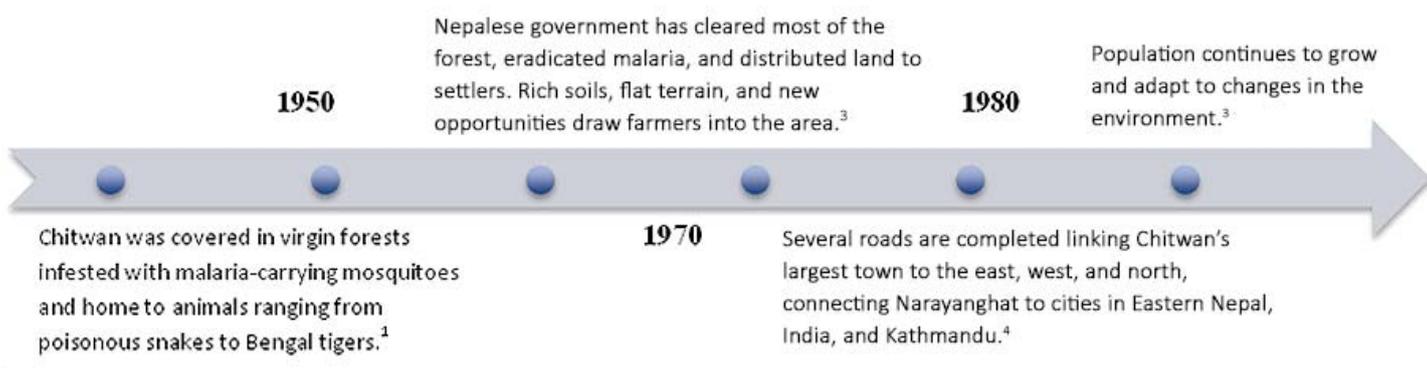
- An increase in the number of people, households, or births is each associated with a decrease in the land area devoted to vegetation.
- An increase in births is associated with both an increase in public infrastructure and greater consumption of vegetation from common land.
- An increase in births and growth in community services and infrastructure are associated with less use of common land for grazing and fodder collection.
- A larger community population is associated with more use of common land for grazing and fodder collection.¹

Development in Chitwan, Nepal

This study examines how land has been used in a 92-square-mile area of Western Chitwan that was cleared and settled in the mid-1900s, and has undergone rapid social transformations since then. Forests covered Chitwan until the early 1950s when the government began clearing the land, eradicating malaria and distributing land to

settlers. Farmers from surrounding areas were soon drawn into Chitwan by rich soils, flat terrain, and new opportunities. Population growth and development dramatically changed the social and economic organization of Chitwan. Land use changes are one way to better understand the dynamic interactions of the environment and the population.¹

Abbreviated Timeline of Development in Chitwan, Nepal



Policy Implications

Research conducted in Chitwan, Nepal suggests that multiple dimensions of social and population change may affect land use. This research has three main findings:

- (1) Access to community services (elements of social organization) leads to less land devoted to vegetation;
- (2) Increases in number of births and households lead to more public infrastructure and conversion of land area under vegetation into land area under public infrastructure;
- (3) Increases in number of births and community services lead to less land devoted to grazing and fodder collection.¹

Looking Forward: Additional research from Western Chitwan suggests that the spread of community services and organizations shape multiple family and population process, which then leads to changes in the number of people, households, and births in that area.

More research on specific environmental changes can help us better understand the population-environment relationship in Nepal.

Conclusion: This research suggests that changes in social organization, such as walking time to schools, health services, employment centers, market places, and agricultural co-operatives are significantly associated with changes in land use. This study provides the foundation for further development and evaluation of land use in Nepal.

Population-Environment Relationship in Nepal

Changes in land use can influence subsequent shifts in population. Findings from three recent studies in Nepal suggest the following links between agriculture changes and family changes:

- More land devoted to agriculture was associated with higher rates of marriage.
- More land devoted to agriculture was associated with higher rates of first birth.
- More land devoted to vegetation was associated with lower migration out of Nepal.^{5, 6, 7}

In this setting in Nepal, more land use for agriculture may motivate households to add labor through increases in marriage and childbearing, and decreases in household member migration for work.¹



Footnotes and References

- 1) Axinn, W. G., & Ghimire, D. J. (2011). Social organization, population, and land use. *AJS; American Journal of Sociology*, 117(1), 209.
- 2) Community services include schools, market places, health services, bus stops, employment centers, and cooperatives.
- 3) Conway, D., & Shrestha, N. R. (1981). Causes and consequences of rural-to-rural migration in Nepal: Report.
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- 5) Yabiku, S. T. (2006). Land use and marriage timing in Nepal. *Population and Environment*, 27(5-6), 445-461.
- 6) Ghimire, D. J., & Hoelter, L. F. (2007). Land use and first birth timing in an agricultural setting. *Population and Environment*, 28(6), 289-320.
- 7) Massey, D. S., Axinn, W. G., & Ghimire, D. J. (2010). Environmental change and out-migration: Evidence from Nepal. *Population and Environment*, 32(2-3), 109-136.

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