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Land Use and Population Dynamics in a Mountain Watershed of Nepal: A Case Study from Salakhukhola Watershed

Sanam Aksha[1], Yashoda Rijal[2], Chudamani Joshi[1]

[1] *Tribhuvan University, College of Applied Sciences, Nepal*
[2] *Tribhuvan University, Dept. of Sociology and Anthropology, Nepal*

Abstract

The amount, the rate and the intensity of land use and land cover change are very prominent in least developing countries like Nepal. The human impact upon the land is enormous and still increasing. This study analyses the nexus between population dynamics and land-use practices in Salakhu Khola watershed, a micro-watershed in the mid-hill region of Nepal. The spatial and temporal change patterns of land use were quantified by interpreting remote sensing (RS) data and use a geographical information system (GIS). The paper mainly focuses on spatial and temporal changes in land use between 1989 and 2006 in this typical watershed of Nepal where community forest projects were implemented by the government 15 years ago.

Time serie data regarding demographic and socio-economic parameters of the study area from primary and secondary sources were also used. The dynamics of population, land use, and land cover within the Salakhu Khola watershed are investigated by performing spatial analysis of digital land use maps in ArcGIS. The results show there is a significant increase in forest cover of 63 percent and agricultural land of 8 percent in the watershed with a corresponding decrease in shrubland and grassland during the length of 17 years. The number of people living in the watershed has been reduced because of internal migration to the plain areas and temporary labour migration to India and Gulf countries. The annual rate of population growth is 1.62 % in the study area. This has resulted in significant reduction of grassland and shrubsland in the watershed area.

Keywords: GIS analysis, land-use change, Nepal., population dynamics, watershed

Contact Address: Sanam Aksha, Tribhuvan University, College of Applied Sciences, Thamel, Kathmandu, Nepal, e-mail: sanam.aksha@gmail.com