

3rd International Conference on **Earth Science & Climate Change**

July 28-30, 2014 DoubleTree by Hilton Hotel San Francisco Airport, USA

GIS Application to land use change due to development interventions in the eastern hills of Nepal

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In Nepal, development efforts constitute change also in the type and intensity of use of available land, particularly in the rural region like the Koshi hills, where development often means increasing production and productivity of arable land. This paper, based on GIS tool, examines the change in land use categories, as land use change is considered as a proxy indicator of the development impacts. It has drawn data of three map point-years: 1986, 1996 and 2010 for the Koshi hills. The mapping and spatial data being generated were then verified in the field. Significant changes have occurred in overall land uses; for instance, forest increased by 18.4 percent over the past 24 years, consuming mostly the scrubland, grassland and arable land whereas the cultivated land increased by 10 percent during 1986-1996, but decreased from 1996 onwards. However, the traditional subsistence cereals crops have been replaced with commercial vegetables, particularly along the road sides and other high value crops such as large cardamom, ginger, seeds and fruits. On the other hand, patches of abandoned agricultural land across the Koshi hills have been observed due to tendency of out-migration of local population. Of many factors, the community forestry program, the construction of roads, and the introduction of improved agriculture development programs have contributed to internal trading between major land use categories and to offer benefits such as nature conservation, internal and international trade of local products, and better living conditions of the local people. It thus has been possible to exhibit spatial relationships on GIS framework between land use change and development interventions.

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