

Impact of land-use change on runoff using RS and GIS: the case of the Bagmati River, Nepal

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Abstract This paper deals with the impact of land-use changes on surface runoff in the Bagmati River basin, Nepal. To assess the changes in land use, remote sensing and GIS have been used. A physically-based distributed hydrological model, SWAT2000, has been used to assess the runoff changes due to change in land use. Over the past decade there have been substantial changes in the land use of the catchment. In the year 2001, the forest area was found to have decreased to 21.93%, while the urban area increased to 8.09% and agricultural land increased to 69% as compared to 1992, when there was a forest area of 29.67%, an urban area of 4.28% and an agricultural area of 65.37%. As a result the annual surface flow was found to have increased by 9.04% and the average monthly flow was found to have increased by 8.9% over the same period.

Key words GIS; land use; remote sensing; surface runoff; SWAT2000
