

# Adverse impact on soil functions due to urbanization in Kathmandu Valley of Nepal

DAHAL Binod Mani

Environment and Public Health Organization (ENPHO), Kathmandu, Nepal

## Abstract:

Nepal is a small mountainous country that lies between two big countries China and India. Kathmandu Valley of Nepal has its own recognition and is a centre of attraction for Nepalese people. It is situated between latitude  $27^{\circ} 32' 00''$  N to  $27^{\circ} 49' 16''$  N and longitude  $85^{\circ} 13' 28''$  E to  $85^{\circ} 31' 53''$  E. The average altitude of the valley floor is 1340 m. There are three districts in the Kathmandu Valley among the 75 districts of Nepal. The three districts are Kathmandu, Lalitpur and Bhaktapur. Kathmandu city is the capital of Nepal. Therefore, most of the development functions have occurred in the Valley. By the virtue of being the centre of political and economic power, the Valley offers locational advantages that no other parts of the country can offer. As a result, the Valley has become the focal point of public sector to grab the multitude opportunities. Thus the population annual growth rate is high, about 6 % as compared to the national growth rate of 2.1 %. This is especially due to migration from the other parts of the country. At present, Kathmandu Valley provides shelter to about 2.5 million people. The population census in 1991 had shown that altogether about 1.5 million people resided in the Valley. The Valley had historically sustained urbanization through an extremely productive agricultural base and sustainable management of natural resources. This base has gradually been eroded by new developments. Therefore a study had conducted in 2008 to know qualitative affect on soil functions due to expansion of unplanned urbanization in the Valley based on available secondary data and random survey using a standard questionnaire form. The data showed that the agricultural land has changed into residential area by 10 times with in 20 years. Soil of the Valley is only acting as a platform for the manmade structure. That's why food and biomass production has decreased by 70%. The habitat of several soil organisms has disappeared. About 40% area out of 66000 hectare of land in the valley can not perform any environmental interaction, e.g., storage, infiltration and transformation. Due to cemented floor, the ground water could not be recharged. Consequently 60% stone spouts and ponds in the valley, that also has a significant cultural heritage value, are near to dry and some are already dried. From the study, it was assessed that if the current unplanned urbanization continually expands in the business as usual rate, the subsequent imbalance in soil functions is likely to disturb the equilibrium of ecosystem in Valley.

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Information of corresponding author

Full Name: Binod Mani Dahal

Organization: Environment and Public Health Organization (ENPHO)

Mailing address: P.O. Box: 4102 KTM.

Tel: +977 9841469121

E-mail: binodm\_dahal@yahoo.com