



Environmental degradation and sustainable measures: a case study of Nepal

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Abstract:

Nepal is a Himalayan country, land-locked and sandwiched between two neighbouring mammoths, China and India. Kathmandu, the capital Valley, is a conglomeration of historical and World heritage cities in the central part of Nepal. All the rivers and rivulets that originate from this middle mountain valley, drain into the major river Bagmati, a tributary of the Ganges. Not so long ago the Bagmati, which is sacred to all the Hindu populace, used to be the source of sustenance to the people, and abundant fauna and flora in the Valley and downstream. At present all the sewerage systems within the Valley directly discharge effluent into the streams nearby. The pollutants thus being fed into the tributary streams have rendered the river useless, just as a wastewater drain. Rapid urbanization and absence of reliable wastewater treatment facilities are the major causes of river pollution. A model Eco toilet has been designed such that urine and faeces get separated. The faeces are then dehydrated and decomposed with and without solar radiation. As against the normal condition, where the faeces are to be used as soil conditioner in the model with solar radiation, the faeces got decomposed in forty-eight days period. The diluted urine with eight parts of water is used as fertilizer for agriculture. Also, from the observation by many people on a cluster of the pilot project, annually per person recovered value of N (Nitrogen), P (Phosphorous) and K (Potassium) was found to be 5kg, 0.399Kg, 1.099 Kg, respectively. The combination of decomposed excreta thus received is expected to suffice the local fertilizer needs. The study thus found the Eco toilets to have a clear advantage over the traditional water borne sanitation. This paper presents an in-depth review of the present scenario of the water supply situation of Nepal. Similarly, this paper deals with different types of Eco toilets, their performance and feasibility in the context of Nepal, based on complete laboratory analysis and regular monitoring, as well as river restoration to a healthy state, including bio-



gas generation from excreta.

Biography:

Megha Raj Regmi, Water Supply Engineer (1978)/ Civil Engineer-g Armenia (1981)/ MSc Civil Engineer-g Ukraine (1986) /Msc Environmental Engineer-g (2003 funded by WHO)/ Environmental Eng-g at Finland, Holland (2003)/ Water Supply & Environmental Eng: Sydney, Australia, Thailand, Germany, the Netherlands, and China (2007- 2014)/ President Lions Clubs International, Nepal/Author of many Research Papers published in International Journals.

Recent Publications:

1. WTA, 1st leaders Forum, "Sustainable Approach to Sanitation and Experience of the Improvement" Suwon city, Republic of Korea (2014).
2. IWA, 3rd DEWASIN Conference, Conference Convener; "Promotion of Productive Sanitation and Energy Recovery Toilets in Nepal", Kathmandu, Nepal (2009).
3. The Engineering Institute of Canada's "Climate Change Technical Conference Ontario, May 2009." Climate Change Issues of Nepal: Challenges and Perspectives for Future Generations".
4. Renewable Energy, Shanghai, China 2008." Biomass Energy and NPK recovery from excreta digestion in Nepal".

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