

Environmental Degradation and Sustainable Measures: A Case Study in Nepal

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Abstract : Water Supply and Sanitation coverage in Nepal is not satisfactory in South Asia. Far less than expected achievements have been realized in sanitation following the SDG for Nepal. There are so many queues of buckets to fetch water in the heart of the capital city Kathmandu. In Kathmandu Valley, daily water demand is 400 million litres, but the supply is only 200 million litres daily. Over- exploitation of ground water and traditional water sources causing the water levels to drop to alarming levels while most of the traditional waterspouts are also drying up. While about 40% of the World's population is deprived of drinking water, the urban populace uses excessive quantities of fresh water to flush the excreta. Water Supply and Basic Sanitation coverage in Nepal is 86% and 92%, respectively, of the total population. This research work basically deals with more than one thousand dry toilets constructed in peri-urban areas. The work has used appropriate technology and studied their performances in the context of Nepal based on complete laboratory analyses and regular monitoring. It has been found that dry toilets have a clear advantage in NPK recovery over traditional water-borne sanitation technology. This paper also deals with the effect of temperature in the decomposition process in dry toilets and also focuses on the different distinct technologies employed in Kathmandu Valley. This paper suggests the modifications needed in the implementation and study of the effect of human urine in composting and application on agriculture and the experience of more than one thousand Dry toilets in Kathmandu Valley. It also deals with the practices of bio-gas generation and community-led total sanitation to cope with the challenges of sanitation and hygiene in Nepal. The paper also describes in depth the different types of biomass energy production methods from the human and cattle manure units, including bio-gas generation from the kitchen wastes produced by a student hostel mixed with toilet waste. The uses of decomposed feces as a soil conditioner have been described along with the challenges and prospects of the uses of urine in agriculture as eco-friendly fertilizer in the context of Nepal. Finally, the paper exhibits a comparative study of all types of dry toilet developments in developed and developing countries like Australia, South Korea, Malaysia, China, India, Ukraine and Nepal. The community groups in our financial assistance have made many models of public toilets with biogas which are very successful in the height of 600 m up to 2000 meters from the mean sea level. In conclusion it makes a plea for the acceptance of these toilets for planners and decision makers with a set of pragmatic recommendations.

Keywords : bio- gas public toilet, dry toilet, low-cost technology, sustainable sanitation, total sanitation

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