

Effect of Climate Change and Water Sources: Sustainability of Rural Water Sanitation and Hygiene of Tanahun District

Authors : Bharat Sapkota

Abstract : Nepal is the one of the victim country of climate change. Decreasing snow line, sometimes higher and sometime non-rain fall are common phenomena in hill area. Natural flood disaster and drought is also common every year in certain place of the country. So this paper analyze the effect of climate and natural water sources for sustainability of water sanitation and hygiene of Tanahun district. It is one of the Rural Water Supply and Sanitation Project Western Nepal Phase-II (RWSSP-WN Phase-II) project district out of 14 project districts of western and mid-western Nepal. RWSSP-WN II is a bilateral development cooperation of governments of Nepal and Finland. Big investment is still going on in water sanitation and hygiene sector but sustainability is still a challenge throughout the country. So RWSSP-WN has started the strengthen of the capacity of local Governments to deliver services in water supply, sanitation and hygiene and its sustainability through the implementation of cross cutting approach of climate change and disaster risk reduction. The study shows that the average yield in 685 natural point sources were around 0.045 l/s in 2014 but it was twice as high in 2004 i.e. 0.09 l/s. The maximum measured yield in 2014 was 1.87 l/s, whereas, the maximum yield was 3 l/s in 2004. Likewise, spring source mean and maximum yield measured in 2014 were 0.16 l/s and 3.33 l/s respectively, whereas, mean and maximum yields in 2004 were 0.204 l/s and 3 l/s respectively. Small streams average yield measured in 2014 was 0.32 l/s with the maximum of around 4.99 l/s. In 2004, mean and maximum yields of streams were 0.485 l/s and 5 l/s respectively. The overall climate between years 2002 to 2013 and measured yield data between 2004 and 2014 shows climate as one of the causes of water source decline. The temperature is rising with pace of 0.041°C per year and rainfall is decreased by 16.8 mm/year. The Khosla's empirical formula shows decrease of 1.7 cm/year in runoff. At present sustainability of water, sanitation and hygiene is more challenge due to sources decreasing in the district. Sanitation and hygiene total behavior change and watershed conservation as well as design and implementation of recharge pound construction are the way forward of sustainability of water, sanitation and hygiene.

Keywords : water sanitation, hygiene, sustainability, climate change

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