



Climate Change Impacts on Water Resources of Nepal with Reference to the Himalayan Glaciers

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The impacts of climate change on water resources of Nepal with reference to snow and glacier were assessed applying empirical glacier mass model. Specific glacier mass balance values were calculated with different rates of temperature rise. The analysis has revealed that the glaciers in the Nepal Himalayas are shrinking rapidly and almost all of them may disappear within less than two centuries, if the current glacier melting rate continues. Most of the small glaciers will disappear within 3-4 decades; there may be only 11% of the present glacier-ice reserve left in the Nepal Himalayas by 2100 AD even without any further warming. An accelerated glacier melt will cause an increase in water availability at the beginning but ultimately may result in a decrease in water availability after the glaciers disappear that may adversely affect Nepal's water resources. Rapidly retreating glaciers and shrinking snow and ice areas in the Nepal Himalayas as a result of temperature rise may increase the likelihoods of extreme floods including glacier lake outburst floods.