

Climate change and its impacts in Mountain Region.Ramesh Shrestha[†];[†] CECED Nepal, NepalLeading author: cecednepal@notmail.com

Climate change can be particularly hard-hitting for small underdeveloped countries, relying heavily on natural resources for the economy and livelihoods. Nepal is one among these countries, being landlocked, with diverse physiographical characteristics within a relatively small territory and with rugged terrain. Poverty is widespread and the capacity of people and the country to cope with climate change impact is low. The country is dominated by the Asian monsoon system. The main occupation is agriculture, largely based on rain-fed farming practices. Tourism based on high altitude adventures is one of the major sources of income for the country. Nepal has a large hydropower potential. While only 0.75% of the theoretical hydropower potential has been tapped, Nepal can greatly benefit from this natural resource in the future. Climate change can adversely impact upon water resources and other sectors of Nepal. The source of water is mainly summer monsoon precipitation and the melting of the large reserve of snow and glaciers in the Himalayan highlands. Observations show clear evidences of significant warming. The average trend in the country is 0.06C per year. The warming rates are progressively higher for high elevation locations. The warming climate has resulted in rapid shrinking of majority of glaciers in Nepal. This paper presents state-of-knowledge on the glacial dynamics in the country based on studies conducted in the past in Shorong, Khumbu, Langtang, Dhaulagiri and Kanchenjunga regions of Nepal. We present recent trends in river flow and an overview of studies on expected changes in the hydrological regime due to climate change. Formation, growth and likely outburst of glacial lake are phenomena directly related to climate change and deglaciation. This paper provides a synopsis of past glacial lake outburst floods impacting Nepal. Further, likely impacts of climate change on other sectors such as agriculture, biodiversity, human health and livelihoods are discussed.