

Effects of climate change in Nepal

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Constant change in the climate of the earth has been an environmental phenomenon since pre-historic times. However, due to the rapid deforestation, urbanization, and industrialization, change in the climate has undergone and alarming transformation. Climate change is especially due to the release of greenhouse gases like carbon dioxide, methane and nitrous oxide in the atmosphere. Due to the continuous increase in the concentration of these gases, our Mother Earth has shown a constant increment in temperature. Countries like China, USA, European countries, Russia, etc are the highest emitters of greenhouse gases, thus they are the most responsible for negative climate change. However, a small Himalayan underdeveloped country like Nepal, with diverse geography and ecology, has already started to show disastrous and alarming impacts of climate change.

The effects of climate change are everywhere and affecting everybody all the time. It is a subject of serious research and investigation. However, the important effects of the present climate change can be listed as follows:

1. Rise in temperature

In comparison to the temperature 30 years ago, the average increase of the temperature is 0.6 percentage annually, which is about 0.06°C increase in temperature every year. For example, excess of 40°C temperature

has been recorded in southern slope of Kathmandu Valley. Consequently, the summers are getting hotter and hotter, and the number of cold days in winter is decreasing year by year.

2. Depletion of glaciers and drying up of water bodies

Study reveals that 66 percent of the observed 494 glaciers have retreated in 1958 - 1992. These glaciers are the sources of principal rivers like Koshi, Gandaki, Karnali, etc. Hence, the depletion and retreat of glaciers have led to the reduction of the water volume and drying up of rivers and other water bodies. This aspect also has a great economic impact on the hydroelectric projects, which are the backbone of industry and overall development of Nepal.

3. Formation of glacial lakes

According to ICIMOD, 2323 glacial lakes exist in Nepal. Among them, 20 are on the verge of bursting. The outburst of Dicho glacial lake caused a huge damage to Namche Hydroelectricity Project. Hence, the socio-economic loss caused by the bursting of these glacial lakes will be extremely high.

4. Migration due to climate change

People migrating due to climate change are popularly known as climate refugees. Due to scarcity of water sources, climate refugees from many rural areas of

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Nepal have already started moving to places where they get water easily. In some areas of Kathmandu Valley, underground water has already dried up. People are buying water from tankers even for construction purposes.

5. Change in the ecosystem

Not only are the human beings migrating, various plant and animal species are also changing their habitat. Oranges are growing in places where once apple used to grow. The decrease in population of vultures, increase in the population of snakes, scorpions, frogs, decrease in the reproduction rate of animal and insects, change in the reproduction time, etc. are some effects of climate change on the ecosystem. Paddy and other food grains, which were mostly produced from the Terai Region have now been thriving in high altitudes. And those species of flora and fauna, which were adapted in the high altitudes, are getting extinct.

6. Increase in natural hazards

On an average more than 500 people die in Nepal annually due to excessive rains, floods, soil erosion, droughts and landslides, and property worth several millions are destroyed. Due excessive soil erosion caused by rains and deforestation, forested hills are converting into bare hills. This process ultimately leads to desertification.

7. Decrease in agricultural yield

The loss of fertile top soil, increase in temperature, drought, uncertainty of rainfall, excessive rainfall at unwanted times, etc. are posing problems for farmers. Hence, agricultural yield is on the decline. This fact, for example, is reflected on the decreasing trend of maize yield from 1890 kg/ha. in 1975/76 to 106 kg/ha. in 1994. Acute shortage of food supply in the various remote and mountainous and hilly regions of Nepal has become a regular tragedy.

8. Health problems

Due to climate change pure drinking water is becoming scarce day by day. Diseases like malaria, *kalazar*, encephalitis and new diseases have been observed according to various medical reports. Due to increase in temperature, cases of high pressure and other related problems are also on the rise among the Nepalese people. Simple diseases like diarrhoea are also claiming considerable number of lives.

9. Effect on tourism

Nepal has been luring the tourists by its snow-capped majestic mountains, beautiful green hills, fast flowing rivers, etc. If climate change goes on in the present rate, there will be nothing left to attract the tourists. Thus, the largest foreign currency earning sector will be negatively affected.
