

Climate Change Impacts on Watershed Hydrology

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Editorial

For ages, human people have altered the environment. However, the effects of human activity have only begun to spread globally since the commencement of the industrial revolution. As a result of scientific evidence that greenhouse gases are growing in atmospheric concentrations and a changing climate on the planet, the environment is becoming a major concern of humanity today. Temperature rises around the world and the rainfall quantity and distribution are altered.

According to the Scientific Assessment Report of the International Panel on Climate Change, by 2100 global mean temperatures will climb between 1.4 and 5.8°C by twice as much CO₂ in the atmosphere. As a result of rising global temperatures, the sea level is predicted to increase, changes in rainfall patterns, and changes in other local climates. The possible influence on several sectors and natural processes is envisaged.

The possible direct influence of scientists on many industries has been estimated however, as effects for several sectors are linked, the whole implications would be more convoluted in reality. These changes can be expressed by recent storms and floods around the globe, as well as by the highly regular drought in African nations (particularly Ethiopia).

One of the most sensitive fields of concern is water resources; alterations to the hydrologic cycle result in climate change. Changes in temperature and precipitation cycle components can directly affect the availability of space and time for water resources or generally impact the water balance. Findings

from the International Cooperation on Climate Change (ICCP) reveal that developing nations, like Ethiopia would be most sensitive to climate change and may have a wide-ranging impact, particularly because the economy depends substantially on agriculture.

Therefore, Ethiopia is a worry for climate change and its effects. Consequently, it is highly important to identify climate change risk and to prepare adaptation alternatives. Since most water resource mitigation measures at water level are implemented, it is highly important for watershed management professionals to understand the possible effects of climate change on the watershed hydrological process. The review also shows the effects of climate change on the hydrological process of watersheds.

The main questions examined include the effect of climatic change on demand for evaporation of the atmosphere (Changing potential evapotranspiration), changes in rainfall, composition and interception of vegetation, changes in stream flow characteristics and changes in groundwater storage and recharges in accordance with studies, and climate and hydrological studies. The purpose of this study is to assess influence on hydrology of watershed based on climate and hydrology modelling studies on different watersheds of the growing global climate change.

Vegetation types, soil, geology, land, climate, practises of land utilisation and spatial patterns of interactions are affecting the hydrological water-shed. There is currently a strong consensus that human activities, especially fluvial geomorphology and climate, affect all these elements and interactions. The consequences of climate change on streamflow, depending on the location of research, include rises and declines as the variations in seasonality follow.

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