Climatic changes and its effect on freshwater resources and human health

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Abstract

Earth is a watery planet and about 71 percent of the total earth surface is covered by water. Major part of this water body is occupied by oceans which is about 96.5 percent. The remaining amount (3.5 %) exists in air, in the form of water vapors; in lakes, rivers, glaciers, in the ground as moisture, in aquifers and even human body contains 60 percent water by weight. Water body on planet earth remains constant but changes from one form to another through water cycle. Water cycle continuously moves water on, above and below the earth's surface.This water movement is attributed by a wide range of climatic variables including atmospheric (air, temperature, wind speed and direction etc), oceanic (sea surface temperature, sea surface salinity, sea level etc) and terrestrial (water discharge, water use, land cover, glaciers etc). Physical processes responsible for water movement, driven by climate variables, include evaporation, condensation, precipitation, infiltration, run-off, and subsurface flow. In this way water goes through three phases i.e. solid, liquid and gas. Based on these changes, it can be noted that both water and climatic changes are interconnected and change in one induces change in another directly and indirectly. These climatic changes greatly affect the water resources. This work is concerned with the effects of climatic changes on fresh water resources such as glaciers, ice caps, ground water, lakes, rivers, and swamps and also their consequences on human health. The climatic changes effects are noted throughout the world. As the earth's temperature rises, there can be increase in evaporation and consequently drought occurs. Similarly, increase in temperatures results in melting of glacial ice and flooding occurs. Glaciers are larger source of fresh water so if the climate change is much hotter than glaciers can disappear. Areas relying on snowmelt as their primary freshwater source could increasingly experience water shortages. Human beings require adequate supply of water and safe environment. They are exposed to climatic changes directly (weather) and indirectly through changes in water, food, air, ecosystem etc which depends on water supply. Water scarcity and malnutrition may be the most important consequences of climatic changes. According to World Health Organization (WHO) and United Nations International Children Emergency Fund (UNICEF), about 1.1 billion people do not have access to water resources. Malnutrition causes serious diseases like schistosomiasis and meningitis. According to World Bank Group, currently, 1.6 billion people live in countries and regions with absolute water scarcity and the number is expected to rise to 2.8 billion people by 2025.