There is almost unanimous consensus among the world's scientists that climate change is occurring due to the increase in greenhouse gas (GHG) emissions generated from burning fossil fuels. GHG emissions are gases, mainly carbon dioxide (CO_2), that trap the sun's radiation in the atmosphere, resulting in an increase in atmospheric temperatures and disruption in climate patterns.

The term "global warming" is mistakenly used to describe the climate change phenomenon. While it's true that climate change will cause an average increase in the world's temperature over the next century, some regions will actually experience a cooling effect. Nonetheless, climate change will lead to a disturbance in the atmosphere.

How would climate change impact water supply? Because the Earth's climate is changing, precipitation patterns are changing as well. Some regions, such as sub-Saharan Africa, will experience more droughts, while other regions will experience abnormal rainfall patterns and frequent flooding episodes. This disruption seriously jeopardizes water supplies in many parts of the world, and its effects are starting to be felt especially in the Middle East, Australia and parts of China.

The effects of climate change on water supply extend beyond mere disruption of rainfall patterns. Freshwater storage in mountain glaciers and snow cover in the Northern Hemisphere have already decreased significantly. This in turns affects the streams and rivers fed primarily by runoff from glaciers. By the middle of the 21st century, it is expected that the annual average river runoff will increase in northern regions but decrease in the southern hemisphere and dry tropics.

Another important consequence of climate change is a negative impact on freshwater quality worldwide. Increases in average water temperatures and flooding in some areas will increase the level of sediments, pathogens, nutrients, pesticides and dissolved organic carbon in water. This will result in tighter regulations to provide safe drinking water.

Although climate change will cause certain regions to experience less water stress, it is estimated that by the 2050s the areas subject to increasing water stress will be more than double the areas that are not. The change in water quality and quantity would also have severe impact on food supply around the world, exerting yet more stress on a planet with an exploding human population.

It is believed that significant damage has already been done to the climate to allow for any reversal of climate change. What can be done, however, is limit the extent of climate disruption and develop adaptation strategies to provide adequate and safe water supplies. It is important, therefore, to take the issue of climate change seriously and make it an integral part of economic and social development programs.