Earth's water supply remains constant: Can humans alter the cycle of that fixed supply?

Population increases, rising living standards and industrial and economic growth have placed greater demands on the natural environment. Our activities can create an imbalance in the hydrologic equation in many locations and can affect the quantity and quality of natural water resources available to current and future generations.

Water use by households, industries and agriculture has increased. These interests demand clean water at reasonable costs, yet the amount of fresh water is limited and the easily accessible sources have been developed. As the population increases, so will the need to withdraw more water from rivers, lakes and aquifers, hence threatening local resources and future water supplies. A larger population will not only use more water but will discharge more wastewater. Domestic, agricultural, and industrial wastes, including the intensive use of pesticides, herbicides and fertilizers, often overload water supplies with hazardous chemicals and bacteria. As well, poor irrigation practices raise soil salinity and evaporation rates. These factors contribute to a reduction in the availability of potable water, putting even greater pressure on existing water resources.

Urbanization typically is accompanied by accelerated drainage of water through road drains and city sewer systems, which often increases the magnitude of urban flood events. Rates of infiltration, evaporation, and transpiration are different from a natural setting. The replenishing of ground water aquifers does not occur or occurs at a slower rate.

Together, these various factors determine the amount of water in the system and can result in extremely negative consequences for river watersheds, lake levels, aquifers, and whole ecosystems.