The volume of water in the world never changes, but only 2.5 percent is fresh, and more than two-thirds of this is unavailable for human use.

There are approximately 1,386 million cubic kilometres of water on the planet. Nearly all of it is salt water, contained in the oceans, seas, saltwater lakes and in aquifers beneath the oceans. Of the 2.5 percent that is fresh water, more than two-thirds is locked up in glaciers, snow, ice and permafrost. Of the fresh water that is technically "available" for people to use, only a tiny proportion is on the surface of the Earth. The rest is to be found underground, in aquifers.

The Earth's water is in constant motion. It is evaporated from the land and oceans by the sun's heat, which turns liquid water into water vapour. Moisture held in vegetation is also lost to the air through the process of evapo-transpiration. In the atmosphere, the water vapour condenses into the droplets from which clouds are formed and eventually falls as rain. The key to our survival is that although fresh water flows from the land into the oceans, some of the evaporation from the oceans falls on land, feeding the rivers, watering the soil and restocking the underground aquifers.

Climate change is predicted to have an impact on our freshwater resources and ecosystems, including melting ice-sheets and alterations in rainfall patterns, but this is likely to take place at a local level. The total amount of water available to the planet is not predicted to change.

By my calculation this is 20 quadrillion pounds of water lifted into the atmosphere annually from lakes alone (10^15 kg)

Freshwater is less dense so should not be shown flowing along bottom.
2 Water Shortage

Global water shortage is not about a reduction in the total supply. The amount of fresh water that lands as rain, filling streams, rivers and lakes, remains constant at 12,500 cubic kilometres, and at present we are still using less than a third.

The problem lies in the mismatch between where the rain falls, and where people live. In many densely populated places, the renewable water resource is insufficient, leading to water being extracted from rivers and underground aquifers at an unsustainable rate. Increasing populations, expanding cities, and the swelling number of those enjoying a water-rich lifestyle are combining to cause critical localized shortages.

Another major cause of water shortage is its heavy use in irrigated agriculture in areas that are dry, or where rainfall is concentrated in seasonal downpours. Some regions, including the Indo-Gangetic plain in South Asia, North China, and the High Plains in North America, are dependent on storing and re-distributing water for agriculture.

Large parts of the African continent are prone to drought and one-third of the population – 300 million – live in conditions of water scarcity. In many areas, the potential for storing and distributing surface water by use of dams and infrastructure is inhibited by hostile geographical and other limiting factors.

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3 Rising Demand; 4 Dwinding Supply