

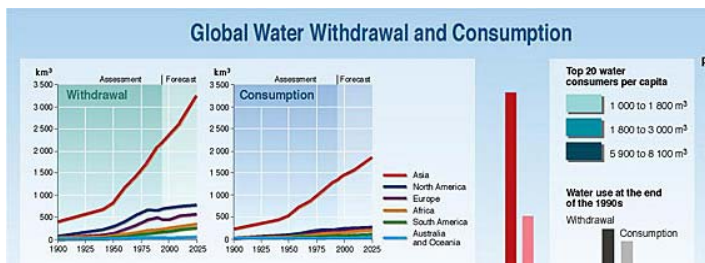
'Freshwater' – World's Most Precious Resource

Freshwater can be defined as water that has a dissolved salt content of less than 0.5 parts per thousand or 0.5ppt (seawater has 35ppt). Though water is the most widely occurring substance on earth, freshwater accounts for only 2.5% where the rest of water is saltwater. Only water in shallow groundwater, lakes, rivers and soil moisture is available to humans, which accounts for 1% of the world's freshwater.

Freshwater resources	Comments
Glaciers & Icecaps	68.9% of world's freshwater; far from human habitation and not readily accessible for human use
Groundwater	29.9% of world's freshwater; Only water in shallow groundwater is readily available for human use
Freshwater lakes and rivers	0.3% of world's freshwater
Others including wetlands, soil moisture	0.9% of world's freshwater

Source : Global water resource, UNEP/UNESCO

Freshwater is the most precious resource on earth. It is vital for all living organisms and major ecosystems (about 9000-25000 plants and animals species depends on freshwater ecosystems), as well as human health, food production and economic development. Freshwater is used for human consumption (drinking), cooking, cleaning of clothes and in home gardens. It is used to grow agriculture food and livestock and fish farming. The other use is in industry (as a means of removing wastes and by-products), in hydroelectric power generation, fire fighting, transportation, and healthy functioning of nature. Freshwater is also required for many recreational activities including fishing and swimming. It has also some aesthetic functions. The agriculture sector is by far the biggest user of freshwater, for example, 80% of freshwater in the USA is used for irrigation and 85-90% in Asia and Africa.



World's Freshwater resource is under greater pressure mainly due to rising of human population and growing concentrations of human habitation in urban areas. People in developed countries on average consume/use about 10 times more water than those in developing countries (eg. 300m³ per year in developed vs. 20 m³ per year in developing countries). The further pressure on this finite resource is due to the effects of global warming,

which may cause a change in world's rainfall patterns (eg. low rainfall in *Australia*) and possible intrusion of saline seawater into inland freshwater (eg. *Bangladesh*). The supply of freshwater is also constantly under threat from overuse and pollution that can contribute to the scarcity of this precious resource. Furthermore, the discharge of industrial effluents, and untreated sewage and release of toxins into lakes, rivers and groundwater may cause major freshwater pollution thus makes freshwater unusable for human use. Likewise, water contaminated with heavy metals, agriculture chemicals (such as pesticides and herbicides) and faeces (human & animal) could make freshwater unsuitable and unsafe for beneficial water usage. Indeed, as water pollution increases, the amount of usable freshwater water decreases.

Freshwater stress occurs because people are polluting the water as well as demanding more water for uses. Increasing human population and human activities will cause more freshwater demand in the future. By 2025 it is predicted that agriculture sector will require about 1.2 times more water, industry by 1.5 times and domestic consumption by 1.8 times.

World's freshwater resource needs protection, and conservation for its long-term sustainability. This may be achieved by preventing or minimising the risk of water pollution, through water savings programs, reuse and recycling of water (where feasible) and research to develop more efficient irrigation technology. Australia is the driest continent in the world, however, it is one of the highest domestic water users in the world, therefore wise use of water is vital in Australia.

References

- Handy *et al.* (2003). Coping with water scarcity. Water savings and increasing water productivity. *Irrigation & Drainage* 52(1):3-20
- United Nations Environment Program (UNEP). (2002). <http://www.unep.org/vitalwater/part> - 08,15,summary
- UNESCO (2003). Water for people, Water for life: World Water Assessment Program. <http://www.unesco.org>
- Water sanitation and health. WHO. http://www.who.int/water-sanitation_health/

The article is based on several sources and was compiled by Golam Kibria, Ph.D in September 2006 for <http://www.sydneybashi-bangla.com/>. Views expressed in this article are those of the author and are not to be taken to be the views of any others including third parties. The author disclaims any liability for any error, loss or other consequences which may arise from relying on any information in this article. Dr Golam Kibria is a Senior Environmental Scientist with the Australia's largest Rural Water Authority and based in Victoria