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# Freshwater: lifeblood of the planet

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Freshwater is the liquid of life. Without it the planet would be a barren wasteland with no life on it. The supply of water is limited, but demand is rising rapidly as population grows and as water use per person increases. The world faces a water crisis unless action is taken now to prevent it.

Globally between 12.5 and 14 billion cubic meters are available for human use every year. In 1989, this amount equaled about 9,000 cubic meters per person per year and by 2000 had dropped to around 7,800 cubic meters per person. In 2025 the amount of water is expected to fall to 5,100 cubic meters per person as the world's population grows from 6 billion to over 8 billion.

Even this amount would be enough to meet human needs, if freshwater were evenly distributed. But available freshwater supplies are not distributed evenly around the globe, throughout the seasons, or from year to year. For instance, the Congo River area accounts for about 30 per cent of the entire African continent's water, but it contains only 10 per cent of Africa's population. Two-thirds of the world's population - around 4 billion people - live in areas receiving only one–quarter of the world's annual rainfall.

Throughout much of the developing world, the freshwater supply comes in the form of seasonal rains. Such rains run off too quickly for efficient use, as during the monsoon in Asia. India, for example, gets 90 per cent of its annual rainfall during the summer monsoon season, which lasts from June to September. For the other eight months the country gets hardly any rain.

Pollution of rivers and lakes reduces usable freshwater supplies. Each year roughly 450 cubic kilometers of wastewater are discharged into rivers, streams and lakes. To dilute and transport this dirty water before it can be used again, another 6,000 cubic kilometers of clean water are needed – an amount equal to about two-thirds of the world's total annual usable fresh water.

The amount of water that people use depends not only on basic needs and how much water is available but also on levels of urbanization and economic development. Use of water has grown to meet demand for irrigated agriculture, industry, and urban development. As the world continues to urbanize and industrialize at rapid rates, the demand for potable – or drinkable - water is expected to grow faster than the cities can provide for it.

#### Water shortage

Population growth and rising demand per capita are creating water shortages in many countries. Globally, the annual population increase of nearly 80 million per year means an increased demand for freshwater of about 64 billion cubic meters a year – equal to the amount of water flowing each year through the Rhine River in Germany.

A country is said to experience water stress when annual water supplies drop below 1,700 cubic meters per person. When supplies drop below 1,000 cubic meters per person per year, the country faces water scarcity for all or part of the year.

Population Action International (AI) estimated that 31 countries, home to nearly half a billion

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people, regularly faced rather water stress or water scarcity. In 2025, 48 countries containing about 3 billion people will face water shortages. By 2050, 54 countries containing 4 billion people, or 40 per cent of the projected world population of 9.4 billion, will have a shortage of water.

The 20 countries of the Near East and North Africa face the worst situations. In fact, the Near East "ran out of water" in 1972. Since then, the region has taken more water from its rivers and aquifers – underground reservoirs of water - every year than is being replaced. Currently, for example, Jordan and Yemen withdraw 30 per cent more water from ground water supplies every year than is replenished – or put back, and Israel's yearly water use exceeds the renewable supply by 15 per cent. This means that water tables are falling and aquifers are slowly drying up.

Africa also faces serious water problems. Currently, some 206 million Africans live in water stressed or water scarce countries. By 2025 the number will rise to about 700 million, as population continues to grow quickly. Of these, about 440 million will live in countries with acute water scarcity (less than 1000 cubic meters per person per year).

## City demands

If calculations of water stress and water scarcity were made regionally instead of nationally, parts of many other countries would be considered to face shortages. China, for example, has 22 per cent of the world's population but only 7 per cent of all freshwater. China's freshwater supplies have been estimated to be capable of supporting 650 million people on a sustainable basis - only half the country's population. Despite flooding, particularly in the southern part of the country, China faces chronic water shortages in the northern part.

As of 1999, some 400 of 600 major Chinese cities were suffering from severe water shortages. Of these, 30 cities in northern China, including Beijing, will face long-term shortages severe enough to limit their economic development. Elsewhere, in rapidly growing cities such as in Bangkok, Dhaka, Jakarta, Lagos, Manila, and New Delhi, freshwater is so short that water theft has become widespread.

Already, China is practicing what water expert Sabdra Postel calls the "zero sum game of water management" – when authorities increase water supply to one user by taking it away from another. China's Yellow River is a classic example of this. The river is so over-used that, for an average of 70 days a year for the past decade, its waters have dried up before reaching the Bohai Sea. In 1995, the dry period lasted for 122 days, destroying crops in the once rich coastal area so that upstream factories and farms could take all the water.

### Nature's limits

A large part of the total freshwater supply is needed to feed marshes, rivers, coastal wetlands, and the millions of species of animals, birds and fish that live in them. As humans take a growing share of all freshwater, less is available to maintain important wetland ecosystems. Already, over 20 per cent of the approximately 10,000 freshwater fish species in the world are either endangered, threatened or going extinct.

Healthy natural ecosystems are essential regulators of water quality and quantityFlood plain wetlands, for example, soak up and store water when rivers flood, reducing downstream damage. Wetland ecosystems are economically valuable to humanity. Robert Costanza, director of the Institute of Ecological Economics at the University of Maryland, estimates the global value of wetlands at close to \$5 trillion a year based on their value as flood regulators, waste treatment plants, and wildlife habitats, as well as for fisheries production and recreation.

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The world's 6 billion people are already using just over half of all the accessible freshwater contained in rivers, lakes, and underground aquifers. With population growth and increasing per capita consumption of water, humankind could be using over 90 per cent of all available fresh water by 2025.

## **Finding solutions**

With growing demand for freshwater on the one hand, and limited and increasingly polluted supplies on the other, many countries face difficult choices. Finding solutions requires responses at local, national, and international levels. Nothing except a Blue Revolution in water management can prevent the coming crises.

Community led initiatives to manage water resources better can help people in urban areas to gain access to safe, piped water supplies, improved sanitation and public health. Despite



considerable efforts in the last two decades, the latest report by WHO/UNICEF finds that 2.4 billion people are still without acceptable sanitation, while 1.1 billion do not have access to clean piped water.

Up to a third of all the four billion cases of diarrhea in the world every year - causing 2.2 million deaths, mostly among children under five – could be avoided if they had access to safe water, adequate sanitation and hygiene, according to The Global Water Supply and Sanitation Assessment 2000.

Governments can develop national water management policies that help not only to improve supply but also manage demand better. Key strategies include regulation of water depending on its end use, and appropriate pricing - for example, ending the supply of cheap water that encourages overuse. There are also huge inequalities in the amount spent on improving services to the more wealthy sections of urban society compared to the investments in basic services for the urban poor.

International co-operation over sources of freshwater is possible and practicable. In November 1999, for example, Egypt, Ethiopia, and Sudan agreed upon a plan for "the sustainable developing of the River Nile through the equitable use of the river for the common benefit of all the river basin states". If the agreement - which covers irrigation, hydropower, drainage, drought and flood control, and pollution prevention - is carried out fully, it will be a significant development in a water-short region.

National governments in watershort regions have to deal with acute freshwater shortages and meet human needs for water without over-using and polluting available freshwater resources. This will require a level of international co-operation not yet seen in the area of resource management.

Adapted from an article on the peopleandplanet.net website. You can read the original at: <a href="http://www.peopleandplanet.net/doc.php?id=671&section=14">http://www.peopleandplanet.net/doc.php?id=671&section=14</a>

The photo is also taken from this article.