WORLD BANK

•PRESS RELEASE•

World Bank

1818 H STREET, N.W, WASHINGTON, DC 20433

Contact: Marshall Hoffman 703 820 2244
Radio & TV: Marie Christine Bonzom 202 473 0697

Release Date: Sunday, August 6, 1995, 4:00 p.m. EDT.
Released exclusively in Washington D.C.

Ismail Serageldin, World Bank Vice President, available for interviews August 3rd and 4th in Washington D.C. Please call 703-820-2244 to arrange an interview.

EARTH FACES WATER CRISIS WORLDWIDE

40 Percent Suffer Chronic Water Shortages

Some 80 countries with 40 percent of the world's population are experiencing water shortages that threaten their agriculture, industry and health, says the World Bank, the largest international funder of water projects.

Today, 1 billion people lack access to clean drinking water in the developing world and 1.7 billion do not have adequate sanitation facilities. The United Nations estimates say that dirty water causes 80 percent of the disease in developing countries and kills 10 million people annually.

A lack of clean water and proper sanitation also can trigger economic disaster. In just the first 10 weeks of the recent cholera epidemic caused by contaminated water in Peru, losses from reduced agricultural exports and tourism were estimated at $1 billion, or more than three times the amount invested in water supply and sanitation services in Peru during the 1980s.

Water scarcity, not shortage of land, will be the main future constraint of agriculture in developing countries, the World Bank says. Some 80 percent of all water used each year goes for irrigation, which produces 30-40 percent of world food crops on just 17 percent of all arable land. The demand for water for agriculture is increasing sharply: 50-60 percent of all new food output between 1960 and 1980 grew on irrigated land.

"Many of the wars of this century were about oil, but wars of the next century will be over water," says Ismail Serageldin, Vice President for Environmentally Sustainable Development of the World Bank, which has lent more than $36 billion for investments in irrigation, water supply, sanitation, flood control and hydropower since 1950.

Globally, the World Bank estimates that $600 billion must be spent over the next 10 years on water-related investments. Most of that total amount will be raised by the countries themselves, but $60 billion must come from abroad for the developing world, of which the Bank will lend $30-40 billion.

During the 1980s, international aid has helped to bring access to good water to an additional 1.6 billion people in the developing world. The number of urban people with access to an adequate water supply increased by about 80 percent to 1.2 billion during this period. The number of urban people with adequate sanitation facilities increased by about 50 percent to 900 million.

The three major trends putting pressure on Earth's water supply are:

- The world's population is growing rapidly, especially in urban areas, from 5.6 billion today to 8 billion in 2025. This will bring a greater demand for food and hence for irrigation. At the same time, the demand for water by households and industries, further stimulated by economic growth, is rising.

- The supply of good-quality water is being contaminated through pollution originating from domestic wastes, industry, agricultural chemicals and mis-managed land use -- effectively decreasing the amount of water available.

- Engineering and environmental costs of developing new water sources are much higher than those of sources already tapped. For many cities, the cost of water provided by future projects can be two to three times the cost of current supplies, even before environmental costs are factored in.

"The water problem in most countries stems not from a shortage of water, but rather mainly from inefficient and unsustainable use of water resources, a situation that cannot continue," says Mr. Serageldin.

Many of the countries with limited renewable water resources are in the Middle East, North Africa, Central Asia and sub-Saharan Africa, where populations are growing fastest. Other regions facing

water scarcity are northern China, western and southern India, western South America and large parts of Pakistan and Mexico. In Eastern Europe, pollution is the greatest problem affecting water resources.

The water situation in the Middle East and North Africa is the most precarious, where growing population and development have overwhelmed traditional water management practice. From 1960 to 2025, per capita renewable water supplies will have fallen from 3,430 cubic meters to 667 cubic meters, or an 80 percent drop within a single lifetime. Those 667 cubic meters per capita constitute just 15 percent of the total global average availability.

Global demand for water has historically increased at a rate of about 2.3 percent a year, doubling every 21 years, but supply can no longer keep up with this rate of growth. Some island nations such as Cape Verde and Barbados are already running short of freshwater.

Water and Agriculture

Agriculture consumes 90 percent of all water utilized in developing countries. More than 70 percent of all additional foodgrain production in Asia as a whole since the beginning of the Green Revolution in 1970 has been on irrigated land.

"The most important point is that reduced investments in irrigation and the loss of irrigated land to urban-industrial development is actually reducing the food production potential for the future," says Mr. Serageldin.

Asia's agriculture faces the most severe water problems of any continent. Slightly more than 50 percent of Asian agriculture is irrigated, which uses more than 40 percent of the entire world's annual consumption of fresh water. Agriculture accounts for 87 percent of China's water consumption. In India, agriculture consumes an estimated 93 percent of all renewable water.

Perennial irrigation allows farmers in most developing country climates to grow 2 to 3 harvests a year. Currently, some 60 percent of rice and 40 percent of wheat in developing countries grows on irrigated land.

"But some 45 percent of all irrigation water doesn't reach the plants it is intended for, which demonstrates how extremely inefficient irrigation is under current technology and conditions," says Mr. Serageldin. "However, that does not mean the water is totally lost. Part of it replenishes the ground water tables and can be used again by methods such as pumping."

For Africa, where poverty and rising food demand are pushing farmers increasingly into marginal lands, drought-resistant corn varieties will have to be developed as an alternative to typical dryland crops such as sorghum, millet and cassava.

Many countries that are running short of water for agriculture are tempted to tap partly non-renewable underground resources, a self-defeating policy likely to accelerate the process of desertification. Fossil water resources can be depleted as quickly as crude oil reserves. Libya consumes 3.7 times its renewable water resources, 75 percent of it for agriculture.

Effective water-saving efforts can be costly for farmers, both in the labor and capital they must invest. To facilitate these efforts, adequate technology and management practices will be needed, including: drought tolerant crop varieties; better irrigation management practices; and better soil moisture management practices. The World Bank is supporting research to help farmers through the Consultative Group on International Agricultural Research (CGIAR).

Excessive use of fertilizers, manure and agrochemicals associated with intensive farming, along with irrigation, has polluted rural waterways in both developing and developed countries. Phosphate leaching, for instance, is polluting parts of the Bay of Bengal, depleting the water's oxygen content and threatening the loss of fish and eventually eutrophication (ecological collapse stemming from over-supply of nutrients), which has already occurred in the northern Adriatic Sea.

Water and the Environment

The most rapidly growing source of demand for water in industrialized countries comes from the "environmental sector," which did not even exist a few years ago. This sector demands water for preservation in its natural state, for maintenance of wildlife habitats, for aesthetic and recreational purposes.

In California, for example, a great deal of water have been reallocated from agricultural to environmental uses. In terms of allocation of water, the environmental sector (water for fish and wildlife habitats, wetlands, estuaries and recreational lakes and rivers) is now the largest user of water in California, using 45 percent of total developed water supplies in the state, compared to 42 percent for agriculture.

Water, Sanitation and Health

Urban and industrial demand for water is largely a function of the rate of economic growth -- which is much higher in developing countries. Already, large amounts of water are being reallocated from the agricultural to the urban and industrial sector, thereby lowering food production capacity, especially in developing countries.

About 95 percent of the world's sewage is poured straight into rivers and other water flows, where it is joined by growing amounts of industrial waste. Sewage is rarely treated even in middle income countries. Buenos Aires, for example, treats only two percent of its sewage, a figure typical of Latin America. In addition, water quality is far worse in developing countries than in industrial ones. Overall, the environmental quality of water in industrial countries improved during the 1980s, stayed the same in middle-income ones and declined sharply in low-income countries.

"This decline in water quality can be seen in many developing countries," says Mr. Serageldin. "Most rivers in and around cities and towns in these countries are little more than open, stinking sewers that not only degrade the aesthetic life of the city but also constitute a reservoir for cholera and other water-related diseases."

The health benefits provided by better water and sanitation services were demonstrated in industrial countries in the 19th and 20th centuries. When services were improved, the impact on health was revolutionary. For example, life expectancy in French cities increased from about 32 years in 1850 to 45 years in 1900, with the timing of these advances corresponding closely to changes in water supply and waste water disposal.

Great progress could also be made in most developing countries just by improving the water quality from "bad" (more than 1,000 fecal coliforms per 100 milliliters of water) to "moderate" (fewer than 10 fecal coliforms per 100 milliliters). In the early 20th Century, some cities in the Ohio River valley used untreated water, while other cities treated their water. Over a 10-year period, death rates from typhoid fever were constant in the untreated water cities, declined by more than 80 percent in cities that treated their water.

As the "urban shadow" of pollution spreads concentrically around a city, expensive adaptations are required so that water supplies can remain safe. For example, Shanghai had to move its water supply intake 25 miles (40 kilometers) upstream at a cost of $300 million because of the degradation of river water quality around the city.

In some urban areas, environmental degradation also results from household attempts to compensate for inadequacies in formal water supply services. In Bangkok, Thailand, Jakarta, Indonesia, and Mexico City, for instance, excessive pumping has also led to land subsidence, causing damage to property, housing and infrastructure. In Bangkok, excessive ground water pumping has caused some land to subside by a yard or more (up to a meter), resulting in cracked pavements, broken water and sewage pipes, intrusion of sea water into aquifers and increased flooding in low lying areas.

In many rural areas, the problems are even worse. Women often must spend hours walking for water. For many women, it is a full time job, with some having to walk 10 to 15 miles to a water source, stay overnight, and then return, carrying some 20 liters of water, with disastrous health consequences.

Water scarcity and problems of water quality are spreading especially in Africa -- some 265 million people in sub-Saharan Africa have no access to safe water, and 344 million lack adequate sanitation.

The very poorest in the developing world are often forced to pay the highest fees for water, primarily because of politicized and inefficient bureaucracies. In city after city, the poor often rely on vendors who typically charge $2 to $3 for a cubic meter of water, 10 or more times the price paid by those in the same cities with access to tap water in their houses.

Widespread inefficiency in supplying water and sanitation is a major factor in the high cost of water sector services. Examples include:

• In Caracas and Mexico City, an estimated 30 percent of water connections are not registered.
• Unaccounted-for water is 8 percent of total water supply in Singapore, but 58 percent in Manila and about 40 percent in most Latin American cities. For Latin America, as a whole, such water losses cost between $1 billion and $1.5 billion in revenue foregone every year.
• The number of employees per 1,000 water connections is between two and three in Western Europe and about four in a well-run developing country utility, such as Abidjan, Côte d'Ivoire and Santiago, Chile, but between 10 and 20 in most Latin American utilities.

The cost of clean water is not confined to developing countries. It is estimated that the United Kingdom will have to invest about $60 billion in waste water treatment over the next decade in order to meet the new European water quality standards, which amounts to about $1,000 per capita, or about 0.6 percent of GDP spent on waste water treatment alone over that 10-year period.

New Approaches to Water and Wastewater Management

The Bank sees two distinct approaches to managing both the quantity and quality dimensions of water. The first is the traditional one in most countries, and involves setting standards and then attempting to raise the necessary resources, primarily through public financing. This approach has proved to be very inefficient -- the debate on "unfunded mandates" in the United States is bringing to light many cases in which vast sums of money have been spent for very little benefit. This approach is proving unworkable even in the richest countries in the world -- for example, at current investment levels, it will take Germany 40 years to reach current European water standards.

The second approach involves a more careful balancing of benefits and costs, and places much greater emphasis on consumer participation, economic incentives and private sector financing. Important examples of this approach include:

- For water quality management, the development of "water parliaments" and river basin financing agency approach, pioneered in the Ruhr Basin of Germany at the beginning of this century;
- For management of water quantity under conditions of scarcity, "water markets," as developed in recent years in the western United States, Chile and Australia.

- Two closely related guiding principles are central to an emerging consensus on how to manage water:

- Water has an economic value in all its competing uses and should be recognized as an economic good;
- Water development and management should be based on a participatory approach involving users, planners and policy makers at all levels, with decisions taken at the lowest appropriate level.

"The trend toward privatization will pick up, especially when facilities hit rock bottom," says Mr. Serageldin. "Offering private enterprise the incentives to work efficiently now appears to be the way to provide the most services at the lowest price for the poor. The coming water crisis can be averted by this joint effort of the private sector, individuals, national and local governments and international agencies."

* * *

WATER SCARCE COUNTRIES TODAY (Less Than 1,000 Cubic Meters of Water Per Capita Per Year)	Annual Renewable Fresh Water Available Per Person for early 1990s (cubic meters)
1. Djibouti	23
2. Kuwait	75
3. Malta	85
4. Qatar	117
5. Bahrain	179
6. Barbados	195
7. Singapore	221
8. Saudi Arabia	306
9. United Arab Emirates	308
10. Jordan	327
11. Yemen	445
12. Israel	461
13. Tunisia	540
14. Cape Verde	551
15. Kenya	636
16. Burundi	655
17. Algeria	689
18. Rwanda	897
19. Malawi	939
20. Somalia	980

Source: The World Bank

Projected Water Scarce Countries, 2025	Annual Renewable Fresh Water Available Per Person (cubic meters)
1. Djibouti	8
2. Kuwait	42
3. Qatar	65
4. Malta	66
5. Bahrain	83
6. Saudi Arabia	108
7. Jordan	115
8. Yemen	147
9. Barbados	154
10. United Arab Emirates	164
11. Singapore	172
12. Cape Verde	224
13. Kenya	224
14. Israel	237
15. Burundi	252
16. Rwanda	284
17. Tunisia	290
18. Algeria	309
19. Libya	329
20. Malawi	333
21. Somalia	337
22. Oman	396
23. Morocco	549
24. Comoros	572
25. Egypt	584
26. South Africa	644
27. Syria	685
28. Haiti	761
29. Iran	776
30. Ethiopia	784
31. Cyprus	921
32. Zimbabwe	952
33. Tanzania	955
34. Peru	983

Source: The World Bank

Selected Water Abundant Countries	Annual Renewable Fresh Water Available Per Person for early 1990s (cubic meters)
United Kingdom	2,090
China	2,427
India	2,464
Germany	2,516
Spain	2,849
Italy	3,243
France	3,262
Mexico	4,226
Japan	4,428
The United States	9,913
Brazil	46,631
Equatorial Guinea	85,227
Norway	97,268
Canada	108,900
Congo	359,803
Iceland	666,667

Source: The World Bank