



UN World Day for Water, 1999

"Everyone Lives Downstream"

Unsafe Water: 3.3 Billion Illnesses and 5.3 Million Deaths Yearly Price Tag for Safe Water -- \$50 to \$105 Per Person

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Hans van Ginkel, UN Under Secretary-General and Rector of the UN University, and Manuel Dengo, Chief, Water Resources Management and Small Island Developing States, UN Department of Economic and Social Affairs, will be available for interviews in Washington DC on Wednesday, March 17. Please call 416-538-8712 to arrange an appointment.

Clean, safe water can be brought to the 1.4 billion people around the world without it for as little as \$50 per person, which can prevent many of the 3.35 billion cases of illness and 5.3 million deaths caused each year by unsafe water, says a United Nations analysis.

At any given time, an estimated one half of people in developing countries are suffering from diseases caused either directly by infection through the consumption of contaminated water or food, or indirectly by disease-carrying organisms (vectors), such as mosquitoes, that breed in water. These diseases include diarrhea, schistosomiasis, dengue fever, infection by intestinal worms, malaria, river blindness (onchocerciasis) and trachoma (which alone causes almost six million cases of blindness or severe complications annually).

The UN warns that unless action is stepped up, the number of people without access to safe water will increase to 2.3 billion by 2025, with the number of those who die from unsafe water expected to jump sharply as well.

Right now, 20 percent of the world's population in 30 countries face water shortages, a figure that will rise to 30 percent of the world's population, in 50 countries, by 2025, according to the UN, observing World Day for Water on March 22. The theme of World Water Day 1999 is:

“Everyone lives downstream,” meant to convey that problems in one part of a watershed, or even in a country abroad, can affect people great distances away.

“Driven by a rising global standard of living and increasing food production, water demand is increasing at twice the population growth rate,” says Hans van Ginkel, Rector of the UN University (UNU), an international community of scholars engaged in research, training and knowledge dissemination to promote the UN's aims of peace and progress.

In many countries, water shortages stem from inefficient use, degradation of the available water by pollution and the unsustainable use of underground water in aquifers, the UN says. For example, 40 to 60 per cent of water used by utilities is lost to leakage, theft and poor accounting.

How bad is the water crisis:

- Every 8 seconds, a child dies from a water-related disease;
- 50 percent of people in developing countries suffer from one or more water-related diseases;
- 80 percent of diseases in the developing world are caused by contaminated water;
- 50 percent of people on earth lack adequate sanitation;
- 20 percent of freshwater fish species have been pushed to the edge of extinction from contaminated water.

“Not only is the toll a human tragedy, but it means these people are less able to carry on productive lives, and this undermines social and economic development,” says Klaus Töpfer, Executive Director of the UN Environment Programme (UNEP). Dr. Töpfer notes women and girls in developing countries spend more than 10 million person-years in aggregate each year fetching water from distant, often polluted sources.

Ironically, most available fresh water is found in developed nations, which have one-fifth of the world's population. Nearly all of the 3 billion increase in global population expected by 2025 will be in developing countries, where water is often already scarce, or comes in monsoons, hurricanes and floods, draining off the land quickly.

Getting Water to the Poor

The estimated capital cost to provide safe water in rural areas is \$50 per person; \$105 per person in cities, the UN says. Providing sanitation can be done for an additional \$30 or less per person in rural areas, \$145 in urban areas.

The UN estimates the overall price to bring low-cost safe water and sanitation to all those who need it today (and will in the next decade, given population growth) in rural and low-income urban areas at \$23 to \$25 billion per year over eight to 10 years. Current world investment is \$8 billion per year, leaving a \$15 to \$17 billion shortfall -- an amount roughly equal to annual pet food purchases in Europe and the USA.

Water can be provided with these funds in rural and low-income urban areas through the utilization of low-cost technologies that include handpumps, gravity-fed systems and rainwater collection, which would be built to serve entire rural villages or urban neighborhoods, rather than bringing indoor plumbing to individual houses. The provisions would include pumps, pipes, the training of workers, and the development and strengthening of water management practices.

“This is the absolute minimum that the world community must provide to the world’s poor without water,” says Dr. van Ginkel “It will save countless lives, and greatly lessen the burden on millions of those, mostly women and children, who must trudge miles each day to bring water to their homes.”

The Coming Water Crisis

The consequences of the increasing global water scarcity will largely be felt in the arid and semi-arid areas, in rapidly growing coastal regions and in the megacities of the developing world. Water scientists predict that many of these cities already are, or will be, unable to provide safe, clean water and adequate sanitation facilities for their citizens -- two fundamental requirements for human well being and dignity.

The problem will be magnified by rapid urban growth. In 1950, there were less than 100 cities with a population in excess of 1 million; by 2025, that number is expected to rise to 650. By the

year 2000, some 23 cities -- 18 of them in the developing world -- will have populations exceeding 10 million. On a global scale, half of the world's people will live in urban areas.

Some of the world's largest cities, including Beijing, Buenos Aires, Dhaka, Lima and Mexico City, depend heavily on groundwater for their water supply, but it is unlikely that dependence on aquifers, which take many years to recharge, will be sustainable. Groundwater from aquifers beneath or close to Mexico City, for example, provides it with more than 3.2 billion liters per day, but already water shortages occur in many parts of the capital.

The UN University says that as urban populations grow, water use will need to shift from agriculture to municipal and industrial uses, making decisions about allocating between different sectors difficult. Water scarcity is aggravated by four principal human failures:

- Reluctance to treat water as an economic as well as a public good;
- Excessive reliance in many places on inefficient institutions for water and wastewater services;
- Fragmented management of water between sectors and institutions, with little regard for conflicts between social, economic and environmental objectives; and
- Inadequate recognition of the health and environmental concerns associated with current practices.

“Instead, we must adopt a new approach to water resources management in the new millennium so as to overcome these failures, reduce poverty and conserve the environment -- all within the framework of sustainable development,” says Dr. van Ginkel.

The UN also warns of emerging trends that indicate the world is approaching a 'water crisis' in several regions -- most notably the Middle East and North.

“The main constraint to agricultural production in many areas in the near future will be the availability of water, not land,” Dr. van Ginkel says.

Water Wars?

Hydrologists have carefully plotted the water equation. The amount of fresh water on the planet is finite -- less than a million cubic kilometers. That was enough in 1700, when less than a billion people shared the planet, and in 1900, when some 2 billion people were alive. Now, there are more than 6 billion people and the freshwater supply is stretched to the limit. By 2025, the same amount of water must feed an additional 3 billion people.

The populations of water-short countries, today estimated to be 550 million, are expected to increase to 1 billion by the year 2010. Water shortages will be especially adverse for agriculture, which takes 70-80 percent of all available fresh water in the world.

Without stepped up effort, "common sense tells us that national tensions over water could jump perilously," says Dr. van Ginkel. "Conflicts over water, both international and civil wars, threaten to become a key part of the 21st Century landscape."

Geography will also contribute to the water conflicts. Nearly 47 percent of the land area of the world, excluding Antarctica, falls within international water basins shared by two or more countries. There are 44 countries with at least 80 per cent of their total areas within international basins. The number of river and lake basins shared by two or more countries are now more than 300. In Africa alone, there are 54 drainage basins covering approximately 50 per cent of the total land area of the continent, including their water resources.

In the coming decades, accelerating environmental pressures could transform the very foundations of the international political system. There are at least 25 million environmental refugees today, a total to be compared with 22 million refugees of the traditional kind. They are mainly located in sub-Saharan Africa, the Indian sub-continent, China, Mexico and Central America. The total may well double by the year 2010, as increasing numbers of impoverished people press ever harder on their already degraded environments, including their water resources.

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Appendix I

Estimates Of Morbidity And Mortality Of Water-Related Diseases ^a

Disease	Morbidity (episodes/yr.) or as stated)	Mortality (deaths/yr.)	Relationship of Disease to Water Supply and Sanitation
Diarrhoeal diseases	1,000,000,000	3,300,000	Strongly related to unsanitary excreta disposal, poor personal and domestic hygiene, unsafe drinking water
Infection with intestinal helminths	¹ 1,500,000,000	100,000	Strongly related to unsanitary excreta disposal, Poor personal and domestic hygiene
Schistosomiasis	¹ 200,000,000	200,000	Strongly related to unsanitary excreta disposal and absence of nearby sources of safe water
Dracunculiasis	100,000	-	Strongly related to unsafe drinking water
Trachoma	³ 150,000,000	-	Strongly related to lack of face washing, often due to absence of nearby sources of safe water
Malaria	400,000,000	1,500,000	Related to poor water management, water storage, operation of water points and drainage
Dengue Fever	1,750,000	20,000	Related to poor solid wastes management, water storage, operation of water points and drainage
Poliomyelitis	114,000	-	Related to unsanitary excreta disposal, poor personal and domestic hygiene, unsafe drinking water
Trypanosomiasis	275,000	130,000	Related to the absence of nearby sources of safe water
Bancroftian filariasis	¹ 72,800,000	-	Related to poor water management, water storage, operation of water points and drainage
Onchocerciasis	^{1,4} 17,700,000	⁵ 40,000	Related to poor water management in large-scale projects
<i>Totals</i>	3.34 billion	5.29 million	

¹ People currently infected.

² Excluding Sudan.

³ Case of the active disease. Approximately 5,900,000 cases of blindness or severe complications of Trachoma occur annually.

⁴ Includes an estimated 270,000 blind.

⁵ Mortality caused by blindness.

^a Source: WHO

Appendix II

*Access to safe water/sanitation, life expectancy and under-5 mortality*¹

Country	Population without access to safe water % (1990-96)	Population without access to sanitation % (1990-96)	Life expectancy at birth (1995)	Under 5 mortality (per 1,000 live births) 1996
Chad	76	79	47.2	149
Ethiopia	75	81	48.7	177
Zambia	73	36	42.7	202
Papua New Guinea	72	78	56.8	112
Angola	68	84	47.4	292
Congo	66	31	51.2	108
Madagascar	66	59	57.6	164
Sierra Leone	66	89	34.7	284
Cambodia	64	86	52.9	170
Haiti	63	75	54.6	134
Malawi	63	94	41	217
Central African Rep.	62	73	48.4	164
Tanzania, U. Rep. Of	62	14	50.6	144
Dem. Rep. Of the Congo	58	82	52.4	207
Lao, People's Dem. Rep.	56	82	52.2	128
Guinea	54	69	45.5	210
Uganda	54	43	40.5	141
Gambia	52	63	46	107
Niger	52	83	47.5	320
Turkey	51	38	68.5	47
Benin	50	80	54.4	140
Cameroon	50	50	55.3	102
Nigeria	50	43	51.4	191
Sudan	50	78	52.2	116
Cape Verde	49	76	65.7	73
Burundi	48	49	44.5	176
Comoros	47	77	56.5	122
Kenya	47	23	53.8	90
Togo	45	59	50.5	125
Namibia	43	66	55.8	77
Sri Lanka	43	37	72.5	19
Bhutan	42	30	52	127
Myanmar	40	57	58.9	150
Paraguay	40	59	69.1	34
Swaziland	40	30	58.8	97
Guyana	39	19	63.5	83
Nicaragua	39	69	67.5	57
Yemen	39	76	56.7	105
Indonesia	38	49	64	71
Lesotho	38	62	58.1	139
Bolivia	37	42	60.5	102
Mozambique	37	46	46.3	214
Nepal	37	82	55.9	116
Senegal	37	61	50.3	127
Dominican Republic	35	22	70.3	56
Ghana	35	62	57	110
Morocco	35	42	65.7	74

¹ Source: UN Development Programme

Mali	34	94	47	220
China	33	76	69.2	47
Peru	33	28	67.7	58
Ecuador	32	24	69.5	40
El Salvadore	31	19	69.4	40
Argentina	29	32	72.6	25
Mauritania	26	68	52.5	183
Pakistan	26	53	62.8	136
Brazil	24	30	66.6	52
Guatemala	23	17	66.1	56
Algeria	22	9	68.1	39
Burkina Faso	22	63	46.3	158
Iraq	22	30	58.5	122
Malaysia	22	6	71.4	13
Venezuela	21	41	72.3	20
Zimbabwe	21	48	48.9	49
Mongolia	20	14	64.8	71
India	19	71	61.6	111
Cote d'Ivoire	18	61	51.8	150
Oman	18	22	70.3	18
Samoa (Western)	18	6	68.4	53
Mexico	17	28	72.1	32
Philippines	16	25	67.4	38
Colombia	15	15	70.3	31
Syrian Arab Rep.	14	33	68.1	34
Egypt	13	12	53.8	78
Honduras	13	13	68.8	35
Belize	11	43	74.2	44
St. Vincent	11	2	72	23
Thailand	11	4	69.5	38
Djibouti	10	45	49.2	157
Iran, Islamic Rep. of	10	19	68	37
Botswana	7	45	51.7	50
Cuba	7	34	75.7	10
Korea, Rep. of	7	0	71.7	7
Panama	7	17	73.4	20
Lebanon	6	37	69.3	40
Saudi Arabia	5	14	70.7	30
United Arab Emirates	5	23	74.4	18
Costa Rica	4	16	76.6	15
Dominica	4	20	73	20
Maldives	4	34	63.3	76
Bangladesh	3	52	56.9	112
Libyan Arab Jamahiriya	3	2	64.3	61
Trinidad and Tobago	3	21	73.1	17
Jordan	2	23	68.9	25
Mauritius	2	0	70.9	23
Tunisia	2	20	68.7	35
South Africa	1	47	64.1	66
Barbados	0	0	76	12
Fiji	0	8	72.1	24
St. Kitts and Nevis	0	0	69	38

Appendix III

Easing the Water Crisis -- The Contribution of UN University

Capacity building and knowledge transfer are key to promoting better utilization and sustainable development of water resources, as is international co-operation and partnerships between the private and public sectors. International institutions such as UNU play an important role in promoting these partnerships.

UNU recently created an International Network on Water, Environment and Health, a growing, interdisciplinary and global Network of water science and management experts from academic and research institutions, non-governmental organizations, UN and other multilateral bodies, and private sector companies.

With core funding from and headquartered in Canada, its mission is to strengthen integrated freshwater management, particularly in developing countries, through capacity building and applied research. It does so with minimal overhead and the flexibility to assemble teams from different disciplines and countries with the precise skills and expertise to meet priority needs. Projects are at various stages of implementation in Mexico, South America, East Africa and the Middle East.

UNU is also assisting efforts to more accurately monitor and assess the quality and quantity of water resources, and it is contributing to the peaceful co-management of water in regions where potential conflicts have emerged.

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