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perspectives

The water crisis is the most pervasive, most severe, and most invisible dimension of the ecological devastation of the earth.

– Vandana Shiva, Indian physicist and environmental activist

... the wars of the next century will be fought over water. ...

– Ismail Serageldin, former vice president of the World Bank

Water is the wellspring of life, perhaps our most fragile and precious resource. But earth's freshwater is under siege. Humans are manipulating, polluting, and depleting freshwater supplies at alarming rates. Unless we dramatically change our ways, by 2025 roughly two-thirds of the world's population will face moderate to severe water shortages.

Already, an estimated 1.2 billion people – nearly one out of five – lack access to clean drinking water. Half of the world's population has inadequate water purification systems; 40 percent inadequate sanitation services. As water expert Peter Gleick observes, the water services of half of the world's people are inferior to those of ancient Greece and Rome.

LONGING FOR RUNNING STREAMS

by Mary Turgi, CSC

On a planet whose surface is largely water, the supply seems inexhaustible. However, in reality, only 2.5 percent of the earth's total water stock is freshwater and less than 1

percent of that freshwater is usable in a renewable fashion.

The only renewable source of freshwater is continental rainfall, which generates approximately 40,000 to 45,000 cubic kilometers per year. Meanwhile, the world's population keeps increasing by roughly 85 million each year, and water consumption is doubling every 20 years – more than twice the rate of population growth. It is not surprising that *World Resources*, a publication of the United Nations Environment Program, the World Bank, and the World Resources Institute, warns that the world's thirst for water will be among the most pressing issues of this century.

Deluge and Drought: Water and Climate Change


Freshwater scarcity is closely linked to another threat to earth's survival: global climate change. It is now commonly acknowledged that global temperatures *are* rising and that humans are responsible for most of that change because of excessive fossil fuel use.

But global warming does not simply mean higher temperatures. The most likely manifestation of climate change, scientists say, will be changes in the balance of water as liquid, vapor, or ice.

* Warmer temperatures will lead to increased evaporation, which

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It's appalling that even today the development debate in the North can only offer the Third World the option of dying from hunger or from loss of livelihoods and unsafe foods.

— Anuradha Mittal, co-director of Food First/the Institute for Food and Development Policy

GENETICALLY MODIFIED FOODS: MIRACLE OR MENACE?

by Al Mahoney, CSC

Perhaps nothing has sparked more heated ethical and environmental debate in recent years than genetic modification of foods. The U.N.'s 2001 *Human Development Report* touted genetically modified (GM) crops as the latest technological fix for world hunger. But countries like Zambia are refusing U.S. food aid even in the face of famine because the corn is genetically modified. What exactly is "genetic modification" (or "genetic engineering") and what makes it so controversial?

Genetically modified organisms (GMOs) are microorganisms, seeds, plants, or animals whose genetic make up has been changed by inserting a modified gene or a gene from another variety or species. From the beginnings of agriculture, humans have used biology to alter plants and animals. However, traditional breeding methods were based on transfer of genetic material within the same species. What makes today's genetic

engineering so controversial is that it frequently involves moving genes *across* the species barrier; e.g., the gene of a fish is spliced into the DNA of a tomato.

There are two primary GM technologies affecting food crops: The first engineers seeds so the resulting plants produce their own pesticides; the second modifies seed so it resists a particular herbicide, such as Monsanto's *Roundup*. Theoretically, such modifications enhance plant growth and increase yields.

However, there is abundant evidence that GM seeds do not fulfill these promises. Jorge Eduardo Rulli, an Argentine agronomist, reports that over the past six years, 90 percent of Argentina's farmers have been enticed to use *Roundup Ready* soybean seeds to double their crops. In fact, their yields/hectare have been lower. Similarly, in more than 8,200 U.S. field trials, *Roundup Ready* seed produced fewer bushels of soybeans than natural varieties.

In fact, far from being a solution to world hunger, genetically engineered crops threaten human security and endanger the environment.

★ Despite claims that GM foods are safe, adequate testing to assess long-term effects on human health has *not* been done. The British Medical Association, the U.S. Union of Concerned Scientists, and several members

LORDS OF THE HARVEST

of Health Canada have all warned that the safety of GM foods is uncertain.

- * Scientists estimate that herbicide-resistant seeds planted globally will *triple* the amount of toxic broad-spectrum herbicides used in agriculture. In addition to poisoning land and water, these herbicides – literally designed to kill anything green – will impact endangered plant species and non-crop plants used by small farmers as supplemental food and animal feed.
- * Genetically engineered crops are “biological pollutants.”
 - Wind, birds, bees, and insect pollinators carry genetically altered pollen into adjoining fields, contaminating the DNA of non-GE crops and undermining genetic diversity.
 - The pollen of genetically engineered Bt-corn is toxic to monarch butterflies; there is growing evidence that GM crops adversely affect other beneficial insects and soil microorganisms, bees, and birds as well.
 - Genetically engineered crops spread their traits to related plants creating “superweeds.” Lab and field tests indicate that common plant pests, under pressure from GE crops, will soon evolve into “superpests.”
- * The spread of GM crop production, coupled with corporate patenting of GM seeds and plants, threatens to destroy traditional farming practice. Half of the world’s farmers currently rely on saved seeds. But under patent laws of many industrialized countries, it is illegal for farmers to re-use patented seed. If GM plants contaminate other local crops, millions

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- * The top 10 seed companies control 30 percent of the commercial seed market worldwide.
- * The top 10 agrochemical companies control 84 percent of the global agrochemical market.
- * Five of the top seven “Gene Giants” are among the world’s top 10 seed companies.
- * The top five “Gene Giants” (Pharmacia, Dupont, Syngenta, Aventis and Dow) account for
 - nearly 62 percent of the global agrochemical market,
 - almost 22 percent of the global seed market, and
 - virtually 100 percent of the GM seed market.
- * Pharmacia’s (formerly Monsanto) GM seeds accounted for 94 percent of the total area sown to GM crops in 2000.

Sources: ETC Group (formerly RAFI) *Communiqué*, July/August 2001; *WorldWatch* magazine, November-December 2002.

FROM AFRICAN DELEGATES TO THE 1998 FAO MEETING:

We strongly object that the image of the poor and hungry from our countries is being used by giant multinational corporations to push a technology that is neither safe, environmentally friendly, nor economically beneficial to us.

We do not believe that such companies or gene technologies will help our farmers to produce the food that is needed in the 21st century. On the contrary, we think it will destroy the diversity, the local knowledge and the sustainable agricultural systems that our farmers have developed for millennia and that it will thus undermine our capacity to feed ourselves.

(Agricultural production) should be building on local knowledge, rather than replacing and destroying it. And most importantly: It should address the real needs of our people, rather than serving only to swell the pockets and control of giant industrial corporations.

Soot particles — a combination of carbon monoxide, sulfur pour from the factories, causing respiratory noxious odors, and a high concentration of

During the fishing boom of the '60s, Chimbote was the most important city on Peru's northern coast. In the 1950s, the city's population was 15,600. Just 50 years later, it stands at 350,000, with many of the newer arrivals living in houses made of straw, built on land that belongs to others. This dramatic increase in population, together with the environmental devastation caused by the fishing industry, creates desperate conditions in the city.

PERU: CHIMBOTE'S FISH FACTORIES GALVANIZE RESISTANCE

by Tom King, CSC, and Pat Crane, CSC

Currently there are 21 fish factories in Chimbote. Of these, only five use technology that adequately cleans the fish and controls pollution. The remaining 16 spew toxins into the air, water, and soil making Chimbote one of Peru's most contaminated cities.

Soot particles — a combination of carbon monoxide, sulfur dioxide, and fishmeal — pour from the factories causing respiratory diseases, allergies, noxious odors, and a high concentration of chemicals in both residential and agricultural areas. People who live near the factories frequently develop eye diseases. Those who have long-term exposure to factory pollutants actually experience a change in skin color: their skin turns blue!

The fish factories dump much of their liquid waste, including blood and oil, into the bay and the sewers. For every 18,000 tons of fish, 36,000 tons of processing water are dumped directly back into the bay or sewers without treatment. This produces blockages in the system and sewage leaks. When flooding occurs, waste and sewage spread all over the settlements.

Economically, most people of Chimbote are at the mercy of the fish factories. Seventy percent

of the city's residents rely on the fishing industry for employment. Forty-five percent live in conditions of extreme poverty, caused primarily by low wages and high unemployment rates. In 1998, unemployment soared due to *El Niño's* plummeting fish catches. Even after *El Niño*, unemployment rates have remained high. Currently only four of the 21 fishing factories in Chimbote are in operation.

Because they fillet fish faster and more effectively, most of the factory workers are women. However, wages are so low that many are abandoning the factories to work as domestics in Chile. Milagros, a woman from the Holy Cross parish, went to Chile — leaving her 12-year old son and 10-year old daughter with their father — because she was making less than \$3.00 per day. Her situation is typical of family disintegration caused by poverty.

Against very difficult odds, people are making a difference. For example, Maria Elena Foronda co-founded and directs *Natura*, a nongovernmental organization focused on improving environmental conditions and the quality of life of low-income residents of Chimbote. In 1994 *Natura*, with the Ministry of Health and the Ecology and Environmental Committee of the National Congress, launched a campaign against fish industry pollution. Shortly thereafter, Maria and her husband were arrested as "terrorists" and imprisoned for 13 months, though there was no evidence of guilt.

Ironically, this harassment only strengthened environmental work in Chimbote and led to new collective efforts to address the city's problems: planting communal tree nurseries, cleaning-up contaminated wetlands, and mobilizing people to build water and sewage systems. Eventually, Chimbote developed its own *Local Agenda 21* — a citywide environmental action plan.

Nine years after her imprisonment, Maria still persists — now stressing solutions more than

dioxide, and fishmeal — diseases, allergies, chemicals

protests. Today she works to convince the fishing industry that updating equipment would improve production and profits. If factories would use new technology, she argues, they would produce better quality fish and, within as little as six months, recoup their original investment. Moreover, the new technology would dramatically reduce pollution.

A recent poll indicates that 90 percent of Chimbote's residents believe their environmental problems can be solved if all sectors work together. The hope and determination of Chimbote's people stand in stark contrast to the dire conditions in which they live, but as Maria Foronda attests, "The people *truly* believe in a different future!" ■



Patricia Crane, a Sister of the Holy Cross, is responsible for the *Pastoral de Salud* (Health Ministry) of the Diocese of Chimbote. The focus of the *Pastoral de Salud* is integrative health and alternative medical practices (herbal medicine, reflexology, healing touch therapies, etc.). The office also just opened the first Hospice Program in the country of Peru.

Tom King is a temporally professed member of the Congregation of Holy Cross (EP) and a second-year Master of Divinity student at the University of Notre Dame. Before entering Holy Cross, he worked in residence life and community service programming at several universities. As part of this work, he facilitated national and international service experiences for students. Tom spent summer 2002 in Peru becoming more familiar with Holy Cross ministries in Chimbote and Canto Grande.



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of farmers will be unable to legally re-use their own harvested seeds and forced to buy new, costly GM seeds (and their required chemical inputs) each year. The biotech industry is even developing "terminator" technologies that make harvested seeds infertile in order to enforce their patents and ensure profits.

Critics assert that genetically modified crops were created precisely because they *are* patentable. Genetic engineering, they say, has nothing to do with feeding the world's hungry — and everything to do with increasing corporate control of food production. At a 1998 U.N. Food and Agriculture Organization meeting, delegates from 18 African countries strongly denounced Monsanto's exploitation of images of Africa's hungry as a ploy to promote GM seeds and accompanying fertilizers and herbicides (see sidebar, page 3).

Nearly 800 million people go to sleep hungry each night, but genetic engineering is not needed to solve that problem. The world already produces more than enough food for everyone. The real issues are inequitable distribution of power and resources. Hungry people are too poor to buy food that is available and lack land to grow it themselves. The solutions to these problems lie not in risky technologies, but in profound economic and political change. ■

Al Mahoney, a Holy Cross priest of the English Canadian Province, has worked primarily in Mexico and Peru. He is presently responsible for the *Congregation of Holy Cross Office for Justice and Peace* based in Toronto, Canada. In this capacity, he assists General Councilor James Mulligan, CSC, and works as part-time staff for the *Holy Cross International Justice Office*.



Cholera and dysentery are no strangers to us, especially during rainy seasons.

Ghana is plagued by a variety of environmental abuses; in particular, sand winning, deforestation, surface mining, and littering. Among these, littering is one of our most pervasive problems. In a 1997 public opinion survey, 84 percent of the respondents indicated that litter was a serious issue for our country.

TACKLING GHANA'S TRASH

by Michael Amakyi, CSC

In Ghana, littering occurs almost everywhere and is not confined to any particular group of people. Even those who are better educated and well employed are guilty. Passengers in moving vehicles have been identified as most to blame, but they are not the only culprits. Pedestrians, too, contribute to the piles of refuse.

Part of the problem is that water and snacks now come in handy polythene packaging that is not biodegradable. After satisfying their hunger and thirst, people just throw the packaging away, leaving it to clutter the streets. It is very difficult to comprehend this behavior. People, it seems, are just not stopping to reflect on the consequences of their actions.

And the consequences are great. Littering spoils our environment and gravely endangers the health of our people.

Our city, for example, is no longer beautiful. Rubbish and filth are all around us. The sidewalks are very unpleasant because they are covered with litter and you need to watch very carefully where you step. Our breezes are saturated with disgusting smells.

But litter is not only an environmental pollutant. It poses a grave danger to the health of our people as well. Because of litter, drainage systems

become choked with garbage and dirt. When the rains set in, flooding occurs and gives birth to contagious diseases. Cholera and dysentery are no strangers to us, especially during rainy seasons.

Environmentalists and concerned Ghanaians have been struggling to address these issues, notably through various forms of education. Billboards and posters with inscriptions like "Keep Ghana Clean" have been placed in strategic spots. There are also a few programs on national television aimed at reducing litter. However, these do not seem to be having a serious impact. In fact, the situation seems to be getting worse.

Curbing litter will require a concerted effort on the part of all well-meaning Ghanaians. The electronic media has a major role to play. There are numerous FM radio stations in our country; they should be at the vanguard — educating people against abusing the environment.

One of the ways Holy Cross has developed to support the efforts of Ghanaians concerned about the environment is "direct contact education." Together with a section of our students selected from the Red Cross Society and the Catholic Students Union, we make periodic visits to bus terminals to talk to people — especially travelers — about the need to protect our environment. The students speak briefly about the problems of litter and then appeal to people to take up the challenge to dispose of waste properly and boldly correct offenders.

We hope that gradually, as we keep appealing to people and getting other groups involved, Ghanaians will have a change of attitude and enthusiastically take care of our environment and protect our country's beauty. ■

Michael Amakyi, a Brother of Holy Cross, is a resident of Cape Coast, Ghana. After perpetual profession in 1990, he taught mathematics at St. Augustine's Secondary School in Cape Coast. In 1997, he was elected district superior of the District of West Africa and has been twice re-elected to three-year terms, most recently in December 2002.



Flying over Bangladesh, one can only be awed by the immense waters below, especially in the rainy season.

Even in drier months, only stretches of land protrude from the water. In Bangladesh, water is everywhere — approximately 7,000 rivers and at least 10 times that number of ponds and manmade lakes and water bodies, called “pukurs.”

WATERS OF BANGLADESH — FONTS OF LIFE, VESSELS OF DEATH

by Jarlath D'Souza, CSC

Rivers are the glory of the country — their beauty and attraction the dream of poets and lovers. Rabindranath Tagore, in *The Golden Boat*, metaphorically describes rivers as the pathway to God, the Eternal Boatman! Yet, rivers are also Bangladesh's sorrow. Our other national poet, Kazi Nazrul Islam, speaks of life as the endless “breaking of the banks.” The rivers play with us, he suggests! While they are a source of life, they are also a cause of death and can destroy the environment of a country.

Water is the lifeblood of Bangladesh, yet the bane of its existence. It is not surprising then that water is central to many of the country's environmental issues.

A key problem is the rivers themselves. The *Society for Environment and Human Development* notes, “The most influential single natural phenomenon (impacting) Bangladesh's culture, economy, and politics is the river system.” But the rivers are now more polluted than ever before. Floods and the attendant erosion of the banks have caused river water to become unclean, unfit for drinking and cooking. In the cities of Dhaka, Chittagong and Khulna, rivers have been contaminated by oil spills and industrial waste. In Dhaka alone, 277 leather tannery units poison the waters.

A large percentage of inland ponds and “pukurs” are filled with polluted or stagnant water that carries

diseases like cholera and typhoid. Even our underground water frequently contains toxic sediments. Of immense concern is the arsenic contamination of our underground aquifers. It is estimated that as many as 35 million Bangladeshis are drinking from arsenic-laced wells — a situation the World Health Organization describes as “the largest mass poisoning of a population in history.”

Salinity and waterlogging are other water-related environmental issues. The great Sundarbans mangrove forest in the south is slowly, but irretrievably dying, mainly due to increased salinity and siltation. In the lowlands and marshy areas, waterlogging creates stagnancy and decay.

Bangladesh is fortunate to have many non-governmental organizations working on water-related issues. Some of the most significant are *Bangladesh Poribesh Andolon (BAPA)*, a coalition of pro-environmental forces in Bangladesh; the *Bangladesh Environment Lawyers Association*; the *Society for Environment and Human Development*; and the *NGO Forum for Drinking Water Supply and Sanitation*, which is working on practical, low-cost solutions to arsenic contamination. In December 2002, BAPA sponsored the *Second International Conference on Bangladesh Environment* at which water issues were a primary focus.

Generally, the Catholic Church has not been directly involved in Bangladesh's environmental issues. However, several members of Holy Cross — including Fathers Richard Timm, Jean Homrich, Alex Rabanal, and myself — actively promote environmental awareness through our parish centers and organizations. It is our hope that the Holy Cross family in Bangladesh will increase its ecological concern and become more actively engaged in saving our environment. ■

Born in Chittagong, Bangladesh, **Jarlath D'Souza** joined the Brothers of Holy Cross in 1947 and spent 35 years of his life as a teacher and high school principal.

He is currently the director of the *Bangladesh Inter-religious Council for Peace and Justice (BICPAJ)*, a 15-year-old social action group which he helped found. In that capacity, Jarlath writes and lectures on peace and human rights and is active in interfaith dialogue.



>>> Longing for Running Streams, continued from cover

paradoxically will result in more frequent/severe droughts *and* in torrential rains. These downpours will intensify flooding and runoff and reduce water's ability to infiltrate the soil.

- * Higher temperatures will also mean less snow and more rain. Less moisture will be stored as snow and more water will run off in winter when it plays little agricultural role.
- * As temperatures warm, sea ice and glaciers will melt and sea levels will continue to rise, accelerating saline contamination of freshwater aquifers and river deltas.

Water: Depleted and Degraded Agricultural Waste

Agriculture accounts for about 70 percent of water consumption worldwide. According to freshwater experts, this use is deplorably unproductive: as much as half of the water diverted for agriculture yields no food at all!

Most agricultural water waste is due to intense, inefficient irrigation and growth of water-thirsty "Green Revolution" crops. Intensive irrigation is attractive to growers because it typically enables higher yields and produces multiple crops per year.

In the long run, however, heavy irrigation actually undermines crop production and contributes to food insecurity. Water-intensive farming often adds more water to the soil than the natural drainage system can handle. The result is waterlogging and salinization as salts rise to the surface. Producing two to three crops per year eventually depletes the soil so continued farming requires heavy infusions of fertilizers and other chemicals. This creates added problems as runoff waters contaminate freshwater sources with chemical pollutants.

Overpumped Aquifers

Food production and other human demands are not only depleting and polluting surface freshwater; they are draining the planet's underground reserves as well.

- * The Ogallala Aquifer — one of the world's largest — covers 225,000 square miles beneath parts of eight U.S. states and feeds one-fifth of the nation's irrigated lands in the United States. By conservative estimates, water is currently being withdrawn from the Ogallala at a rate 10 times that of natural recharge.
- * In several states in India, groundwater extraction rates are so high that water tables are dropping one to three meters per year.

- * Mexico's aquifers are also heavily overdrawn. Some barrios in Mexico City sink as much as a foot a year and, in the agricultural state of Guanajuato, the water table is falling 1.8 to 3.3 meters per year.
- * In many coastal areas, water tables have dropped so low that sea water is invading aquifers — compromising water quality and limiting its usefulness for drinking or irrigation.

Throughout the world, nations are carelessly endangering their stocks of freshwater. "The penalty for mismanagement of this valuable resource is now coming due," the *International Water Management Institute* warns, "and it is no exaggeration to say the results could be catastrophic. . . ."

Damage from Dams

Over the past century, humans have constructed so many canals, dams, and reservoirs that the resulting redistribution of water has changed the wobble of the earth as it spins. Only in the past few decades have we realized the environmental consequences of these projects. Dams and their reservoirs not only wreak havoc on riverine ecosystems, they also cause saline contamination of water and land.

Because reservoirs expose so much water to the sun, huge quantities are lost to evaporation. In the water that remains, salt concentrations increase. As these waters are distributed to croplands and permeate the soil, they accumulate more salt and return to the river with even higher concentrations. Both land and water are slowly poisoned with salt.

The world's most infamous saline disaster is Central Asia's Aral Sea. Decades ago, the main



Fishing ships left behind on the former Aral Sea bed.
Photo courtesy of www.uzland.uz

rivers feeding the Aral were dammed and diverted to irrigate cotton. Once the world's fourth largest freshwater lake, the Aral has now shrunk to about 25 percent of its 1960 volume. As the sea has shrunk, its salinity has quadrupled — wiping out 24 native fish species and a vibrant fishing industry involving 10,000 people. Each year, windstorms pick up tons of dust, salt, and agricultural pollutants from the dried seabed, causing illnesses and environmental contamination. Damage estimates run \$1.25 to \$2.5 billion (U.S.) annually.

Water for Profit?

Freshwater scarcity is unquestionably one of the gravest problems we face. Yet, depletion and pollution are not the only threats to our water security. The most serious threat may well be the touted solutions to the crisis: the commodification and privatization of water. Faced with the freshwater shortfall, governments and international institutions are increasingly promoting an economic solution: Put water up for sale and let the market determine its future.

Water trade is big business. *Fortune* magazine says "water promises to be to the 21st century what oil was to the 20th: the precious commodity that determines the wealth of nations." Already, the annual profits of the water industry amount to 40 percent of those of the oil sector. And with only 5 to 7 percent of the world's water currently in private hands, for a handful of transnational corporations (TNCs), the deepening water crisis is not a problem at all, but an opportunity for enormous profit.

Water for profit takes many forms. The bottled-water industry is one of the fastest growing in the world. In constant search of new supplies, companies scour the earth — buying up farms, indigenous lands, wilderness tracks, whole water systems — moving on when sources dry up. TNCs are also busy constructing massive pipelines, supertankers, and even huge sealed water bags to transport water around the world for sale to the highest bidders.

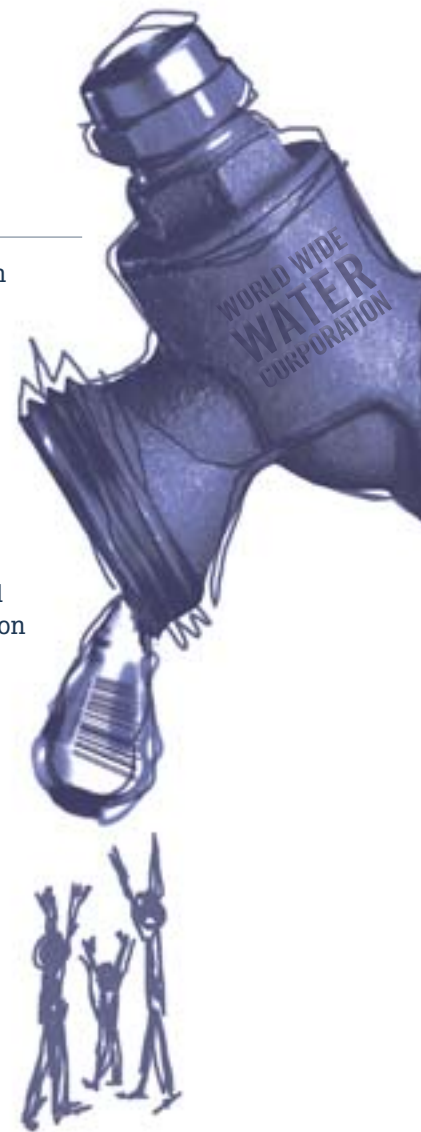
Increasingly seen as an economic "good" or "service," water is being subjected to international trade regulations. Free trade agreements and World Trade Organization (WTO) negotiations give corporations unprecedented access to freshwater resources of signatory countries. Under the North American Free Trade Agreement (NAFTA), for example, if Canada begins to sell water to the

United States, any attempt to turn off the tap could be considered a trade violation and corporate investors would be allowed to sue Canada for financial losses. Already, a California company is suing the Canadian government because British Columbia has banned the commercial export of water.

One of the most controversial trends in water's commercialization is the transfer of water services from public entities to private hands — a process commonly called "privatization." For various reasons, governments in both developed and developing countries are increasingly unwilling or unable to provide such services. Frequently, poor countries are forced to privatize public services to qualify for loans or debt relief. TNCs promise efficient, expanded services and lower prices, but the reality is usually quite different.

- ✦ In Cochabamba, Bolivia, water rates shot up as much as 200 percent after the system was privatized. Some residents found themselves paying more for water than for food. Street protests led to riots. After fatal shootings, the Bolivian government conceded and voided the contract.
- ✦ In 1992, Suez won a 30-year contract to manage water and sewage systems in Buenos Aires, Argentina. The company did expand service, but was slow to install wastewater lines. The additional water produced so much runoff the water table rose — flooding streets and basements with sewage.
- ✦ Consumer costs also skyrocketed in France and the United Kingdom after water privatization. Even the U.K.'s conservative *Daily Mail* charged Britain's top water companies had "pull(ed) off the greatest act of licensed robbery in our history."

Around the world, when water services have been privatized, results have been predictable: higher costs, compromised water quality, service cutoffs for those too poor to pay, and most importantly, loss of public control of a critical resource.



WHAT CAN WE DO?

FRESHWATER ISSUES

Celebrate 2003 as the *International Year of Freshwater (IYFW)*!

- * Plan a special educational event or prayer.
- * Visit the IYFW web site www.unesco.org/water/iyfw2/ for more information on the world's freshwater and ways to observe the year.
- * Investigate water issues in your community:
 - How safe is your water?
 - Do poor people have access? If not, what can Holy Cross do to help?
 - How is your locale protecting water from depletion and pollution?
 - How can you conserve water in your homes and communities?
- * Monitor movements to privatize water services in your locale.
- * Endorse the *Treaty Initiative to Share and Protect the Global Water Commons* on the HClJO web site.

GMO FOODS

- * Investigate your country's laws about GMO foods. If they protect farmers and consumers, write a letter of thanks to the appropriate government agency. If not, join a national campaign supporting protection.
- * Raise questions about the wisdom and ethics of genetic engineering.
- * Oppose corporate control of the world food system, especially patents on seeds, natural medicines, plants, and other life forms.

RESOURCES ON FRESHWATER AND GMOS

WEB SITES

- * **The HClJO site** <www.holycrossjustice.org> has extensive resources on water issues, GMOs, and corporate control of food production as well as links to related sites.
- * **The Council of Canadians** <www.canadians.org> has information related to their *Water* and *Biotech* Campaigns in both English and French. Their *Blue Planet Project* site www.canadians.org/blueplanet has many water-related resources in Spanish and Portuguese as well as French and English.
- * **The Pacific Institute for Studies in Development, Environment, and Security** <www.pacinst.org> publishes a biennial report on freshwater resources, *The World's Water*, and is an excellent source for accessible scientific research about freshwater.
- * **The Worldwatch Institute** <www.worldwatch.org> provides international, interdisciplinary research on key environmental, social, and economic trends. The site offers a library of resources on creating an environmentally sustainable and socially just society. Most of their publications are translated into many languages.

VIDEOS

- * ***Water: Sacred and Profaned*** (27 minutes) is a reflective program exploring the sacred nature of water. Naturalists, authors, poets and ecologists share their insights about water, the most abundant and fundamental element on earth. The program includes compelling images of water in all its forms and concludes with a four-minute montage of water's beauty set to music.
- * **Excerpts from *NOW with Bill Moyers*** *Leasing the Rain* (30 minutes) tells the story of water privatization in Cochabamba, Bolivia. Based on research by *New Yorker* writer William Finnegan, the segment describes the takeover of Cochabamba's water by a

subsidiary of Bechtel and the deadly protests which followed Bechtel's attempt to "lease the rain." Finnegan's full article, published in the April 8, 2002, *New Yorker*, can be found on the HCLJO web site.

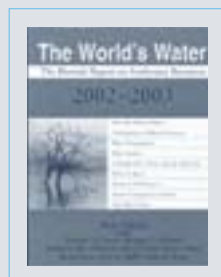
Seeds of Conflict (25 minutes) describes how genetically modified corn is changing global agriculture. The program covers a spectrum of opinion as correspondent Mark Shapiro talks with Mexican farmers whose crops have been GM-contaminated, researchers breeding medicines into food, and scientists warning that GM foods are a dangerous "genie out of the bottle." Shapiro's full article, published in the October 28, 2002, *The Nation* is available on the HCLJO web site.

- * ***The Genetic Takeover — or Mutant Food*** (52 minutes) examines an array of issues surrounding genetically modified foods, including the science of gene manipulation, the impact of GM foods on farmers and consumers, and differing public responses to GM foods in Europe and North America. Interviews with critics and researchers, such as Jeremy Rifkin and Canada's Michele Brill-Edwards, reveal the secretive nature of for-profit biotechnology, and alert viewers to the dangers of inadequate regulation. *The Genetic Takeover* has been described as "a remarkable documentary" that raises key questions and legitimate doubts about the corporate appropriation of our genetic heritage. Produced by the National Film Board of Canada.

These videos (available in VHS and PAL) may be borrowed free of charge from the Sisters of the Holy Cross Justice Resource Library (e-mail: ksmedley@cscsisters.org; fax: 574-284-5596).

BOOKS

- * ***The World's Water 2002-2003: The Biennial Report on Freshwater Resource***, Peter Gleick, et al., Island Press, Washington, D.C., 2002 (see also, *The World's Water 2000-2001* and *The World's Water 1998-1999*).



- * ***Water Wars: Privatization, Pollution, and Profit***, Vandana Shiva, South End Press, Cambridge, Mass., 2002.



- * ***Blue Gold: The Fight to Stop the Corporate Theft of the World's Water***, Maude Barlow and Tony Clark, The New Press, New York, N.Y., 2002.



- * ***Stolen Harvest: The Hijacking of the Global Food Supply***, Vandana Shiva, South End Press, Cambridge, Mass., 2000.



Speak up for those who cannot speak for themselves, for the rights of those who are destitute.
Speak up and judge fairly, defend the rights of the poor and the needy.

Proverbs 31:8-9





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From Scarcity to Abundance

If letting markets dictate water's future is not a solution, what *is* to be done? Fortunately, the situation is not at all hopeless. We know how to restore and protect the world's water.

Use water more efficiently

- * **Repair aging infrastructures:** In many countries, at least 30 percent of the domestic water supply never reaches its destination due to leaky pipes, faulty equipment or poorly maintained distribution systems.
- * **Employ new technologies to reduce use:** Water that does reach consumers is often wasted — literally flushed away. Low-flow showers and toilets can make a surprising difference. In Mexico City, a water conservation program replaced 350,000 old toilets and saved enough water to supply 250,000 residents.
- * **Replace wasteful Green Revolution agriculture with "Blue Revolution" conservation strategies:** Farmers around the world have proven that highly efficient sprinklers and drip irrigation systems can cut water use by 30 to 70 percent while significantly raising crop yields.
- * **Choose a grain-based diet:** We can conserve water by changing not just how we grow our food, but what we choose to eat. Growing a pound of corn requires only 100 to 250 gallons of water; growing the grain to produce a pound of beef takes 2,000 to 8,500 gallons.

Reclaim and reuse

Instead of searching endlessly for new water sources, use different kinds of water for different needs. Wastewater and polluted waters can be reclaimed to varying levels and used to recharge groundwater, supply industry, irrigate crops, and even increase potable water supplies.

Stop damage from dams

Dismantle the most destructive dams and bring the dam industry under democratic control. Ensure that new water projects

meet the core values of the World Commission on Dams: equity, efficiency, participatory decisionmaking, sustainability, and accountability.

Develop a new water ethic

Most critically, we must develop a new global consensus about water. As the *Treaty Initiative to Share and Protect the Global Water Supply* asserts:

- * We must affirm that water's intrinsic value precedes its utilitarian and commercial value.
- * We must acknowledge that freshwater belongs to the entire Earth and *all* species. It is not the property of humans alone, nor a commodity to be manipulated for profit.
- * We must assert that access to clean freshwater is not only a human need, but a fundamental human right.
- * Finally, we must declare the global freshwater supply a common good — a shared legacy and a public trust, the collective responsibility of us all. ■

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