



## Forecast

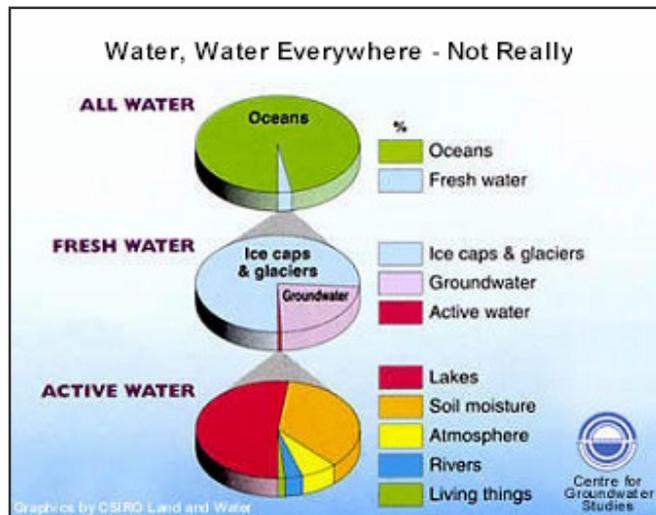
this week: **Water**

**E**arth, the watery planet; has dangerously low levels of fresh water. Unlike *climate change*, where many aspects of the issue are still under debate, *water scarcity* is a certainty and its consequences are a certainty. Many of the consequences, even the most dire, are not decades hence but will appear two or three years hence. Futurists have admitted they were wrong in 2000 ... some events they forecast for 2025 have already happened in 2006.

## Water – The Reality

The *green revolution* of the 1970s was a success, but there were victims and consequences. The 1972 *Limits to Growth* of the **Club of Rome** formalized forecasting at a global level; its multi-factorial computer projections demonstrated world population growth rates were very close to crunch time. Resources – the focus then was mainly *oil* -- would simply not sustain the growth rates. Many of the factors such as “death due to overcrowding” extrapolated with Malthusian objectivity from *rat* populations, were self-explanatory, and sufficiently colorful to grab the attention of the world. Such forecasts probably stiffened **China’s** resolve to implement a “one child” policy which had marked effects on its population growth. During the 20<sup>th</sup> century the world's population tripled but with widespread introduction of “modern” agricultural techniques including *intensive irrigation* the world’s grain harvest also tripled during the later half of the century. That revolution has come at immense cost and with an entirely false sense of security. All of the world’s great rivers and fresh water bodies have now been severely comprised or polluted and withdrawals made from underground water reserves during decades will take thousands of years to replenish. The “crunch” was merely postponed for a generation.

Most of Earth’s water is *sea water*, and most of the fraction that is fresh water is locked up in *ice*. Less than **0.1%** of Earth’s water is available for human use. The history of human settlement reflects the nexus with water – *Indus Valley* civilization, *Nile* civilization, *Fertile Crescent*. Civilizations not only rose but also fell by water; ruins of cities throughout the world now in the middle of dusty nowhere once stood near water-courses that moved or dried up. History is replete with attempts to control water, to dam, store, and move it. The *Marib* high civilization in 6<sup>th</sup> century BC *Yemen* lasted as long as the Marib Dam; Rome lasted as long as its lead-lined *aqueducts*.



Around 7,450 billion cubic metre per year (Gm<sup>3</sup>/yr) of water is used for all purposes around the world; a simple average of 1,240 cubic metre per head per year (m<sup>3</sup>/cap/yr). **India** is the greatest user of water in absolute terms, but has a below average use per capita. The highest use per head is in the **US** with 2,480 m<sup>3</sup>/cap/yr, twice the global average. The **Chinese** use 700 m<sup>3</sup>/yr per capita, less than one-third the US usage. At least 70% to 85% of all water around the world is used in *agriculture*, 5% to 10% is used in *industrial processes* and only around 5% is used by *households*, and only a small part of that is *drinking water*; most is used in cooking, cleaning, sanitation, and bathing. Thus, water scarcity is a vague term. It may mean insufficient water for agriculture or some industries or insufficient supply of water to people in villages or cities. Whether the water is drinkable or not is a different dimension to scarcity. Of the 20% of people who lack access to safe drinking water, many of these are the 50% of the world’s population who



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lack satisfactory *sanitation*. Water *scarcity* can not be overcome by any amount of hygiene or filtration.

## Virtual Reality

Most water now, as ever, is used by *agriculture* not by people in cities; and in exporting and importing commodities, water – *virtual water* -- is moved around the world locked up in the goods that consume it in their production. *Virtual water* is now a mature concept and no serious discussion of water is possible without it. One *potato* requires 25 litre of water to produce; one glass of *milk* requires 200 litre. One sheet of office *paper* requires 10 litre; exporting 1,000 sheets of paper is to export of 10,000 litre of water. Common food *grain* requires 1,000 times their own weight in water to produce; one tonne of grain is 1,000 tonne of *virtual water*. But even more water-greedy is *cotton*; one cotton T-shirt has a virtual water component of 4,100 litre. Clearly, water is not just an incidental detail of agricultural production – it is integral to the strategic equation of world food supply, and the supply of essential goods. Exporters of grain and other goods are exporting water. Similarly, a country imports those goods it does not have sufficient water to produce; it in effect is importing water. Nature handles the miracle of growing the grain; supplying sufficient water to where it is needed is the man-made miracle. World trade is water trade; grain futures is water futures. For these reasons, systemic water shortages in a large world player such as **China**, **India**, or the **US** will be transmitted around the world.

## Water Management

The *where* and *when* of water is critical. In many areas, drought will be broken by monsoon rains or hurricanes causing catastrophic floods – then the yearly cycle of drought and flood will repeat. Even cities and regions with severe water scarcity will drain storm rains away as a nuisance rather than collect it even for agricultural purposes. Most cities are built for drought, or for flood, rather than a sensible synthesis of the two. *Waste* and *loss* are also major elements of the water equation. Losses through *evaporation* from shallow standing reserves, from *canals*, *leaks* from pipes in cities, and *waste* from agricultural irrigation is a significant component of water use. In *New Delhi* and *Mexico City* up to 40% of reticulated urban water is lost due to leaking pipes. *Pollution*, another negative impact on water resources, often costs nothing – it requires only a moonless night and/or the price of an official's blind eye. But the *cost* of pollution is borne by the whole community and, if cleanup is possible, the cost is invariably far greater than the cost of orderly *sequestration* or *recycling* of dangerous wastes in a safe manner. Education, policing and crippling penalties are the only solution for willful or careless destruction or degradation of public water. Systematic pollution such as *pesticide* and nitrogen-rich *fertilizer* runoff, and untreated *sewage* outfalls into *estuaries* and *oceans* is causing loss of *ocean* habitat and a decline in fish near large population centers. The oceans are large but they are a sensitive interconnected earth sub-system needing a similarly-interconnected overview as land water systems.

A callous disregard for the future is also found in the use of *groundwater* reserves (aquifers). *Aquifers* that take centuries or millennia to recharge have been drained in decades in the **US**, **China** and elsewhere. Use of aquifers is often a political expedient or commercial windfall. Rather than solve water problems with capital-intensive storage and diversion of rainwater, government sees groundwater as a quick fix. But it is a temporary and disastrous fix. Fossil aquifers are, like *oil*, not renewable; porous rock aquifers do replenish but in exponentially-longer timeframes than they are being depleted. Aquifers are being drilled deeper and deeper with lessened flows each year. A day will come – tomorrow, or the day after – when the aquifer will give out and government will be left with industries, towns, whole regions economically dead. Equally catastrophic is the slow death of the region interconnected with the aquifer, often ecologically-rich *wetlands* or *marshes*. In coastal areas, salt *seawater* can flow into the aquifer and spoil the entire reserve. As aquifers are sucked dry there will also often be land *subsidence*, as seen in **Bangkok**, **Mexico City** and **Venice**. Similarly, badly-planned *dams* or overuse of rivers has led to *silted* unhealthy waterways. Vast bodies of standing fresh water such as the *Aral Sea* or the *Great Lakes* have been starved of flesh inflows and/or have been severely polluted.



## Water-borne disease

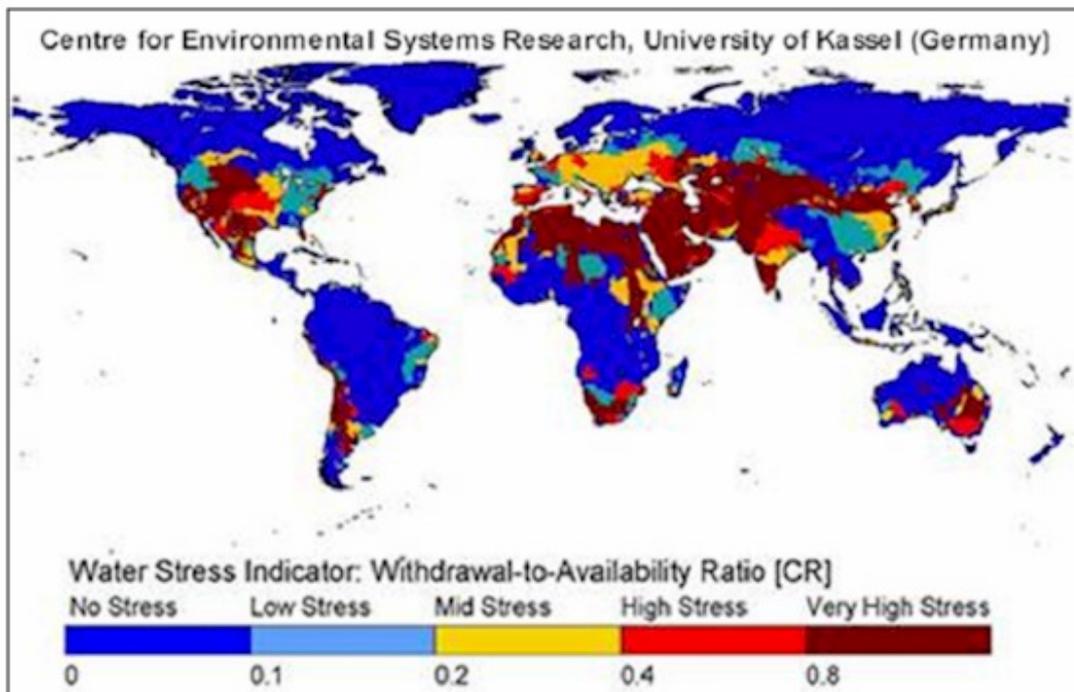
In some parts of the world, comprehensive water policy must integrate with the management of water-borne and water-related diseases. *Diarrheal diseases* afflict one billion people each year and lead to the deaths of just over three million; *malaria* affects 400 million and kills 1.5 million. Over 90 million each year are infected by *Onchocerciasis* (“river blindness”), *Bancroftian Filariasis* (“elephantiasis”), or *Dengue Fever*, all related to mosquitoes or river-dwelling insects.

## The sanitation-water nexus

The UNICEF report *Progress for Children: A Report Card on Water and Sanitation* (September 2006) is almost all good news. Since 1990, 1,200 million more people have gained access to clean drinking water; 83% of the world’s population now has access and the Millennium Development Goal of 89% by 2015 is now achievable. **Latin America**, the **Caribbean** and **South Asia** are likely to reach targets 10 years early. In most cases, the greatest danger to potable water supply is human settlement itself. In the industrialized world, water pollutants are most likely to be a toxic cocktail of persistent industrial chemicals, but in the developing world pollutants are most commonly sanitary waste. Hence, water supply, *sanitation*, and basic *hygiene* are aspects of the same issue. Often, providing safe water simply means improving sanitation arrangements not delivery of a new water source. Half of the world’s population do not have access to satisfactory sanitation facilities.

## Desalination

*Desalination* using thermal or membrane technologies can recover clean water from sea-water or brackish groundwater. Energy consumption per-unit and the cost of membrane modules in membrane separation plants is decreasing but indicative costs remain high at around \$1.50 to \$3.00 per 1,000 gallons ( $\approx$  \$500 /Mlitre), allowing for the original capital cost of \$100M or more. Desalination is the mainstay of water supply in **Saudi Arabia** and **Kuwait**, where the real cost of energy is nominal, and in **Israel** where there is no choice but it is also used to augment water supply in the **US** in locations such as **California**.





## World Water Policy

The first intergovernmental gathering to consider to water issues was *Mar del Plata United Nations Conference on Water* in 1977. After several more specialist meetings, the World Water Council was founded in 1996 with headquarters in Marseilles. There have now been four meetings of the World Water Forum, the most recent in Mexico City in March 2006 had 24,000 participants. These meetings have the benefit of a global perspective comprising numerous case studies. A common factor that can be examined across the world is *water stress* – a state where use approaches or exceeds sustainable supply. All populated areas of the world, and their grain-growing areas, are experiencing water stress.

**China** and **India** are crucially important to more detailed examination of water issues because they are case studies writ large and trends there affect world markets.

### China

Two-thirds of China's grain production and one-third of its population is in the northern plain but the region has only 20% of China's water. One of the great rivers bringing water, the *Yellow River*, is greatly depleted by use further upstream – in 1997 it was dry for 75% of the year. Decreasing supply of river water such as this and over-pumping of shallow *aquifers* has caused the *water table* to drop at around 1.5 metre per year. Some farmers are now pumping from the deep (non-replenishable) *fossil* aquifer at depths of 300 metres (1,000 feet). The region is simply drying out – year by year, desertification is spreading further south. China's grain production peaked at 392 million tonne in 1998. The 2005 harvest was 358 million tonne. For years, shortfalls were met from a vast command economy reserve but this is now depleted and in 2004 China started to *import* grain. China's increasing purchase of grain will – as with *oil* – affect prices and supply throughout the world.

China's answer to its water difficulties is a Pharaonic hydrology project that will divert 50 Bm<sup>3</sup> of water each year from the *Yangtze* and *Yellow* rivers thousands of kilometers northwards in three great canals. But China's own water planners say three to five times that will be needed in the north by 2030, and much of the increased supply will be absorbed by industry rather than the grain-growing that needs it now. Also, as with all such great schemes there will be downsides such as silting, leaks and other losses, and depletion of once great rivers. Without radical rethinking of water use, China will continue to fight against basic statistics: it has 22% world population but only 8% of world renewable water. This extreme stress is exacerbated by China's environmental and pollution control policies which to date have been shoddy or non-existent or ignored. In 2004 almost 60% of hundreds of monitoring sites on China's seven major rivers found the water *unfit for human consumption*; 400 major cities across China already have serious *water shortages*.

This serious situation has occurred with China still on the edge of rapid development. It has managed to limit population growth but China is not only growing, it is growing *affluent* and that invariably means an improvement in *diet* towards Western levels. Average consumption is still quite modest but as the Chinese diet grows towards Western levels, 40% of today's world grain harvest would be needed just for China. As grain consumption reaches a record 500 million tonne in 2006, demand for foods such as *meat* (high virtual water) grows, and domestic grain production falls, China faces a catastrophe brought by its own success. The Chinese people have increasing demand which its water supply will not meet. This will lead to social discontent or to massive and increasing grain *imports*. China's leaders admit there will be critical water shortage by 2030 when the population is forecast at 1,600 million but there is every indication it is already critical.

### India

India is already in a more precarious situation than **China**. The average minimum diet is very close to the level necessary to sustain life. Grain harvests are still increasing but water supply for irrigation is at high



stress levels. As elsewhere, farmers have augmented surface water irrigation by pumping *groundwater* from under their own land. There are no restrictions in India on this use of groundwater but the farmers are depleting everyone's water not just their own. Village wells must be deeper and deeper each year to supply drinking water. But for India's 1,100 million there may be lifesaving hidden capacity. India's water handling infrastructure is so severely inefficient that capital upgrades anywhere in the vast archaic irrigation and reticulation system will find water presently being wasted. Large cities such as *New Delhi* have water shortages but at least 40% of water brought into New Delhi is lost through leaking pipes. Immense capital intensive projects on water supply are easier said than done in India where World Banks full of capital could be spent in every direction but the situation does afford India some hope of staying just behind the disaster curve.

Drinking water, not just irrigation water, is a severe problem in India. Only about 10% of *sewage* is treated and both urban and industrial pollutants (and corpses) are commonly dumped directly into waterways." Which in turn severely contaminates ground water. This is a classic demonstration that *sanitation* is an inseparable aspect of water supply.

## Water Disasters

Many water disasters have already occurred and are indicative of the nature and extent of disasters yet to come. Soviet command economy turned the *Aral Sea* from the world's fourth largest body of fresh water into a toxic desert. River diversion to feed insane *cotton* projects caused the water level to drop 16 metre in 30 years. What water did reach the Aral was heavily polluted with now-outlawed *insecticides* used to grow cotton. **Mexico City** drained the *Aztec* lakes it was built on and deforested the surrounding area. The city is now subsiding due to the rapid loss of groundwater. There is growing water scarcity but when there are deluges flood-water mixed with sewage runs through the city. An estimated 40% of reticulated water is lost through 100 year old leaking pipes. The major *Murray-Darling* river system in **Australia**, the driest continent, has been critically damaged by intensive irrigation for agriculture. The water table has risen and forced ground *salts* to the surface and turned increasing areas of once fertile land into deserts. If all remediation were commenced today, much of the river system would take several decades to recover.

## Water wars?

The conditions for future *water-wars* are developing in several places. **Syria** and **Iraq** accuse **Turkey** of taking too much water from the headwaters of the *Tigris* and the *Euphrates*, the same territory the *Kurds* claim as homeland. One reason for **Israel's** reluctance to withdraw from **Syrian** territory on the *Sea of Galilee* is that this is now the source of 30% of Israel's water. Israelis have "Western" patterns of water use, with a per capita consumption four times that of neighboring Palestinians. **Egypt** has warned **Ethiopia** and **Sudan** that it is prepared to resort to war if they continue to extract from the *Nile* the increasing quantities water they need for their own growing nations. The *Ganges*, running from **India** to the sea in **Bangladesh** is so depleted and polluted that coastal mangroves are dying. Global warming is disrupting the annual freeze and thaw cycle that feeds the river threatening an ever-diminishing flow. **Pakistan** accuses **India** of depleting the flow of the *Chenab* and threatening to deplete it further by building a US\$1B dam at *Baglihar* in disputed Indian-controlled *Kashmir*. The flow of the *Indus* has been so reduced that sea water has intruded into coastal estuaries and has harmed 90% of the agricultural land in *Sindh*. Indian generals say that they do not need a *nuclear* bomb against Pakistan; a "water bomb" is sufficient.





## Water Policy – US

*In the early 1990s there were 90,000 federal employees working on water problems within 10 cabinet departments, 2 major agencies, and 34 smaller agencies.*

In 1965, Congress established the **Water Resources Council** under the *Water Resources Planning Act*, but the Council had liaison powers only and could not formulate or even recommend policy in its own right. In the early 1980s, the GAO reported that the WRC had some “unifying presence” but it was mystified by what it actually did and it was axed by the *Reagan* administration as a cost-saving. By the 1990s, there were armies of federal employees working across the array of water issues, but they did not talk to each other, or always fight on the same side, and rarely coordinated with even larger numbers of state and local and private sector employees involved with water issues. The **Western Governors’ Association** in 1989 called for policy coordination at a *White House* level, but this and other calls has not led to a unified US policy framework for water.

It is only in light of the crises emerging throughout the world (and in the US) now that the wide scope of water-related policy areas is fully understood. All of the policy areas *land use planning, river basin management, catchment management, metropolitan utilities maintenance, pollution and environmental management, water quality management* have developed within their own silos with as little coordination with other policy areas as possible. If policy oversight exists it is spread so thinly across a range of agencies as to be invisible. Countless projects – federal, state, and local – have been *mission specific*; build that dam, approve that housing development, upgrade that drainage system, without reference to a coherent whole.

Interest groups are providing the only focus at present around which an integrated policy may coalesce. *American Rivers* warns “There are some towns that are literally running out of water because they haven’t paid attention to supply and demand”. *Smart Growth America* says, of *Atlanta*’s water crisis, “There are no natural boundaries to the city’s growth, so it sprawled in all directions”. Some cities and counties are aware aquifers can only recharge if cities leave as much *unpaved surface* as possible; most are not.

Numerous issues throughout the US need the attention of an integrated policy. One urgent issue concerns a major part of the US grain-producing region and its use of the **Ogallala aquifer** which is being depleted at around 12 billion cubic metre each year (Bm<sup>3</sup>/yr). Already the equivalent (says the BBC) of 18 years total flow of the *Colorado River* has been extracted from the aquifer. Although porous-rock aquifers gradually recharge from rainwater, much of the *Ogallala* is a *fossil* aquifer – a deposit sealed up millions of years ago – and it will not replenish. This type of irrigation – bores extracting water to exactly where it is used – is highly productive. Conversely, as bores are exhausted or must be pushed to greater and greater depths the loss of productivity, and rise in cost of production, will be keenly felt.



There have been some moves towards integrated water policy. The U.S.

**Army Corps of Engineers** established the **Institute for Water Resources** to provide “forward-looking insights and analyses on emerging national water resources issues”. Also there is federal coordination on some broad-brush issues. In October 2000, Washington announced “a framework for land and resource management focused on *watersheds*” involving the departments of *Agriculture, Defense, Energy, Interior, NOAA, EPA, Army Corps of Engineers, the Tennessee Valley Authority (TVA)*.

The multi-function, multi-state TVA of the *New Deal* is a rarity on the US scene and may be a way forward for the type of multi-mode approach that water policy demands. The TVA – its successes, its lessons-learned, the skills it has evolved in brokering competing interests – are just those capabilities needed in a “Federal Water Authority”. Australia, the driest continent with a dire array of water crises established a high-level post of Water Commissioner in the Prime Minister’s Department in late



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September 2006; better late than never said many. An equivalent US position would be in Department of State (or very senior post in DOI) or the White House.

## Water Futures

All of *North Africa*, the *Middle East* and *Iran* have become major grain importers. Increasing urbanization and increasing affluence inevitably lead to demand for reticulated water and a diet more costly in *virtual water*. Governments have little choice but to let urban populations win in competition with agriculture for water but in consequence agricultural products must be imported. **Egypt**, with 79 million people, now imports 40% of its grain supply and is competing for top spot with **Japan** as the largest world importer of *wheat*. For the first time in 5,000 years the *Nile* has failed to meet all of Egypt's needs. Even more precarious is **Algeria**, with 33 million, that must import over 50% of its grain supply. The imports of *North Africa* represent another great river like the *Nile* flowing into the region in the form of the water locked up in imported grain. These examples are unremarkable except in the context of new players such as **China** or **India** entering world grain markets. If huge nations like these need an extra 2% or 3% -- or annually increasing amounts -- from the world grain market, much of the world will be affected. With a year or two of *bad harvests*, or *grain disease* or *drought* in grain producing countries, widespread famine and doubled or tripled grain prices are probabilities not possibilities.

In the 1970s, this was foreseen as a *food shortages* but what is really at play is *water shortage*.

A truly critical situation has been averted by some years by draining *aquifers*, in **China**, the **US** and many other places. Like living off a credit card, this tactic is unwise and of limited life. Water levels in aquifers will continue to fall to greater depths, the cost of exploitation will increase and finally, the quality and quantity of water will be unsuitable for the agro-industries that have burgeoned above them. The "water bubble" will burst and along with it the "grain bubble". This is likely to coincide with huge middle classes in **India** and **China** who, like the **West**, have grown accustomed to a lifestyle built on cheap grain, and "free" water. Two or three Horsemen of Apocalypse seem to be waiting in the wings.

Is there **Hope**?. In theory, yes; but only if governments convince their populations that water has value related to its cost and scarcity, only if aquifers are treated as non-renewable resources, only if immensely wasteful "green revolution" irrigation systems are replaced throughout the world with more efficient systems. The only way to make this series of miracles happen is to pass on the actual cost of water to its users. Farmers will pay for what they use and much food will cost more. Many years ago, the bean-counters insisted that public libraries, museums and public transport be run on a "*user pays*" basis; perhaps with the same zeal they can now calculate what billion-dollar agribusinesses should be paying the public purse for the water they use. The only point of a cost basis, and its only virtue, is that it will force or encourage the use of more efficient irrigation such as *drip irrigation* and reduce waste and losses. In some areas, it will also encourage use of rainwater for household use or (where suitable) for drinking. Effort can impact the water problem -- **Singapore's** upgraded water system has losses of less than 5%.

## Who Owns Water?

In 2000 there was an unseemly spat between the **World Bank** and **Bolivia**. Using monetary threats, the World Bank made Bolivia privatize the water supply for *Cochabamba*. A subsidiary of **Bechtel** bought the rights to manage the water supply, and almost immediately tripled the water charge to households, and (reportedly) cut off water to the poor who could not pay. This led to protests, a general strike, riot police, and at least one death. Four months later, "Bechtel fled to the United States" and sued the Bolivian government for compensation. The activists said Bechtel was making the poor "lease the rain"; Bechtel said this was the only way *Cochabamba* would have a reliable, well-maintained, corruption-free water supply. As ever, the real issues are to be found somewhere in the middle.

Reticulated water for urban populations is just one element of the water issue but it involves the majority of the electorate. **Mexico City** (and **Delhi**, and many other cities) urgently need a major upgrade of water reticulation to halt wastages up to 40% and make the water safe for drinking but these massive works are



capital intensive and some model recovering the cost over, say, 50 years is necessary. With the proviso that the truly poor can always be exempted from any charges, a Bechtel like arrangement seems to be the only way to move forward. The poor certainly do own the rain but do not necessarily own billions of dollars of pipes.

Near-Term	Mid-Term	Long-Term
Water is a <i>national security</i> issue. A growing consensus says there is <i>not</i> a water problem, but a water <i>management</i> problem. A <i>manageable</i> national security issue is rare. Action on preventable losses and uneconomic use of water is do-able. <i>Valuing</i> water is contentious but necessary – to value water reflecting its replacement and handling costs. This is not a means of raising revenue from the poor but of determining the true cost of production of common crops and manufactured goods. When true water costs are factored in, some crops or other goods may be clearly uneconomic to produce in some areas. <b>China</b> and <b>Australia</b> have started to take a national overview of water; the <b>US</b> as yet has not.	In much the same way <i>carbon credits</i> have been suggested as a means of calibrating hydrocarbon usage, so the concept of <i>virtual water</i> could be used more widely by planners, and policy-makers in determining resource priorities. With the relative acceptance of environment conservation notions in the last decade, a wider public acceptance that water has a cost is politically possible. <i>Fossil aquifers</i> should be classified as national treasures, and not used to grow crops. Notions of what constitutes “ownership” of water and what that entails will be increasingly up for discussion whatever the traditional view has been.	Unlike the <i>Climate Change</i> debate, there is very little debatable about water issues; very little room for political stances. Raw statistics show that water stress of today is <i>famine</i> or <i>war</i> of tomorrow. But before going to war for a bag of grain or a glass of water, each nation should acquire a comprehensive understanding of its own water position, including all the presently isolated issues of <i>international trade, pollution, land use</i> . In the <b>US</b> , the only multi-mode body of the type necessary to get this overview is the <i>Tennessee Valley Authority</i> . A similar type of “Federal Water Authority” will be necessary, better sooner than later.

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World Crises [based on monthly assessments by <i>International Crisis Group</i> ]		
!!!	Alert	Côte d’Ivoire, DR Congo, Somalia
↓	Deteriorated	Afghanistan, Bolivia, Chad, Georgia, Kyrgyzstan, Thailand, Turkmenistan
↑	Improved	Burundi

<http://www.crisisgroup.org/home/index.cfm?id=4296>

#### LEGEND

Hazard Level	Change Codes
	↓ Deteriorated
	• Steady
	↑ Improved
	!!! Alert



## Threats

Summary

see daily items on the web at

<http://meta2.com/PDB/pdbDetail.asp?THREATS>

<b>Poverty</b>	↑	UNICEF reports good progress on delivery on <i>safe water</i> and <i>sanitation</i> but still 20% lack drinkable water and up to 50% lack sanitation.
<b>Infectious Disease</b>	•	In (the Islamic regions of) <b>Nigeria</b> , rumors that <i>polio</i> vaccine are "an evil conspiracy hatched in the West to sterilize Nigerian girls" has cut the numbers being vaccinated.
<b>Environment</b>	•	The tsunami did some damage to the coral reefs off Aceh but not as much as done by <i>sediment</i> runoff caused by <i>deforestation</i> for settlement and illegal <i>logging</i> .
<b>Inter-State Conflict</b>	•	<b>Australia</b> 's <i>SAS</i> have completed their one year deployment in <b>Afghanistan</b> and will not be replaced from Australia. <b>Iraqi</b> political groups have reached a framework agreement on <i>federalism</i> but there are certain to be difficulties as a 3-state solution would leave the <i>Sunni</i> would be left land-locked and without oil.
<b>Civil War</b>	•	<b>Somalia</b> 's Islamic militia have met some popular protest in <i>Kismayo</i> and have fired on a group - protestors say "They are ... <i>al-Qaida</i> and we do not want them."
<b>Genocide</b>	•	Momcilo Krajisnik, an aide of Karadzic, has been jailed 27 years for war crimes, has been sentenced to 27 years for ethnic cleansing (relocation), not genocide. [ <i>The Telegraph</i> – UK presented a useful analysis on South and West <b>Sudan</b> , the genocides, and Western foreign policy.]
<b>Other Atrocities</b>	•	<b>Israeli</b> rights group <i>B'Tselem</i> says Israeli bombing of the <b>Gaza Strip</b> 's sole power plant was "collective punishment", disproportionate and a <i>war crime</i> .
<b>Proliferation</b>	↓	In consultation with US-DOE, <b>Kazakhstan</b> has agreed to downgrade its highly <i>enriched uranium</i> stocks and convert its nuclear reactor to lower grade uranium. An analyst said that <b>Iran</b> is using the same strategies <b>Israel</b> used to covertly assemble it's nuclear arsenal without admitting it had one. Former Dpty-Secretary Armitage said the <b>North Koreans</b> may simply stall until a new administration is in the Whitehouse. <b>Egypt</b> announced plans to build a nuclear power station at <i>El-Dabaa</i> within 10 years. With Jesuitic brilliance, <b>Australia</b> may find itself able to sell <i>uranium</i> to non-NPT <b>India</b> because India behaves as though it had signed.
<b>Terrorism</b>	•	President <b>Musharraf</b> has rejected <b>MoD</b> [UK] views that <b>ISI</b> has compromising links with <b>al Qaida</b> , and that <b>Pakistan</b> is on the brink of instability. A leaked <b>US</b> Intelligence Assessment says groups such as <b>JI</b> could expand "outside their traditional areas of operation" but the <b>Australian</b> Defence Minister expressed doubts. Testing by the <b>FBI</b> and at government labs showed that small containers of <i>liquids</i> 'don't pose a real threat' on <i>aircraft</i> . Five years on, the <i>anthrax</i> death of five is almost a cold case – the <b>FBI</b> says "It could have come from anywhere in the world."
<b>Transnational Crime</b>	•	With guilty pleas in a US court, the <b>Cali Cartel</b> is finished, but "We're moving into a whole new phase of the <i>drug war</i> , because they are decentralizing, smaller and harder to catch than their predecessors."

↓ deteriorated

• steady

↑ improved

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## Policy

Summary

see daily items on the web at

<http://meta2.com/PDB/pdbDetail.asp?POLICY>

<b>Agriculture</b>	• Batches of <b>US rice</b> contaminated with “safe” yet non-approved <b>GM</b> rice has been refused entry to <b>Britain</b> .
<b>Debt</b>	• [nothing significant to report]
<b>Diplomacy</b>	<ul style="list-style-type: none"> <li>• Since the <b>US</b> and <b>UK</b> are unlikely to invade <b>Sudan</b>, the <b>UN</b> says "So Tony Blair and George Bush need to get beyond this posturing and grandstanding."; empty threats are simply stupid.</li> <li>A think-tank said ... THINK; "[during the Cold War] there was lots of <i>strategy</i> but no <i>war</i>. And now there’s an unfortunate situation where we have lots of war but very little discussion."</li> <li><b>US</b> troops are providing civil affairs services in <b>Jolo</b> where there has been several weeks of bitter battle aimed at high-value <b>Ji</b> targets.</li> </ul>
<b>Economy</b>	<ul style="list-style-type: none"> <li>↓ <b>US consumers</b> cut spending in August 2006 and there was a small jump in <i>inflation</i>. The <b>US</b> has dropped as a global shopper -- "The share of global exports bought by US consumers and businesses fell to 17.9 per cent last year from 21.8 per cent in 2000." The <b>UK</b> and <b>US</b> have fallen in global <i>competitiveness</i> figures -- "Britain is in 10th place - down from ninth last year - while the US has fallen from first to sixth."</li> </ul>
<b>Education</b>	<ul style="list-style-type: none"> <li>↓ There was another <i>killing</i> in a US school – a principal.</li> <li><i>Charter schools</i> are scoring no better than public schools on the same <i>test</i>.</li> </ul>
<b>Energy</b>	• <b>DOE</b> is spending \$8M on engineering "pre-conceptual design" for future <i>nuclear power</i> plants.
<b>Family</b>	• [nothing significant to report]
<b>Immigration</b>	• [nothing significant to report]
<b>Justice</b>	• [nothing significant to report]
<b>Security</b>	<ul style="list-style-type: none"> <li>↓ 15% <i>science / engineering graduates</i> in the <b>US</b> and 50% in <b>China</b>, and over 600,000 terabytes of data on the <i>internet</i> each day are a gun at the head of present <b>US intelligence</b> processes.</li> <li>The <b>U.S. Strategic Command</b> opened the <b>Joint Functional Component Command</b> for <i>Intelligence, Surveillance</i> and <i>Reconnaissance</i> in Washington.</li> </ul>
<b>Social Security</b>	• The <b>National Research Council</b> [US] warns too little is known about the effect <i>nanoparticles</i> may have on " biological and ecological processes".
<b>Water</b>	<ul style="list-style-type: none"> <li>↓ A commentator observed "since it takes 1,000 tonnes of <i>water</i> to produce one tonne of <i>grain</i>, importing grain is the most efficient way to <i>import</i> water....trading in grain futures is in a sense trading in water futures."</li> <li>In <b>Australia</b>, the driest continent, now the Fourth Estate agrees that the “<i>water crisis</i>” is all about <i>water management</i>.</li> </ul>

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# Public Daily Brief



## Challengers

Summary

see daily items on the web at

<http://meta2.com/PDB/pdbDetail.asp?CHALLENGERS>

<b>Brazil</b>	↓	More than 150 Brazilians were <b>murdered</b> each day last year on average -- worse than <b>Iraq</b> .
<b>China</b>	↓	Chinese doctors admitted to investigative journalists that <b>organs of executed prisoners</b> used for transplants -- "Such practices ensure a ready source of organs that can be typed for organ transplant compatibility even before the prisoner is executed." China reported success with preliminary tests of an experimental <b>fusion</b> reactor -- the <b>Institute for Plasma Physics</b> in Germany says it is "a considerable step ahead for China". China has published a <b>white paper</b> on <b>energy policy</b> aims to increase the transparency. China has been test-firing <b>lasers</b> to disable <b>US satellites</b> over Chinese territory. A <b>Politburo</b> member in <b>Shanghai</b> , the most senior casualty yet of <b>anti-corruption</b> measures, has been removed from his post. Special police squads patrolled Shanghai's ports and airports to prevent other targets fleeing China.
<b>India</b>	↑	Although not a rare type of accusation, India says <b>Pakistan's ISI</b> backed <b>Lashkar-e-Taiba</b> in perpetrating the <b>Mumbai bombings</b> . India's <b>growth</b> now closes in on <b>China</b> -- "These are intoxicating times for India".
<b>Indonesia</b>	•	[nothing significant to report]
<b>Iran</b>	•	[nothing significant to report]
<b>Russia</b>	↓	<b>Psychiatry</b> , a favored Soviet method of dealing with <b>dissidents</b> , has again made an appearance in Russia. <b>Georgia</b> arrested Russian officers for <b>spying</b> and surrounded Russia's military headquarters in Tbilisi. The 'Three Whales' <b>corruption</b> case has claimed careers of <b>FSB Colonel-Generals</b> and "created deep internal rifts in almost every security body".
<b>Venezuela</b>	•	Venezuela and <b>Russia</b> have signed 18 cooperation agreements.
<b>[wild-card]</b>	•	<b>Turkey's Kurdish</b> rebels have declared a unilateral cease-fire.
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