



A CRISIS OF MISMANAGEMENT

REAL SOLUTIONS TO THE WORLD'S WATER PROBLEMS

INTERNATIONAL RIVERS NETWORK | 1847 BERKELEY WAY, BERKELEY, CA 94703 | 510-848-1155 | WWW.IRN.ORG



We are widely perceived to be in the midst of a “world water crisis.” This crisis is commonly believed to be one of scarcity – that the world is running out of water. But in fact, the “crisis” is mainly one of mismanagement, not absolute scarcity. Freshwater ecosystems worldwide have been dammed, drained and pumped dry to supply inefficient and inequitable irrigation schemes, leaky water mains and wasteful overconsumption.

Because of mismanagement and skewed priorities, more than a billion people lack access to decent water supply, and twice as many lack access to proper sanitation. US water analyst Peter Gleick estimates that if water and sanitation services do not radically improve, as many as 135 million people will die from water-related diseases over the next 20 years.

The World Water Council, World Bank and other agencies that dominate the world water establishment promote big infrastructure projects and corporate investment in water supply as the key solutions to the “crisis.” But this approach will only worsen the problems they seek to solve and hinder the adoption of real solutions that are both available and affordable.

GLOOMY ARITHMETIC OF WATER

The water establishment’s usual arguments will dominate discussions at the Third World Water Forum. The arguments begin with the “gloomy arithmetic of water” as described by the World Commission on Water: demand is growing fast, rivers and wetlands are being destroyed and aquifers are being depleted. Four billion people will live under conditions of severe water stress by 2025 and nourishing the growing world population will depend on increasing water storage for irrigation.

In its Water Resources Sector Strategy, the World Bank claims the “the gloomy arithmetic of water is mirrored in the gloomy arithmetic of costs. The ‘easy and cheap’ options for mobilizing water resources for human needs have mostly been exploited.” The Bank cites the frequently used World Water Council estimate that to meet the water needs of developing countries, investments in water infrastructure would need to increase from the current level of about \$75 billion to \$180 billion a year.

A picture is thus created of the world facing a water-shortage crisis, which can only be solved with huge investments in expensive large-scale infrastructure. This assumption is then used to argue that governments cannot afford such high costs and that the private sector is needed to make up the difference.

CRISIS OF MISMANAGEMENT

More than a billion people lack access to decent water supplies, not because there is too little water, but because governments have failed to provide it. Just one percent of current water withdrawals would supply a basic level of 40 liters per capita per day to all those currently lacking adequate supplies – and to the two billion people projected to be added to the world’s population by 2025.

So where is our water going and how can it be better used to provide water and food to the poor?

Irrigation’s big thirst

Worldwide, more than two-thirds of water withdrawn from rivers, lakes and aquifers is used for irrigation, with an even higher proportion in arid areas such as Central and South Asia and the western US. Irrigation is often extremely inefficient, with more than half of the water applied to fields not reaching its intended crops. Furthermore, wrongheaded agricultural policies have encouraged farmers to grow water-intensive crops like alfalfa, sugar cane and cotton in dry areas with subsidized irrigation water rather than in locations where rainfall is plentiful. Many large-scale irrigation schemes have proven unsustainable, as huge areas of land have been abandoned due to waterlogging and salinization.

Real solutions: improving irrigation

Improving the performance of existing irrigation systems holds tremendous potential for water savings. Reducing the water consumed by irrigation by 10 percent could double the amount of water available for domestic supply worldwide. Other obvious solutions include taking the poorest lands out of production; switching to less-thirsty crops; converting to water-conserving irrigation systems; and reducing fertilizer and pesticide use. Switching to water-conserving irrigation systems has the biggest potential – installing drip irrigation systems could potentially save more than 40 percent of water now used in agriculture.

Urban wastefulness

Urban areas are also prodigious wasters of water, with up to 40 percent of water supplied being lost to leaks or theft in many parts of the world. In 2000, Malaysia’s Selangor state lost around one billion liters of water to leakage and theft each day – enough to supply the basic needs of 25 million people.

Real solutions: conservation, decentralized supplies

Demand-side management could substantially reduce urban water use at a fraction of the cost of building new infrastructure. Demand-side management practices include encouraging households to install water-efficient fixtures and appliances, and providing incentives for industry to reduce water waste. A water conservation program in Mexico City, which involved replacing 350,000 old toilets with more efficient models, has saved enough water to supply an additional 250,000 residents. Progressive water pricing systems which charge higher rates as higher volumes of water are consumed can also reduce demand.

Upgrading and improving urban distribution systems is also critical to reduce the vast amounts of water lost through leaks and theft. Alternative supply methods such as recycling wastewater and urban rainwater harvesting (such as installing tanks to capture rain falling on roofs and parks) can add significantly to urban supplies without the need for costly new dam-and-pipeline projects.

Failure to deliver

For more than a decade, the World Bank and other international development agencies have fervently promoted private investment as the solution to the ills of urban water utilities. It is now clear that this approach has failed. Water privatization has not worked for urban consumers – and it has not worked for the small cartel of multinational water companies who are now in deep financial trouble.

In early January 2003, French water giant Suez announced it would reduce its exposure to emerging markets by more than a third by 2005 (and assumed a \$500 million loss for writing off its entire investment in Argentina). Heavily indebted German utility conglomerate RWE also announced in January that it would cease making new acquisitions for at least two years. Even the World Bank’s draft Water Resources Sector Strategy admits that “under current conditions the private sector will play only a marginal role” in financing water infrastructure.

Rather than continuing to push the failed strategy of water supply privatization, policy makers should support viable public utilities. Public water providers have often been poorly run, have not been held accountable and have failed to address the needs of the poor or the environment. These utilities need to be restructured and made accountable – and evidence shows this can be

done. There are many well-run public providers. “Public-public partnerships” can help poorly performing utilities by providing managerial and technical assistance from well-run providers.

Water supply privatization is in any case irrelevant to the great majority of those who lack access to water. More than four-fifths of those without adequate access to safe water live in rural areas. Water multinationals have rarely shown interest in investing in rural drinking water systems. It is very difficult for companies to profit from poor, dispersed rural populations who mainly depend on local water sources such as wells, springs and streams.

Real solutions: small decentralized systems

The UN-affiliated Water Supply and Sanitation Collaborative Council estimates it would cost \$9 billion a year between now



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and 2025 to provide all the world's people in urban and rural areas with adequate water supply and sanitation using small-scale technologies. While \$9 billion is certainly a considerable sum, it is less than a third of current spending on water and sanitation infrastructure in developing countries (and is equivalent to only nine days of US government spending on "defense").

Large centralized water supply schemes are rarely relevant for rural water supply in developing countries because of the prohibitively high costs of building networks of reservoirs, pipes, aqueducts and treatment facilities. Small, decentralized and technologically appropriate solutions, in particular rainwater harvesting, are the best option for providing water to rural people (who need water for their crops and animals as well as for domestic use).

Rainwater harvesting involves building small dams and embankments and other low-cost structures to trap rainwater and recharge groundwater. Evidence from desert areas like western Rajasthan in India suggests that all but the most drought-stricken regions of the world should be able to meet basic needs for water and food with local supplies if rainwater were captured and used judiciously.

Rainwater harvesting programs can be implemented and managed by local communities with little or no outside help. This benefit is

also the reason why the water establishment has not promoted it; there is little financial or political benefit for corporations and government agencies to implement rainwater harvesting projects.



Decentralized groundwater recharge is also vital to reduce the vulnerability of rural areas to increasingly severe droughts caused by climate change (and another benefit of rainwater harvesting and forest regeneration is that they reduce the destructiveness of floods, which are also increasing due to global warming). Climate change is expected to cause major disruptions to the hydrological cycle, meaning that drastic cuts in greenhouse gas emissions are a key component in water security.

Supplying food to the hungry

The world water establishment argues that we need more water for irrigation to feed the hungry. However, hunger happens not because the world is short of food – actually we produce much more than enough – but because hundreds of millions of people are too poor to buy it. India now boasts a huge surplus in food grains, its storehouses now holding a quarter of world food stocks – yet more than half of India's children are classified as underweight.

Past experience has shown that dam and canal irrigation schemes will not solve the world's hunger problem. These cap-

LOW COST, HIGH REWARD SOLUTIONS

A stark example of the huge cost differences between the top-down establishment approaches to water management and community-led approaches comes from Alwar district in the Indian state of Rajasthan. Since 1986, an NGO known as Tarun Bharat Sangh (TBS) has helped villagers build or restore nearly 10,000 water harvesting structures – mainly earthen embankments or small concrete dams across seasonally flooded gullies. The structures impound water, which soaks into the ground and recharges groundwater. This water is then drawn from wells. TBS calculates that around 700,000 people benefit from improved access to water for household use, farm animals and crops.

TBS has contributed around 70 million rupees (\$1.4m) to the cost of the water harvesting structures. This works out to a cost of 500 rupees per hectare irrigated and 100 rupees (two US dollars!) per person supplied with drinking water. By comparison, supplying one person with water from the notorious Sardar Sarovar Dam project on India's Narmada River will cost 10,000 rupees, and supplying one hectare with irrigation water from the megaproject will cost 170,000 rupees – 340 times more than in Alwar.

ital-intensive technologies can raise yields (at least over the short-term) for larger farmers who can afford them or who happen to own land in the limited areas to receive irrigation water. But poor farmers, and the majority living outside the irrigated lands, end up being starved of investment and become poorer and less food-secure.

To reduce hunger, policies must focus on land reform, improvements in traditional, ecologically sustainable agricultural technologies, and the production of food for local consumption rather than for export. More equitable food distribution may also be necessary to satisfy the global population's nutritional needs. For the past 30 years, around 40 percent of the world's grain supply has gone to feed livestock. This grain, and the water used to grow it, could be used more productively to grow food for people instead.

The cheery arithmetic of water

Analyze carefully the water establishment's "gloomy arithmetic of water" and one sees that it does not add up. But doing the math, dissecting the problems and assessing solutions can be a heartening exercise: the solutions to world water problems are affordable and can be implemented. The main problem is institutional; solving it will require citizens to persuade their governments to stop listening to, and stop funding, the self-interested construction and privatization lobbies of the global water establishment.

WATER MANAGEMENT SOLUTIONS

The World Commission on Dams found major problems with water supply and irrigation dams. Seventy percent of water-supply dams did not meet their targets, and half of large-scale irrigation projects underperformed.

The WCD report included numerous suggestions for alternatives to dams for water supply, including the following:

IRRIGATION AND AGRICULTURE SECTOR

- improve performance and productivity of existing systems; and

- use alternative supply-side measures that incorporate rain fed, local, small-scale, and traditional water management and harvesting systems, including groundwater recharge methods.

WATER SUPPLY SECTOR

- revitalize existing sources;

- introduce appropriate pricing strategies;

- encourage fair and sustainable water marketing and transfers, recycling and reuse; and

- local strategies such as rainwater harvesting.

IRN supports local communities working to protect their rivers and watersheds. We work to halt destructive river development projects and to encourage equitable and sustainable methods of meeting needs for water, energy and flood management. Published in 2003.