

NGOs Go to Court to Stop Belize Dam

A large dam that would do serious environmental harm to Belize's Macal River valley – a rich tropical floodplain home to jaguars, scarlet macaws and many other rare or endangered species – was conditionally approved by the Belize government in November. Now, environmental groups in Belize are preparing to go to court to stop the dam. The groups say the government's clearance of the project without public hearings or a detailed environmental mitigation plan violates national laws.

Fortis Inc. – a billion-dollar Canadian corporation that is the majority owner of Belize's only electric utility – is partnered with the Belize government to build the 50-meter-high Chalillo Dam project, which would flood more than 2,000 acres of unique, pristine habitat. Although Fortis's CEO Stan Marshall has stated that he'd stop the project if it was found to have "untoward" environmental effects, the company is pressing ahead despite the fact that Fortis consultants found the project to have serious unmitigable impacts.

Scientists from the Natural History Museum in London hired as part of the project's EIA team "highly recommend" in their final

report that the scheme be dropped. Their report says that the dam will irreparably harm one of the most biologically diverse regions left in Central America.

Alastair Rogers, a co-author of the report, told *New Scientist* magazine, "It is absolutely clear that constructing a dam at Chalillo would cause major, irreversible negative environmental impacts and destroy many important archaeological sites." The scientists advised that "the benefits of the Chalillo dam project are significantly lower than the costs."

Another Canadian company, AMEC, received some US\$314,000 from the Canadian International Development Agency to conduct the dam's environmental assessment. The widely condemned report dismisses the recommendations from the British research team, and ignores the conclusions by team geologists, who believe that the site is geologically unstable. Their dam-supportive EIA paid off: AMEC was recently awarded the contract to design the dam, according to press reports from Belize.

The project could wipe out the Belizean subspecies of scarlet macaw, seriously threatening the bird's overall survival. Jaguar habitat would also be lost at a time when jaguar

experts are saying that the animal is in trouble in two-thirds of its historic range.

The \$30 million dam is also predicted to raise electricity rates for Belizeans and bring them no economic benefit, according to a study by Conservation Strategy Fund (CSF). Fortis already charges Belizeans three times more for electricity than the average in Canada. CSF is a US research group specializing in environmental economics.

The area threatened by the new dam lies inside the "government-protected" Chiquibul Forest Reserve and includes part of Chiquibul National Park. The Macal River and its tributaries contain the only known nesting sites in all Belize for the largest kind of scarlet macaw – a subspecies that numbers fewer than 250 individuals. ■

WHAT YOU CAN DO

Sign an online petition to stop the dam at:
www.stopfortis.org/petition.html
For more information, contact:
Jamillah Vasquez, Executive Director,
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World Bank Approves Bujagali Dam Despite Serious Economic Risks to Ugandan Taxpayers

First Post-WCD Dam Process Fails to Meet Guidelines

by Lori Pottinger

The World Bank has approved a large dam project in Uganda that could become a financial burden for that nation's citizens, while enriching the US-based AES Corp., the largest independent power producer in the world.

The Bujagali Dam will destroy the culturally important Bujagali Falls – a national treasure which also supports a growing whitewater tourism industry – and possibly lead to the extinction of rare fish in the Nile. Thousands of people will lose land and access to river resources. The dam will also lead to significant increases in electricity bills in one of the world's poorest countries. It will also solidify Uganda's total dependence on hydropower at a time when climate change could disrupt the reliability of the flow of the Nile.

After many delays, the World Bank Group finally approved \$100 million in loans in December, and also are promising up to \$115 in guarantees to commercial banks (through IDA), for the \$530 million dam near Lake Victoria. The African Development Bank also approved a loan for the project on Dec. 17. The export credit agencies of Norway, Italy, Finland and Switzerland and various commercial banks are also lined up to lend to the project.

While the World Bank and AES are eager to add another dam to the headwaters of the Nile, a number of funders have rejected Bujagali as too economically or environmentally risky. Funding agencies in Germany (DEG), France (Proparco) and England (ECGD) all dropped Bujagali in the past year. In October, the US agency OPIC pulled out (it was to lend \$100 million). In November, Swedish SIDA said it would not fund the project. SIDA spokesman Stefan Jansson called Bujagali "a complex project with huge impacts on Ugandan."

And in January, the Swedish agency EKN reportedly declined to give a \$100 million guarantee to the project.

White Nile's White Elephant

Only 3% of Ugandans are connected to the national grid, but even if connections were increased, most could probably not afford Bujagali's power. Leaked details of AES' contract confirm Ugandan citizens' concerns that the project will result in major electricity tariff hikes, thus hindering efforts to increase Uganda's extremely low levels of access to electricity and harming its economy. The project contract commits Uganda to pay approximately \$100 million a year to AES no matter how much electricity is actually produced or how much of it the utility can actually sell.

Frank Muramuzi, President of Uganda's National Association of Professional Environmentalists (NAPE), said, "The World Bank predicts that Bujagali will cause the price of electricity to rise to US10.5 cents per kWh, and go as high as 12.5 cents in the early years of operation. This is an extremely high rate where the average per capita income is approximately \$300 per year. It is not obvious how supplying electricity at these extraordinarily high rates in such a poor country will contribute to poverty reduction, or for that matter, even to economic growth."

Some energy analysts believe the tariff will have to rise even higher in the first few years' after Bujagali is commissioned, to cover the project's high payments. But if big tariff increases prove politically dangerous, it is likely that government would have to subsidize the project, possibly cutting government spending on social services.

The dam poses other serious risks as well. Scientists believe East Africa could be hit



Boy tends corn in the Bujagali Dam Area.

Photo: Ventana Pictures. ©2000

with more severe droughts due to global climate change, thus increasing the project's already significant "hydrological risk." Given that Uganda is already virtually 100% dependent on hydropower for its electricity, building another large dam is a very risky proposition, as neighboring hydro-dependent Kenya has discovered in recent years after major droughts dimmed its lights. Energy options that would diversify Uganda's power sector – for example, geothermal – have been given short shrift by the World Bank and the Ugandan government.

The World Bank's economic evaluation of the project fails to even mention the possible impact of climate change on Bujagali's

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Restore the Mun River!

The following letter from villagers affected by Pak Mun Dam in Thailand was sent to the World Bank in October. The villagers successfully lobbied their government to open the dam's gates (see article, opposite), and have now turned to the World Bank, which funded the project, to complete the circle and have the dam decommissioned.

We, the villagers affected by the Pak Mun Dam and Assembly of the Poor, write to you from village No.1, at the Pak Mun dam site. Thousands of us have been living here since March 1999 to demand the dam gates be opened and the Mun River restored. We also demand that the World Bank take responsibility for the destruction of the environment which has caused suffering to us and endangered the fisheries of the Mun River.

In 1990, the World Bank and EGAT destroyed our livelihoods through the construction of the Pak Mun Dam. At that time, we sent a letter to the World Bank requesting it to stop providing loans [for] the dam. The Bank ignored our request. For us, the decision to build Pak Mun was made without the participation of local people.

During our protest against the dam, we were promised a better way of life, but the promise was never delivered. On the contrary, our fisheries were decimated and our communities destroyed. Over the past 11 years we have learned that the mitigation programs did not solve our problems. We strongly believe that the only way to sustain our communities and our livelihood is to decommission the dam and restore the river.

The World Commission on Dams' Pak Mun Case Study found that fish catch in the reservoir and upstream has declined by 60-80%, resulting in an economic loss to villagers of about US\$1.4 million per annum. The report recorded that 56 species of fish have disappeared and at least 51 species have been caught less significantly since the completion of the project.

The WCD found that Pak Mun has had significant impacts on communities' livelihoods. Villagers who were dependent on fisheries for cash income have found no viable means of livelihood since the dam was built, despite efforts to provide training opportunities. "As their food security and income was destabilized villagers sought different ways to cope, including out-migration in search of jobs," the WCD notes.

Economically, the WCD found the project isn't performing well. The dam was supposed to generate 136 megawatts, but barely generates 40 MW in high-demand months. There's simply insufficient water to turn the turbines in the dry season. Even in the rainy season, EGAT has to shut the plant down because high water levels upstream and downstream mean there isn't enough water pressure to drive the turbines.

Moreover, the WCD found that actual irrigation benefits are zero. The WCD concludes: "It is unlikely that the project would have been built if actual true benefits would have been used in the economic analysis."

In 2001, after we held a long protest, the Thai government agreed to open the dam's gates for four months to allow fish migration upstream. Two months after the dam gates were opened, we found that 119 fish species had returned to the Mun River. We also found 54 species of native plants and 23 species of herbal plants, which grow on the river banks after the water recedes.

We have learned that opening the dam's gates this year has not only restored the Mun River ecosystem, but it has also brought back our livelihood. We have been able to generate income from fisheries as well as increasing our food security.

The information above confirms that the dam your institution has supported has caused destruction to the river and our communities, and that opening the dam's gates is the only way to solve our problems.

Therefore, we call on the World Bank to take responsibility for the destruction you have caused to our lives and to the ecology and fisheries of the Mun River.

The WCD in its final report recommends that the World Bank address past projects. The Pak Mun Dam is such a project. We demand the World Bank work with the Thai government to decommission Pak Mun by opening its gates permanently and restoring the Mun River. We also demand the World Bank work with us to develop a reparations program to restore the livelihoods of our communities.

These are the ways and means to solve our problems and we sincerely hope that you are seriously concerned with our demands.

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One Step Closer to Decommissioning Pak Mun

by Susanne Wong

In a major concession to dam-affected villagers, the Thai Cabinet agreed to open the gates of the Pak Mun Dam for a full year. The December decision came in response to mounting pressure from villagers who launched a several hundred mile march to demand the permanent decommissioning of the dam. Villagers succeeded in forcing the government to open the gates of the dam for four months starting last June. The recent decision allows the gates to remain open until June 2002.

While people affected by Pak Mun celebrated the announcement, they say they will not rest until the dam is permanently decommissioned. When the government announced its decision, 130 villagers affected by the Pak Mun and Rasi Salai dams were marching through the streets of Nakhon Ratchasima calling for the permanent decommissioning of the dams. It was the 64th day of their 454-mile march from the Pak Mun dam site in Ubon Ratchathani to the Government House in Bangkok.

Having succeeded in forcing the Thai government to open the gates of Pak Mun, villagers are now targeting the World Bank to take responsibility for its financing and support of the dam. In an October 15, 2001

letter to the Bank, villagers demanded that "the World Bank work with the Thai government to decommission Pak Mun Dam and work with us to develop a reparations program to restore the livelihoods of our communities." So far, villagers have not received a response from the Bank. (See opposite page for the letter.)

Miraculous Recovery

Those who remained behind at the Pak Mun dam site have witnessed the miraculous recovery of the Mun River ecosystem. Water previously backed up behind the dam is receding and rapids are recovering. Fish are migrating back from the Mekong with an estimated 130 fish species now found upstream of the dam. Activists are busy collecting data to monitor the recovery of the Mun ecosystem and communities who depend on the



Villagers celebrated the return of this 326-pound Mekong giant catfish to the Mun River during the temporary decommissioning of the Pak Mun Dam.

Photo: Assembly of the Poor

river. The livelihoods of villagers are improving as people can again catch fish for their food and income. Many villagers are returning to their land along the river which was once submerged. Soon the riverbanks will be covered with vegetable gardens.

In January, villagers celebrated the return to the river of the wild Mekong giant catfish, the world's largest scaleless freshwater fish. The Mekong giant catfish is an endangered endemic species that has not been seen on the Mun River since the Pak Mun Dam was built in 1994. During the breeding season, this migratory fish travels upstream of the Mekong River and its tributaries to spawn before returning back to its home in the Tonle Sap Lake in Cambodia and wetlands in the lower Mekong.

"The return of the Mekong giant catfish shows that the Mun River serves as important habitat for migratory fish in the Mekong River basin. Permanent decommissioning of the Pak Mun Dam would provide an opportunity to protect this endangered species," said Chainarong Sretthachau of Southeast Asia Rivers Network.

In December, the Thai government also agreed to open the gates of the Bang Pakong Dam in East Thailand. Construction of the dam has led to problems such as water pollution and riverbank erosion. Villagers living downstream of the dam are calling for permanent decommissioning of the dam. And in July 2000, the government agreed to open the gates of Rasi Salai Dam for two years for environmental recovery. The government is currently doing an environmental assessment of the dam. ■

Take Part in the International Day of Action Against Dams on March 14

Join hundreds of groups around the world on March 14 for the fifth annual International Day of Action Against Dams and for Rivers, Water and Life. Last year, activists organized more than 70 events in 30 countries to fight for healthy rivers and the communities that depend on them. The day's events have included teach-ins, workshops, sacred ceremonies, protests and field visits on a variety of issues surrounding rivers and their watersheds.

There have been many river achievements to celebrate in 2001. After a long struggle by local villagers, the Thai government agreed in 2001 to open the gates of the Pak Mun Dam for one year. And in October, another victory took place on the Volta River in Ghana. The government announced that the proposed Bui Dam has been shelved. The project would have flooded part of a national park, destroyed habitat for rare hippos, forcibly resettled 2,600 people and affected thousands more. These are just a couple of the remarkable successes of 2001. March 14 is the day to celebrate successes and continue the struggle for social and environmental justice.

Although all events are welcome, this year, a key theme is people's rights to information and participation in decisions that affect their lives. These rights were clearly promoted in the guidelines of the World Commission on Dams report. According to the WCD, no project should go forward without the demonstrable public acceptance of affected people and the prior, informed consent of indigenous and tribal peoples. It is important that all our voices are heard when decisions are made. This basic right is vital to ensure that decisions that affect our watersheds and communities are carried out in a sustainable and equitable way.

For more information, visit IRN's web site at <http://www.irn.org/dayofaction/> or contact Randy Flay: dayofaction@irn.org

Québec River Protectors Take On 36 New Dam Proposals

by Elizabeth Brink

Last May, Québec premiere Bernard Landy gave Hydro-Québec, the largest energy utility in the province, a green light to develop any hydro projects it finds interesting. Landy's largesse was a response to the Bush administration's proposed energy policy, which is based on increasing supply across the continent to satisfy Americans' energy needs, while also de-emphasizing energy conservation and demand-side-management approaches.

Landy's proposal was quickly taken up by both the government of Québec and Hydro-Québec, which together devised a plan to grant an initial 36 dam sites on 24 rivers to private companies for the development of hydroelectric power plants smaller than 50 megawatts (the industry definition for "small dam" is up to 10MW). The plan would allow private energy producers to build and operate the dams and sell the electricity to Hydro-Québec, which would in turn market it locally or to the US.

Environmental, tourism and recreational groups accuse the provincial government, and its majority-owned crown corporation Hydro-Québec, of sacrificing some of Québec's most pristine rivers and wilderness areas to generate additional capacity of just 425 MW, or about one percent of Hydro-Québec's present 37,000MW.

In response to this dam onslaught, a coalition of groups, including the Québec Canoe and Kayak Federation, has gathered the support of more than 85 organizations for a "Plea for Free Rivers." The organizations are calling for the province to abandon the "small hydro" scheme.

Jean-Francois Blain, spokesman for the activist group Eau-Secours, said his organization is outraged that the government is willing to allow dams on so many rivers for so few benefits to society as a whole. "They're spreading the environmental damage across the province," he said. A coalition of 25 environmental and tourism groups are asserting that at least six of the proposed dam sites are on rivers in which Atlantic salmon spawn. Many targeted rivers are also popular with canoeists, kayakers, rafters and hikers.

With this scheme, Québec could be brewing a public relations fiasco among environmentalists and ecotourists in the US

and Europe, warns Pierre Gaudreault, director of Aventure Eco-tourisme Québec. Gaudreault pointed out that many of the rivers targeted for damming have never before been impeded by artificial barriers. By damming the rivers, Québec is damaging its natural heritage and tourism industry, which has much better potential for job creation than small-hydro production, he said.

The economics of the scheme is also under fire from critics. Hydro Québec currently generates electricity at an average cost of 2.5-3 Canadian cents per kilowatt/hour (kw/h), but the new small-hydro generators will produce electricity for between an estimated 4.5 cents to 6 cents per kw/h.

The system of purchase-sales of electricity, which Hydro-Quebec has managed in the United States for a few years, could prove appreciably less profitable than it appeared when energy restructuring began, according to Gerald Roberge, an energy expert and former Hydro-Québec employee.

Hydro-Québec can store electricity in its reservoirs in times of weak demand and resell it later at high prices across the border. Roberge notes a rise in income extending from the fourth quarter of 1999 until third quarter 2000. Since then, sales continued to increase, while profitability began to fall. Roberge says that might indicate that Hydro-Québec is selling a great deal of electricity, but with losses in certain sectors, probably due to a failure to recover distribution costs. "But what is intriguing," he says, "is the fact that a significant rise in sales, which continues into 2001, coincides with a significant decline in benefits since the third quarter of 2000."

Big Dams, Too

In addition to the campaign against the "small hydro" scheme, dam opponents are fighting larger Hydro-Québec dam proposals on several fronts. On the Portneuf River, public hearings demanded by conservation groups led to the ruling that a proposed dam must include gates that can be opened as needed to preserve fish populations. Howev-

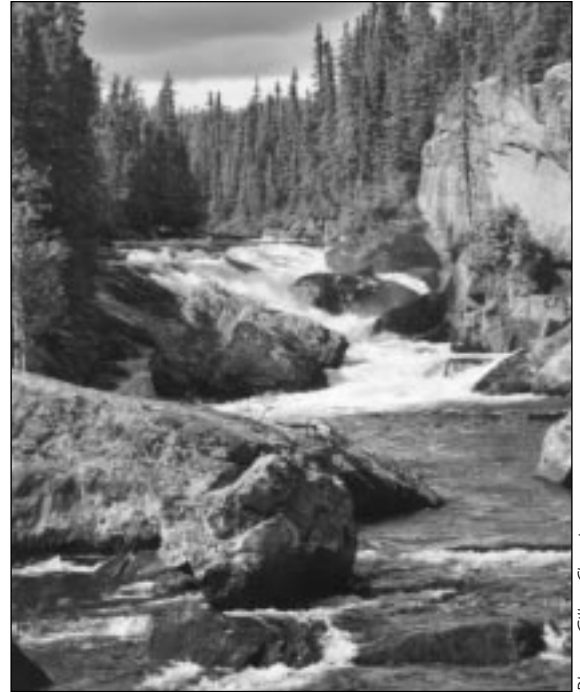


Photo: Gilles Charrier

Hydro-Québec wants to dam the Portneuf River.

er, as Hydro-Québec will do its own monitoring of the river's fisheries, some are skeptical that fish populations will enjoy adequate protections.

Other fights continue on the Manuane, Rupert, Peribonka and Manitou rivers. The watershed of the Manitou River is virtually untouched and was identified by the International Biological Program in the 1970s as one of three Natural Areas of Canadian Significance. Studies by Parks Canada confirm that the Manitou River and its surroundings is the best candidate for national park status in the region.

Many Québec citizens remain concerned that, generally, environmental impact studies have not adequately assessed the real hazards of this wave of dam-building. River activists note that both the government of Québec and Hydro-Québec have rather tarnished records in addressing environmental concerns. Though resistance to Hydro-Québec's plans is growing, it is a formidable group to take on: the crown corporation, with a net income of over \$600 million in 2000, produces more than 80% of the province's electricity and provides jobs and contracts to many residents of the province. ■

Paraná River Wetlands Designated a Ramsar Site

by Glenn Switkes

Nearly 1.2 million acres of wetlands in the middle Paraná river basin of Argentina have been declared a Ramsar site or a wetlands of international importance. The Convention on Wetlands is a treaty signed by 130 nations which provides a framework for the conservation and wise use of wetlands. The designation marks a major turnaround for the middle Paraná, which in 1996 was proposed as the site for a huge hydroelectric dam by an international consortium led by the US-based Halliburton Company, at that time headed by Dick Cheney who is now the US Vice President.

The Paraná Medio Dam was buried by strong local opposition, including the groundbreaking "anti-dams law" that citizens in Entre Rios province voted in 1997. The project is, for all practical considerations, dead, but the Ramsar designation would give promoters cause to think twice before attempting to revive it in future.

The middle Paraná is now the largest Ramsar site in Argentina. Oscar Padín, who heads the Fish and Water Resources department of Argentina's Sustainable Develop-

ment secretariat, explained that the Ramsar designation "can be a factor in the recuperation of cultural values that we are rapidly losing, such as the traditions of the river bank dweller."

According to Jorge Cappato, head of the environmental group Fundación Proteger, fish from the middle Paraná, especially the sábalo, have been exported in increasing quantities, with impacts on populations of a wide range of fish species. "The sábalo is the key species of the Paraná, because nearly all the other food, sport, and commercial species (dorado, suribí, patí, boga, and 20 others) depend on it," Cappato said. He notes that the Yacyretá Dam upstream has also had a drastic effect on fish migrations.



The Paraná Wetlands.

Photo: J. Cappato/Proteger

Cappato said that tourism based upon the natural landscapes of the region and its important cultural heritage should go hand-in-hand. Cappato's group was part of Argentina's national Ramsar committee.

The designation of Ramsar sites, which now total 89 million hectares worldwide, are

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Icelandic Wetlands Threatened by Hydropower Project

by Arni Finnsson

The Thjorsarver wetlands in the central highlands of Iceland have been threatened by hydropower developments for more than 30 years. Plans to dam the Thjorsa River, the longest in Iceland, would submerge part of this unique ecosystem and threaten wetlands above the reservoir with soil erosion from its banks. Despite opposition from the public and scientists who have studied the wetlands, the national power company has announced its intention to build the dam.

The wetlands, just south of the impressive Hofsjökull Glacier, are the largest island of continuous vegetation in the otherwise mostly desert-like central highland. They are a truly unique ecosystem: a lush wetlands surrounded by glaciers on one side and volcanic desert on the other. The ecosystem is characterized by tundra meadows intersected by numerous glacial and spring-fed streams, a great number of pools, ponds, lakes and marshes, and rare permafrost mounds. Scientists fear that part of the wetlands will

become desertified as a consequence of erosion if a reservoir is constructed in the area. The wetlands are the biggest nesting site in the world for pink-footed geese.

In the 1960s, Landsvirkjun, Iceland's national power company, wanted to construct a 200-sq-km reservoir that would have inundated almost all of the wetlands and the breeding grounds of the pinkfooted goose. In 1981, Landsvirkjun abandoned the project, but diverted half of the water in the area to reservoirs bordering the wetlands, and proposed a 30-meter-high dam with a reservoir covering some 65 sq. km. Facing mounting criticism from both scientists and the local population, Landsvirkjun has recently lowered its ambitions again, and now proposes a 24-meter-high dam with a 32.5 sq. km reservoir. The utility argues that its development plans will only affect a minor part of the wetlands' vegetated area.

Opposition to the project goes back more than 30 years. The local municipality last year adopted a unanimous resolution against

hydroelectric development of the wetlands.

Public pressure has led to a few conservation victories. In 1981 part of the wetlands was protected and in 1990 the area was designated a Ramsar site. However, there was a provision to the 1981 protection that allowed Landsvirkjun to build a dam in the area provided the project was found acceptable by the Icelandic Nature Conservation Agency and provided that scientific research showed that a dam would not harm the wetlands.

Landsvirkjun has found this obstacle very difficult to overcome, but it continues to try to move the dam project forward. Landsvirkjun is now preparing an Environmental Impact Assessment for the project, claiming that this is the most economical hydroelectric development scheme available if the company is to provide energy for an expanding aluminum smelter. This would be the second recent dam proposed for Iceland to power aluminum smelters (see *WRR*, Dec. 2001, for more on the other aluminum dam). ■

NGOs Making Waves in the International Water Establishment

by Patrick McCully

The Hague in 2000, Bonn in 2001, Johannesburg in 2002, Kyoto in 2003: the international water establishment gathers every year pledging to solve the world's water problems. Each of these conferences is set amidst a spate of rhetorical concern for the poor and the environment, and the looming specters of water shortages and water wars. But behind the verbiage is another agenda, pushed by some northern governments, the World Bank and other funders, water multinationals and lobby groups such as the Global Water Partnership and World Water Council. The real agenda, not particularly hidden, is that of promoting policy changes and subsidies which promote the privatization of water provision.

Nongovernmental organizations have usually been sidelined at big intergovernmental water meetings. But the recent meeting in Bonn was more inclusive of NGOs and others who question the water status-quo. And question they did, through plenaries, workshops, papers, and negotiating sessions.

The Bonn conference was the first that allowed civil society groups to participate on an equal basis to government delegations in plenary sessions and workshops.

Concern over the privatization of water supply in developing countries was a major theme raised by NGOs at the Bonn International Conference on Freshwater. The conference, attended by government delegates from 118 countries, was convened by the German government as part of the preparations for the UN World Summit on Sustainable Development (a meeting that marks the tenth anniversary of the Rio Earth Summit) to be held in Johannesburg in August.

The criticisms of water privatization came mainly from representatives of trade unions, NGOs and local authorities, as well as several governments. The most frequently voiced complaints about privatization were that it raised water prices, failed to ensure affordable and adequate water supplies and sanitation for the poor, was imposed by international donors despite the absence of appropriate regulatory capacity in developing countries, and encouraged corruption.

Privatization critics called on international donors to help improve the performance and governance of public sector water providers. Trade unions noted several examples of successful "Public-Public Partnerships" where poorly performing public-sector water utilities have been helped with management, technical and financial advice

from other public utilities.

These concerns were partly reflected in the concluding document from the conference, which state that private sector participation in water supply schemes "should not be imposed on developing countries as a conditionality for funding." The document stresses the need to attract private investment in water although with caveats on issues such as the need for affordable supply for the poor, "appropriate regulatory arrangements, transparent contracting procedures, reliable cost recovery mechanisms, and public acceptance of such arrangements."

In her concluding remarks to the conference German development minister Heidemarie Wiecek-Zeul offered the German government's help in establishing a multi-stakeholder review of private sector participation in water supply. The idea of such a review was originally proposed by the UK-based NGO WaterAid which works on water supply and sanitation projects in poor communities in Africa and Asia.

The meeting's final recommendations state, "Many people regard access to drinking water and sanitation to be a human right." This was a compromise between those (probably the great majority of delegates) who believed water and sanitation should be recognized as a human right and those (led by the US and China) who argue that water is a "need" but not a right. A similar debate took place between delegates (most vocally those from NGOs and unions) advocating for water to be defined as a social (or common) good and those claiming that it was an economic good. The compromise reached was to state that "Water is an economic and social good, and should be allocated first to satisfy basic human needs."

The benefits of rainwater harvesting and decentralized community-led approaches to water management were highlighted in a number of presentations and interventions and in the background papers prepared for the conference. The conference's final recommendations state that "Systematic efforts are needed to revive and learn from traditional and indigenous technologies (for example rainwater harvesting)."

As at other recent big international water gatherings, the Bonn documents and speeches contained much rhetoric about meeting the unmet water needs of the poor. The World Bank and an influential organization it supports called the Global Water Partnership repeatedly claim that annual invest-

ment needs for the water sector are \$180 billion, around \$100 billion more than is currently spent. They point to the shocking statistics that more than one billion people currently have no access to adequate, safe water and twice as many are without access to proper sanitation.

The argument is then made that the public sector cannot afford this level of investment and so private sector participation in water supply is needed to meet the needs of the poor. This argument is pervasive in international water policy debates, and was made several times at Bonn, including in the concluding remarks.

Yet the background paper commissioned by the Bonn conference organizers on "Innovative Strategies for Water and Sanitation for the Poor" argues that the water and sanitation needs of those currently unserved could be met for \$9 billion per year – a substantial sum but only a fraction of that currently spent on the water sector. Furthermore, the water and sanitation background paper shows that about nine out of ten people without a proper water supply are in rural areas – where multinational water companies have little if any interest in investing due to low incomes and the high costs of piping water to dispersed communities.

The background paper, written by consultants to the Water Supply and Sanitation Collaborative Council, is strongly in favor of rainwater harvesting and decentralized community-led approaches to water and sanitation. It contains several case studies on low cost community-driven water/sanitation initiatives. The scandal of unmet water needs could thus be resolved given political will and appropriate technological and policy choice. It will not be resolved by promoting the interests of the handful of multinational companies involved in water supply. ■

For More Information

The Freshwater Action Network coordinated NGO involvement in the Bonn conference, and will coordinate NGO involvement in the Johannesburg summit. Contact: DanielleMorley@WaterAid.org.uk.

Conference documents are available at www.water-2001.de

Water Supply and Sanitation Collaborative Council: www.wsscc.org

Water Aid: www.wateraid.org.uk

India's Babbling Brook of Water Harvesting Grows into a River

by Soma Wadhwa

This year, India's water warriors won. Combating three consecutive years of drought, they splashed news of their victory in waters they had harnessed from the skies. So, even as parts of the country went thirsty again this scorching summer, villages and communities that had saved up from past rainfalls stood out as oases of self-sufficiency and hope, their battle cry ringing loud, beckoning others to join the war against drought and death: Harvest Rainwater!

And the people heard. "Finally in 2001, our country discovered what rainwater harvesting means. Newspapers, water boards, village communities, residents' associations in towns and cities, schools, universities – this year everyone's been making inquiries, keen to learn how to save and utilize rainwater," gushes activist Rajendra Singh, who's been in the frontlines of the water crusade for over 17 years now. Head of Tarun Bharat Sangh, an NGO that has worked tirelessly to revive traditional water harvesting systems in five of Rajasthan's most arid districts, Singh received the prestigious Ramon Magsaysay award for his work in July 2001 – recognition that has added strength and, more importantly, brought visibility to the water harvesting movement that activists like Singh have been leading for over two decades now. The prize got the issue media attention, reinforcing the utility of conserved rainwater as a solution to water shortages by highlighting the benefits that many a community had reaped from it.

Water experts estimate about 20,000 villages have already taken to some form of rainwater harvesting. Growing numbers of localities in water-scarce cities like Delhi and Chennai have also been opting for similar conservation initiatives, to cope with the acute water paucity. New *Jal Biradaris* (water brotherhoods) are being forged, and rainwater harvesters' networks in the metros are getting stronger: all working together to manage their water.

"The public seems to have decided to take control of their water," observes Singh. "This would never have happened if thousands of brave men and women had not saved every raindrop that fell on their land. It's their harvest that's encouraging people now; they worked at it for the past many

years, when papers weren't writing about the virtues of water harvesting."

The perseverance bore fruit; water-harvesting villages and townships stood in verdant contrast when parched dryness gripped most of the country. These communities had used hundreds of indigenous water-saving methods to capture every trickle of water that had fallen on their land; dug small pits and lakes, put in place simple watershed systems, built small earthen dams, constructed dykes, sand and limestone reservoirs, set up rooftop water-collection units. They had saved up for the drought, recharged groundwater levels and even brought rivers back to life.

The village of Neemi in Rajasthan is an example of the prosperity that can come with saved rainwater. At lush variance with the dusty, dry surrounding areas, this summer the village blossomed in its watermelon fields and brimming pond. "We've had to work years to conquer the drought," said village head Natha Singh on a sweltering summer afternoon. "We used to be water-starved once, till we built our first earthen dam with our own hands." Then they built another dam, small check-dams, renovated abandoned tanks and became water sufficient. Natha Singh hasn't been able to stop counting Neemi's blessings since: "Our land has become so fertile that we've started leasing it out to outside farmers. Our men who'd migrated to cities for a living have started returning."

The first of these *jal sammelans* (water meetings) was held this March, organized by the Delhi-based Centre for Science and Environment (CSE), an organisation that has been campaigning aggressively for rainwater harvesting. Over 60 villagers from five states participated in the meeting, and the foundations of a water fraternity was laid. The resolve was to do the utmost to promote water conservation, and to make community-based water management a people's movement. With no written rules and no membership fees, contributions, it was decided, could only be made in the form of voluntary labor in rainwater harvesting projects. Further, an important task of such brotherhoods is to lobby towards establishing a community-based national water policy where the emphasis will be on people.

"India's water crisis, both rural and urban, is more a result of water mismanagement than actual water shortage," says Indira Khurana, coordinator of CSE's natural resource management unit. "Why else should Cherrapunji have water scarcity nine months a year despite having 11,000 mm of annual rainfall?" The only way out, the only method to "drought-proofing," she says, is to motivate individuals to harvest every drop of rain that falls in their region. Once mobilized, these people will pressure governments into making policies that encourage public participation in management of water demands rather than hampering it.

A total reliance on a centralized water distribution policy – India's legacy from the British – only means aggravating water shortage in the years to come. With the steady growth in water demands, coupled with rapacious borewell drilling that's harming groundwater levels beyond repair, dry taps and drier tubewells seem to be our future.

Gandhi Peace Foundation's Anupam Mishra, a devoted advocate of traditional water harvesting systems, insists on urgency: "Water needs to become everybody's business, and now. The relationship between humans and water needs to be re-established." He is weary though of the hype that rainwater harvesting has enjoyed this year, fearing it will make the issue a social fad, rather than a concern internalized by society. "We need to appreciate the rural hands that know the craft of capturing water, to be humble and learn rather than lecture them," says Mishra. "They are our best engineers, with skills to make us water sufficient."

There is no village in India, argue experts, that cannot meet its basic drinking and cooking water needs through rainwater harvesting. Environmentalist Anil Agarwal in a paper titled *Drought? Try capturing the Rain* points out that just 100 mm of rainfall falling on a one hectare plot can yield up to one million liters of water. Which means an average Indian village requires no more than 1.14 hectares of land to meet its needs. Agarwal is categorical: "There is just no reason for water thirst in India." ■

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Wind Power Soars

by Lori Pottinger

Wind power has been the fastest-growing energy industry in the world for the past decade, sustaining a growth rate of about 25%, but last year the industry's growth spurt had its own growth spurt. According to the Washington, DC research group Earth Policy, world wind electric-generating capacity grew from 17,800 megawatts in 2000 to an estimated 23,300 megawatts in 2001 – a one-year gain of 31%. The 23,300 MW of generating capacity now in place meets the residential electricity needs of some 23 million people living in industrial societies – equal to the combined population of Denmark, Finland, Norway, and Sweden.

Two-thirds of the wind capacity added in 2001 was concentrated in the top three countries: Germany added 1,890 megawatts; the US, 1,694; and Spain, 1,065. For the United States, this represents a 63% growth in wind capacity in 2001; for Germany, 59% growth. The new capacity in the US was enough to power 475,000 average American households, according to the Washington, D.C.-based American Wind Energy Association (AWEA).

Some major new US projects include the 399-turbine Stateline Wind Project under construction on the border between Oregon and Washington (it will produce 265 megawatts); some 900 megawatts added to Texas last year, and a proposal to develop wind power on 222,000 acres of farm and ranchland in South Dakota.

Many Benefits

Wind energy helps curb greenhouse gas emissions. According to the wind-energy industry, a single 1-MW turbine annually displaces 4.65 million pounds of carbon dioxide, the leading greenhouse gas associated with global warming; 24,000 pounds of sulfur dioxide, the lead agent causing acid rain; and 15,900 pounds of nitrogen oxides, a major cause of smog.

Wind power has also become a strong and profitable business. While high-tech firms as a group suffered a disastrous fall in sales, earnings, and stock value in 2001, sales in the wind industry soared. For example, at Danish-based Nordex, one of the world's largest turbine manufacturers, new orders were up 56%.

Wind power can also be used to electrolyze water to produce hydrogen, which can be stored and used to fuel gas-fired turbines in backup power plants when wind power ebbs. Over time, hydrogen produced with wind-generated electricity is the leading candidate to replace natural gas in gas-fired power plants as gas reserves are depleted. Hydrogen is also the ideal fuel for the fuel cell engines that every major automobile manufacturer is now working on.

Earth Policy writes, "Wind energy in the form of electricity and hydrogen can satisfy all the various energy needs of a modern

economy. Abundant, inexhaustible, and cheap, wind promises to become the foundation of the new energy economy. We can now see the shape of this new economy emerging as wind turbines replace coal mines, hydrogen generators replace oil refineries, and fuel cell engines replace internal combustion engines."

The cost of wind has dropped around the world. In the United States, the cost has fallen from 35¢ per kilowatt-hour in the mid-1980s to 4¢ per kilowatt-hour at prime wind sites in 2001. With the US adoption of a wind production tax credit (PCT) in 1993 to offset established subsidies for oil, coal, and nuclear power, growth in wind surged. The PCT was a key factor behind the 30% increase in US wind generation in 1998 and a 40% increase in 1999.

Unfortunately, the PCT, which is valued at about 1.7 cents/kWh, expired at the end of 2001, and had not been renewed by Congress at press time. Wind power advocates are concerned that wind power growth in the US could slow dramatically without the help of this key financial incentive.

"Wind is well on its way to providing 6% of our nation's electricity – as much as 25 million households use annually – by the year 2020," said Randall Swisher, executive director of American Wind Energy Association. "For this readily achievable goal to happen, we need strong and consistent policy support from our federal and state governments. The PTC works well, as the past year has shown. It should be extended as soon as possible."

Keeps on Blowing

If growth in the US wind slows from lack of government support, Europe appears to be ever more wind-driven. The European Wind Energy Association recently revised its 2010 wind capacity projections for the continent from 40,000 MW to 60,000 MW.

France, for instance, which for years had ignored wind power, announced in January that it will double its wind power to 14,000 MW by 2010.

A survey of some 70 wind developers in Germany indicates that they plan to install 2,500 MW of capacity in 2002 and a similar amount in 2003. If they succeed, they will surpass the German government's 2010 goal of 12,500 MW by the end of 2003.

The UK is also poised to increase its reliance on wind power. The government wants to create a US\$1.43 billion market in



Photo: Bill Pottinger

California wind is surging, partly in response to last year's energy crisis.

Earth Policy reports that since 1995, world wind-generating capacity has increased nearly fivefold. During the same period, the use of coal, the principal alternative for generating electricity, declined by 9 percent.

Despite this spectacular growth, there is vast potential for wind power that remains untapped. Europe has enough easily accessible offshore wind energy to meet all of the region's electricity needs (and is taking steps to develop it). In the United States, just three of the 50 states – North Dakota, Kansas, and Texas – could satisfy the country's electricity needs. And China can easily double its current electricity generation from wind alone, Earth Policy reports.

Germany currently leads the world in wind generation, with 8,000 megawatts. The United States follows with 4,250 megawatts. Spain is in third place, with 3,300 MW, followed by Denmark, with 2,500 MW, which now gets 18% of its electricity from wind.

Worldwide

renewable energy within the decade to curb greenhouse gas emissions and is using a Renewables Obligation – which requires suppliers to buy a set proportion of their power from renewables – to move things along. Numerous large wind projects are on the drawing boards as a result, including an estimated 1,500 MW of offshore wind projects.

The Irish government has okayed plans to build the world's largest offshore wind farm. The \$570 million project will be located a few miles offshore of Ireland's east coast, and will run for 17 miles of its length. This project will have three times the electricity-generating capacity of all current offshore wind farms worldwide; its 200 turbines will produce 10% of Ireland's power, or about 520 megawatts. Some of the project's turbines will be up and running by the fall.

Offshore wind projects currently supply a small fraction of the power generated by

onshore plants. European offshore wind projects with a capacity of 5,300 MW are in the planning stages. The European Union aims to generate 12% of its total energy consumption from renewable energy by 2010, making it the largest investor in renewables in the world.

Projecting future growth is complicated, but once a country has developed 100 megawatts of wind-generating capacity, it tends to move quickly to develop its wind resources. The United States crossed this threshold in 1983. In Denmark, this occurred in 1987. In Germany, it was 1991,



California's Altamont Pass windfarm is one of the world's largest.

Photo: Bill Pottinger

followed by India in 1994 and Spain in 1995. By the end of 1999, Canada, China, Italy, the Netherlands, Sweden, and the United Kingdom had crossed this threshold. During 2000, Greece, Ireland, and Portugal joined the list. And in 2001, it was France and Japan. As of early 2002, some 16 countries, containing half the world's people, have entered the fast-growth phase. ■

US Needs Renewable Energy Targets

Many energy experts believe renewable energy technologies would surge if they were operating on a "level playing field" – one in which the market barriers to newer energy technologies were lifted and favoritism toward older, dirtier energy forms was reduced. One way to do this is to create a federal renewable portfolio standard, which sets targets for clean energy. The following is excerpted from an article titled "Renewable Energy: A Viable Choice," by Antonia Herzog, Timothy Lipman, Jennifer Edwards and Daniel Kammen (published in Environment, December 2001.)

The Renewable Portfolio Standard (RPS) is akin to the efficiency standards for vehicles and appliances that have proven successful in the past. A gradually increasing RPS is designed to integrate renewables into the marketplace in the most cost-effective fashion, and it ensures that a growing proportion of electricity sales is provided by renewable energy. An RPS provides the one true means to use market forces most effectively – the market picks the winning and losing technologies.

A number of studies indicate that a national renewable energy component of 2% in 2002, growing to 10% in 2010 and 20% by 2020, which would include wind, biomass, geothermal, solar, and landfill gas, is broadly good for business and can readily be achieved. States that decide to pursue more aggressive goals could be rewarded through an additional federal incentive program. In the past, federal RPS legislation has been introduced in Congress and was proposed by the Clinton administration, but it has yet to be re-introduced by either this Congress or the Bush administration.

Including renewables in the US power supply portfolio would protect consumers from fossil fuel price shocks and supply shortages by diversifying the energy options. A properly designed RPS will also create jobs at home and export opportunities abroad. To achieve compliance, a federal RPS should use market dynamics to stimulate innovation through a trading system. National renewable energy credit trading will encourage development of renewables in

the regions of the country where they are the most cost-effective, while avoiding expensive long-distance transmission.

The coal, oil, natural gas and nuclear power industries continue to receive considerable government subsidies, even though they are already well established in the marketplace. Without the RPS or a similar mechanism, many renewables will not be able to survive in an increasingly competitive electricity market focused on producing power at the lowest direct cost.

The RPS creates an ongoing incentive to drive down costs by providing a dependable and predictable market. An RPS will promote vigorous competition among renewable energy developers and technologies to meet the standard at the lowest cost.

Analysis of the RPS target for 2020 shows renewable energy development in every region of the country, with most coming from wind, biomass, and geothermal sources. In particular, the Plains, Western, and mid-Atlantic states would generate more than 20% of their electricity from renewables. Texas has become a leader in developing and implementing a successful RPS that then-Governor Bush signed into law in 1999. The Texas law requires electricity companies to supply 2,000 MW of new renewable resources by 2009, and the state is actually expected to meet this goal by the end of 2002, seven years ahead of schedule. Nine other states have signed an RPS into law: Arizona, Connecticut, Maine, Massachusetts, Nevada, New Jersey, New Mexico, Pennsylvania, and Wisconsin. Minnesota and Iowa.

While this signals a good start, this patchwork of state policies would not be able to drive down the costs of renewable technologies and move them fully into the marketplace. Also, state RPS policies have differed substantially from each other thus far. These differences could cause significant market inefficiencies, negating the cost savings that a more comprehensive, streamlined, market-based federal RPS package would provide.

World Bank Resettlement Policy Compromised

by Dana Clark

The World Bank's Board of Executive Directors recently approved a revised policy on Involuntary Resettlement that undermines protections for the most vulnerable people in the world who are forcibly displaced from their homes and livelihoods to make way for Bank-financed projects. But concerted efforts by civil society groups helped thwart other changes that would have further weakened the policy.

The Board's decision to approve the policy (now called "OP/BP 4.12") came after a prolonged and at times contentious revision process.

Although internal drafts of the policy began circulating in 1996, there was limited opportunity for public comment until 1999, when the Bank finally posted the draft policy for a six-month public comment period. The draft was translated into 11 languages, and consultations were held with governments and some non-governmental organizations in 14 countries. The process largely failed to include communities that had experienced involuntary resettlement, but overall the consultation period did widen the flow of information. After the 1999 public consultation period ended, the policy again disappeared from public view.

The policy debate heated up again in January 2001, when a new draft was circulated to Executive Directors. A leaked version of that draft provoked an outcry from civil society because it incorporated changes which were particularly detrimental for people lacking legal title to land and for indigenous people. Bank staff responsible for the policy conversion had no intention of engaging in further public debate, but intense civil society pressure – including thousands of letters, faxes, emails and phone calls – resulted in the removal of some of the damaging language, and restoration of language that had been cut regarding the vulnerability of people lacking title. For example, concerns voiced by civil society played a crucial role in blocking language that would have allowed the exclusion from compensation of "illegal users of natural resources," with discretion left to implementing agencies to determine who or what was illegal. Three revised drafts of the policy were circulated internally, and NGOs commented extensively on leaked versions.

Ultimately, the policy debate led to an

impasse between outside experts and Bank staff. For example, outside experts had argued for years that the revision to the policy should correct well-documented problems that have consistently led to the involuntary impoverishment of affected communities. They argued that the Bank should apply lessons learned from resettlement failures – an approach that was taken in all previous revisions to the resettlement policy, according to former World Bank General Counsel Ibrahim Shihata, who stated that during each of the previous revisions, "the Bank's resettlement policy took into account the findings of social science research on resettlement and the lessons from the Bank's own development projects."

Making Resettlement Easier, Not Better

Unfortunately, the Bank's Resettlement Thematic Group, which led the revision process, was not interested in protecting the rights and interests of affected communities, addressing clear implementation failures, or minimizing the risk of involuntary impoverishment of affected communities. Rather, the group was focused on "operationalizing" the policy and "enabling" resettlement, while simultaneously minimizing the responsibility of the World Bank – in other words, making it easier to resettle people. Although certain civil society suggestions relating to "operational" issues were incorporated, Bank staff consistently refused to accept suggestions for changes to the policy that would have clarified or strengthened protections for affected communities. The Bank argued that it was simply "reformatting" rather than "revising" the policy, and that suggestions for strengthening the policy were outside the scope of its mandate.

One example of where this impasse played out was over the question of "improvement" versus "restoration" of lost livelihoods. A broad range of outside voices called on the Bank to make the simple yet crucial clarification that the objective of the policy was to improve displaced persons' standards of living. The 1990 version of the policy had led to confusion in implementation when it stated that displaced persons should be "assisted in their efforts to improve their former living standards, income earning capacity, and production levels, or at least restore them."

The language allowing for "restoration" rather than improvement has led to stagnation and decline of living standards, as noted by anthropologist Thayer Scudder in comments submitted during the consultation process. The restoration language allows for the perpetuation and exacerbation of poverty. In support of the removal of "restoration" language, Dinesh Agarwal, a resettlement officer for India's National Thermal Power Corporation, argued that a restoration standard "has little relevance." He said that when "people live in abysmal poverty without any access to basic human needs like water, electricity, medical and educational facilities, the concept of restoring previous standards of living become meaningless."

It stands to reason that people who are forcibly evicted from their lands in the name of "development" should be entitled to see an improvement in their standard of living as a result of their sacrifice. The Bank claims to recognize and promote the right to development, but failed to take the crucial step of clarifying the right to development for some of the poorest and most vulnerable communities on Earth, those who are deemed to be "in the way" of World Bank projects.

While rebutting calls for strengthening the policy by claiming that change was not possible, the Bank simultaneously introduced significant changes in the policy that had the effect of weakening protections for affected people. For example, the Bank inserted new language that states the Bank and borrower will be responsible only for the "direct" impacts of involuntary resettlement and not for "indirect" impacts. The rationale given for this significant language and policy change was that Bank staff simply sought to codify the Bank's misguided and highly criticized practice of disregarding indirect resettlement impacts.

The Bank's duplicitous approach to changes in the policy was also applied to the findings of the internal Operations Evaluation Department (OED), which had published several critical reviews of resettlement practice. Bank staff claimed that the revised policy incorporated the findings and recommendations of the OED regarding resettlement practice. However, the final policy actually runs counter to one of OED's primary criticisms by explicitly promoting a

continued opposite

"checklist" approach to policy compliance. The OED has attributed significant failures in resettlement implementation to "the difficulty in reaching Bank objectives using 'plans' rather than 'results' as the touchstone of quality management." Nonetheless, at the request of powerful borrowing countries, the new policy incorporates new language that states that borrowers will only be held responsible for checking off elements in the resettlement plan, regardless of whether the plan is effective in meeting the objectives of the policy.

Another noteworthy change was the Bank's last-minute introduction of insidious new language regarding indigenous people. Civil society and some Board members had raised serious concerns about the impacts of involuntary resettlement on indigenous communities, which suffer disproportionate impacts of resettlement, both in terms of numbers of people displaced and in terms of the devastating cultural, social and economic implications. Commenters had called on the Bank to adopt a standard of prior informed consent for indigenous communities, as is the policy at the Inter-American Development Bank and as recommended by

the World Commission on Dams (WCD). The World Bank, while purporting to introduce language to protect indigenous peoples, constructed the language in such a way that it implicitly allows for the displacement of indigenous peoples even if it threatens their cultural survival and even if replacement lands are not provided.

WCD Recommendations Ignored

Bank staff consciously avoided consideration of the findings and recommendations of the WCD, which had devoted significant resources to studying resettlement. The Bank argued that WCD findings would instead be considered in the context of the non-binding "Good Practices" document, which would allegedly have a section devoted to reservoir-induced displacement. In addition, the Bank claims that it will consider the WCD in the context of the Water Sector strategy – a revision process that has no defined time frame. (See article below for the Bank's response to the WCD.)

Over the six years that the resettlement policy was being revised, thousands of people wrote letters to the World Bank trying to shape the debate and urging greater protec-

tions for affected communities. The Bank engaged in a strategy of attrition, delaying release of information, withholding documentation, and dragging the process out over years. As a result, it was difficult for civil society to maintain a coordinated campaign on the policy. Certain organizations, including the Center for International Environmental Law, maintained a steady vigilance on the policy and sent out updates and action alerts to the broader NGO community. At strategic moments, civil society responded with letters, calls and faxes, and those targeted responses were critical to thwarting some of the worst changes.

Those who participated in the resettlement policy debate can take solace in knowing that had they not engaged on the policy, the outcome would have been far worse. However, the endeavor was frustrating because the Bank steadfastly resisted efforts to strengthen the policy. As a result, civil society will have to continue to be vigilant to hold the Bank accountable and to demand meaningful policy reform that ends the practice of forcible eviction and moves instead toward negotiated settlements with affected communities. ■

World Bank's Official Response to WCD: In a Word, Weak

by Patrick McCully

In January the World Bank finally issued its official response to the report of the World Commission on Dams, which was released in November 2000. The Bank's four-page response, which was approved by its board of directors, says that it "shares the WCD core values and concurs with the need to promote" the seven strategic priorities proposed by the Commission, but takes a hands-off approach to implementing the WCD's guidelines and recommendations.

The core values are equity, efficiency, participation, sustainability and accountability. The strategic priorities are gaining public acceptance, assessing options, addressing existing dams, sustaining rivers and livelihoods, recognizing entitlements and sharing benefits, ensuring compliance, and sharing rivers for peace, development and security.

But the Bank stresses that the 26 "Guidelines for Good Practice" in energy and water planning and dam project implementation and operation proposed by the Commission

are not supposed to be binding standards. It states that governments and private sector developers "may wish to test the application of some of the WCD guidelines in the context of specific projects." Where this is the case, "the World Bank will work with the government and developer on applying the relevant guidelines in a practical, efficient and timely manner."

"Consistent with the WCD recommendations," the Bank's response states, the institution will "support strategic planning processes conducted by borrowers to enhance the evaluation of options and alternatives for energy and water management." As part of this process the Bank has initiated a Dams Planning and Management Action Plan "to strengthen its work in the water and energy sectors and to improve the evaluation, implementation and operation of dams when they are the appropriate development option."

The Action Plan comprises activities in six complementary areas including working

with borrowers so that "all energy, water supply, flood and drought protection options are assessed," "effectively implementing the World Bank's existing safeguard policies," and supporting borrowers "in improving the performance of existing dams."

The response concludes by stating that the Bank "is committed to continued support for its borrowers in developing and managing priority hydraulic infrastructure in an environmentally and socially sustainable matter, and views the WCD Report as a significant point of reference in this process."

The Bank's response states that it has consulted widely with interested parties, including NGOs, on how to respond to the WCD. None of the NGOs closely involved with the WCD process were consulted. The Bank's reactions to the WCD have been criticized by many observers who feel that the Bank's role as co-sponsor of the Commission give it a responsibility to take a much stronger leadership role in promoting adoption of the WCD's recommendations. ■

SHORTS

An error in December by technicians carrying out maintenance on one of the turbines at Yacyretá dam (Paraná river, Paraguay/Argentina) has resulted in the killing of an estimated 176,000 pounds of fish. According to news reports, the floodgates leading from the turbine were mistakenly closed after thousands of fish had already entered. Without installing an oxygenation system, the fish suffocated.

Chilean energy provider Endesa has confirmed that the 570MW Ralco Dam on the Biobio River will begin producing power in December 2003. The dam is 50% complete, even though all local indigenous communities have not signed land exchange agreements. Chilean law prohibits the flooding of indigenous land and forced resettlement. This dam will impact fisheries, flood sacred sites and arable lands of the Pehuenche people. 86 Pehuenche families have already been relocated by the company; some relocated communities complain about the conditions at the new site. Endesa still needs to sign agreements with 5 Pehuenche families. The Quintreman sisters, who have been fighting the dam for 10 years, signed a preliminary agreement to sell their lands to Endesa, but their lawyers say the agreement has an "escape clause" and the sale is not yet final. The sisters say the US\$15,000 they received from Endesa is compensation for past damages.

Spain presented details of its controversial plan to divert water from the Ebro River to irrigate arid regions in the southeast to the European Commission in late January. The \$21 billion project has outraged environmentalists, who are campaigning to ensure the plan gets no EU funding. They argue that the Ebro basin has not had a water surplus for the past quarter of a century, and that the government should instead seek to reduce waste in the existing system. Spain's national water plan also proposes building more than 70 new dams at a cost of at least \$15.5 billion. The plan has sparked massive protests since it was released in late 2000.

News Briefs



UPDATES

BRAZIL: A federal appeals court has upheld a lower court decision requiring new environmental studies for the Belo Monte Dam on the Xingu River, a major tributary of the Amazon. With a projected installed capacity of 11,000 MW, the US\$6.5 billion dam would be the world's second largest (after China's Three Gorges). The judge pointed to the fact that, since the dam would affect at least one indigenous community, prior authorization for the studies from the national congress should have been obtained. Secondly, the judge ruled that since the Xingu River passes through two states, the entire licensing process should be carried out at the federal rather than the state level. Having already spent nearly \$2 million on an environmental impact study that will now largely be discarded, the state electric company Eletronorte now will face delays in carrying the project to the licensing stage. As a result, the company has temporarily closed its Altamira office, transferring the 35 engineers and office staff charged with implementing the Belo Monte project.

BRAZIL: Federal attorneys have charged fraud in the licensing process for the 900 MW Lageado Dam, being constructed on the Tocantins River. With its reservoir already filling, the attorneys have cited irregularities in environmental mitigation programs and in the compensation for Xerente indigenous people, whose community is only a few kilometers from the work site. Citing the emergency presented by Brazil's energy crisis, a judge authorized the closing of the floodgates, even though the federal environmental protection service, Ibama, says that there are problems in most of the 34 basic environmental mitigation programs. This has led federal attorney Mário Lúcio de Avelar to charge "fraud in the licensing process" at the state level. According to Avelar, "Thousands of families moved from their lands were resettled on areas of poor soils." Both Avelar and Ibama officials point to the fact that,

with the filling of the reservoir authorized, it will be far more difficult to force compliance by Investco, the dam construction consortium headed by Eletricidade de Portugal and the Ohio-based American Electric Power Co.

CHILE: The Regional Environmental Commission rejected the EIA for the huge Alumysa aluminum project in January. This project, proposed by the Canadian mining company Noranda, involves the construction of a large aluminum smelter, up to six large dams (which would flood 25,200 acres of land), 58 miles of roads and a port. The government commission has requested additional information. The project has generated the concern of local communities, environmentalists and the salmon industry. The EIA brought in 400 letters from national and local groups, which raised concerns over the project's environmental and economic impacts. The Salmon and Trout Producers Association, which represents a US\$1 billion export industry, has stated that the project would pollute the Aysen fiord and harm fishing resources. "The unique natural qualities of Aysen, its pristine, pollution free environment, could be seriously threatened by the construction of this megaproject," said Peter Hartmann, local director of environmental pressure group Codeff, which has been campaigning for years against the project.

Economy Minister Jorge Rodriguez gave his support to the Alumysa project, the largest foreign investment in Chile, stating the project will support Chile's economic growth and generate new jobs. The company estimates it will provide 1,100 long-term jobs.

Noranda general manager Roberto Biehl claims that the bay is already contaminated because of the salmon industry and that the project would increase environmental regulation in the region with similar standards to international institutions such as the World Bank.

The Environment Commission has asked for testimonies from the director of National Environment Commission, the Alumysa

project general manager, and the general manager of the Salmon and Trout Producers.

DECOMMISSIONING

US: Historian Stephen Ambrose has pledged to donate \$250,000 to help remove an aging dam near Missoula, Montana at the confluence of the Clark and Blackfoot rivers, and clean up the 6.6 million cubic yards of contaminated sediment behind it, according to a January 16 article in the *Billings (MT) Gazette*. The Milltown Dam and its reservoir are the terminus of the nation's largest Superfund site and the reservoir holds decades of mine waste. Environmental groups have advocated for removing the dam and restoring the riverbed, at an estimated cost of \$120 million. The company responsible for the cleanup, Atlantic Richfield, prefers a \$20 million initiative to strengthen the dam and leave the sediment untouched. The US EPA will issue a decision in the spring. Ambrose calls the cleanup a "once-in-a-lifetime opportunity" to help the environment.

Ambrose is a longtime river lover. He has worked with American Rivers on its "most threatened rivers" program, and over the years has retraced Lewis and Clark's 1804 route 2,500 miles along the Missouri River from St. Louis to the river's source at Three Forks, Montana. Ambrose calls the state of the Missouri "a bloody disaster," and is spearheading a campaign to pump millions of dollars into the river's renewal.

CANADA: The provincial government of British Columbia issued an order in December to remove the Kitsault Dam in the Skeena region. Kitsault is the second project slated for decommissioning on a list of the top six candidates for removal created by the local group Outdoor Recreation Council (ORC) last summer. The ORC hopes that the decision to remove the 26-foot-high dam will help build momentum for decommissioning the larger Theodosia Dam, scheduled to begin this summer. Of the estimated 2,500 dams in the province, approximately 250 are outdated or marginally beneficial while continuing to have adverse environmental and social impacts.

Kitsault Dam, a remnant of an abandoned mining operation, represents a safety hazard to the downstream community of Alice Arm, where surrounding dykes would be unlikely to hold in the event of the dam's failure. In addition to safety concerns related to the aging structure, Kitsault also represents a barrier to fish passage for numerous salmon stocks. Mark Angelo, chair of ORC's River

Recovery Project, says, "While the Kitsault dam will be removed largely for safety reasons, the Outdoor Recreation Council believes that the decommissioning of other older dams that have outlived their usefulness, or provide only marginal benefits, will create some wonderful river restoration opportunities, particularly from a fisheries perspective."

A BETTER WAY

WATER: Friends of the Earth – Middle East has launched a new program aimed at fostering more dialogue and cooperation on the protection, equitable and sustainable use of water and environment resources in Jordan, Palestine and Israel. The Good Water Neighbors project will partner neighboring communities that live across the border from each other. The work will focus on efforts to ease the immediate water distress of member communities, and encouragement to save, reuse and sustain water resources and treat sewage.

Project organizers state, "In Israel, Palestine and Jordan, fresh water and environmental resources are scarce, fragile and suffer from a lack of sustainable management policies. One of the most glaring and basic problems in this regard is that while there is a lack of drinking water in the Palestinian and Jordanian areas, Israel has a regular water supply and a free flow of water in taps. Feelings of anger and frustration arise from this situation."

The project will create Water and Environment Information Centers within existing Palestinian, Jordanian and Israeli environmental organizations or community groups.

For more information, visit <http://www.foeme.org>

SOLAR: Solar power could provide energy for more than 1 billion people, creating over 2 million jobs by 2020, and 26% of global energy needs by 2040, according to a report released by the European Photovoltaic Industry Association (EPIA) and Greenpeace in Berlin last October. The report *Solar Generation* shows that solar photovoltaics have the potential to significantly contribute to a secure global electricity supply, and to help prevent climate change.

"It's a realistic, achievable goal, based on the current state of the industry and opportunities in the market, but it requires clear political support from governments around the world," said Sven Teske, Greenpeace energy expert. "Greenpeace is calling on world governments to provide renewable energy to two billion of the world's poorest people in the next decade. Even using conservative

estimates, this report shows solar energy is able to fulfill a large part of this demand, and create millions of jobs globally."

The report shows that by 2020 global solar output could be 276 Terawatt hours, equal to 30% of Africa's energy needs, or 10% of OECD European demand, or 1% of global demand. This would replace the output of 75 new coal fired power stations and prevent the emission of 664 million tons of carbon dioxide. The global solar infrastructure would have an investment value of US\$75 billion a year.

The report can be downloaded from: www.greenpeace.org/~climate/climatecountdown/solargeneration

ENERGY CONSERVATION: Over the next three years, the US Pacific Northwest could put in place energy conservation measures equal to the output of a natural gas-fired power plant – about 300 megawatts – at a lower cost than building such a plant, according to an analysis by the Northwest Power Planning Council (NPPC). NPPC is a multi-state agency with a mandate to balance power production and environmental concerns in the Pacific Northwest. The group is asking Oregon, Idaho, Montana, and Washington to invest in efficiency and conservation measures rather than the construction of new power plants. Power savings will come from a wide variety of sources – from modernizing machinery to shutting down vending machines during off-hours.

"Acquiring 300 megawatts of efficiency improvements would help insulate utilities and their customers from volatile wholesale prices, which we have seen rise and fall dramatically with demand for power," said NPPC's Larry Cassidy.

During the last few years, utilities in the region developed conservation at half the rate NPPC had determined to be cost-effective. Had cost-effective conservation measures been fully developed, it would have displaced approximately 180 megawatts of power, enough for about 100,000 average Northwest homes. Instead, the region's utilities had to purchase that much more power, often at extraordinarily high rates.

According to the analysis, the region could acquire approximately 100-110 megawatts of new conservation per year for the next three years for less than the cost of power from a new combustion turbine – about 3 cents per kilowatt-hour for the conservation, versus 3 to 3.5 cents per kilowatt-hour for a gas plant.

For more information, see <http://www.nwccouncil.org/>

Environmental Mitigation Costs Rise Tenfold at Three Gorges

by Doris Shen

China's Environmental Protection Administration recently announced plans to spend an additional US\$5 billion to mitigate pollution from the Three Gorges Dam reservoir. The *South China Morning Post* reported in December that the funds will be used to build 260 sewage treatment plants as well as 230 industrial waste treatment facilities in the Three Gorges region. The fund will also support 42 soil-conservation projects, intended to stop erosion and run-off into the reservoir.

The fund will further drive up the cost of the Three Gorges Dam, which has already gone from \$11.25 billion in 1993 to \$25.4 billion last year. The original budget for pollution control was \$500 million.

Government officials said that close to 70% of the funding will be state-financed through treasury bonds. The government hopes to raise the rest of the money from polluting factories and shipping companies, which will cover the costs of industrial waste treatment and the collection of waste from ships.

"This reservoir is different from all others in the world," Chongqing environmental officer Liao Shiguo warned, "because a large urban area with a population of over 31 million lies upstream. This will put the environment of the Three Gorges Dam under very heavy pressure." The Chongqing environmental protection bureau is in charge of the reservoir area behind the dam.

According to a 1993 survey of water contaminants in the proposed Three Gorges reservoir area, more than 3,000 industrial

and mining enterprises release more than one billion tons of wastewater annually, containing more than 50 different pollutants. Wastewater in the watershed contains heavy metals and toxins such as mercury, cadmium, chromium, arsenic, phenol, lead, and cyanide. Industrial sources account for the majority of pollution, but significant amounts also come from agricultural run-off, residential wastewater, urban sewers, and pollution from ships.

The proposed environmental mitigation projects, if accomplished, would ensure that most wastewater and pollution coming from the vast regions above the Three Gorges Dam would be treated when the dam is scheduled for completion in 2009, the administration said.

The Chongqing environmental protection bureau said the money could not come at a better time as it was urgently needed to clear out the waste along the Yangtze River's banks in the Three Gorges area before some cities and towns were submerged in 2003. Experts were investigating how much waste they needed to remove.

While the mitigation program is a significant step forward, the dam's construction in itself is leading to possible increased pollution in the watershed. On January 20, 2002, as part of the government's heavy handed program to dismantle industries and clean up waste, explosive charges were used to demolish buildings in the 2,300-year-old town of Fengjie, as residents facing eviction looked on. The demolition was broadcast nationwide on China Central Television.

The television program reported the demolition represents the start of a second phase of resettlement and also signaled to the residents that they should not hope for a delay in the resettlement process. Buildings demolished included a power station, town government house, county education committee office and county water supply office.

Chinese journalist Dai Qing, a prominent critic of Three Gorges Dam, argues that a thorough effort to clean up contaminated land, and rid the reservoir bed of hazardous materials such as industrial chemicals and heavy metals, untreated sewage and other pollutants, should have started long ago, and the costs and feasibility of such an enormous task should have been assessed in the original feasibility study.

"Unfortunately, the Ministry of Water Resources was so focused on pushing ahead with the project that it never took into account the drinking water issue, which affects millions of people," she said.

"So now project authorities are in a big hurry to blast buildings down to the ground, under which poisonous materials will be buried," she continued. "They should be held accountable for the consequences of this, and apologize to the Chinese people, who have contributed their money to building this huge dam, and to the uprooted migrants, who have suffered so much." ■

For information on how to prevent US investment banks from financing Three Gorges Dam, write to threegorges@irn.org and visit www.boycottdiscover.org

Paraná continued from page 5

based upon measures being taken to preserve wetlands ecosystems, to restrict the destruction of their archaeological, anthropological, and natural resources, and to harmonize biological and human activities in the region. The Argentine government will now design a plan for the "rational use" of the region, based upon principles of sustainability. While the region will not be off-limits to development, environmentalists feel the Ramsar designation will bring international attention to the area, and will mean more careful consideration of harmful projects

such as dams, dredging, bridges or canals.

The Paraná River begins in mountains in southeastern Brazil, and flows through Paraguay and Argentina, where it is joined by the Paraguay River before flowing into the Atlantic near Buenos Aires, where it becomes the La Plata estuary. The middle Paraná has been distinguished by a thriving local economy based upon artisanal fishing, using canoes or low-power motorboats. The region was originally inhabited by the Abipone indigenous people, who thrived on the river's wealth of aquatic life. A group of

Argentinian anthropologists has proposed that the middle Paraná region be re-named "Jaukanigás," or "people of the water" in the language of an indigenous group that inhabited the area.

Cappato also said that the Ramsar designation, which applies to only 492,000 hectares of the three million hectare region of the middle Paraná, should now be extended to other stretches of the Paraná River in Argentina, such as the Iberá wetlands (now threatened by seepage from the Yacyretá Dam reservoir). ■

Ugandan Dam continued from page 1

viability, or the risks to Uganda's economy of continuing its almost total dependence on hydropower. At the same time as increasing Ugandan hydro dependence and climate vulnerability, the World Bank is funding geothermal and fossil fuel plants in Kenya, Ghana and elsewhere with the specific justification of reducing these countries' over-dependence on hydro. In evaluating Bujagali, the Bank ignored its own statements on the importance of reducing Africa's vulnerability to climate change. The economic justification for Bujagali has also been criticized for being dependent on unrealistically high estimates of future growth in both Uganda's GDP and power demand.

Defying the WCD

If project proponents had decided to follow the guidelines of the World Commission on Dams (WCD) for Bujagali, the dam's risks might have been publicly disclosed and debated. But the World Bank, whose approval of Bujagali comes one year after the release of the WCD report, chose instead to ignore most of the report's guidelines. The Bank – a founder and major supporter of the WCD process, which reviewed the development effectiveness of large dams and made recommendations for future planning of projects – has rejected calls for the WCD criteria to be applied to Bujagali. The Bank justified this stance with the argument that planning for the dam was already well underway by the time the WCD's report was released. Critics counter that the WCD explicitly called for ongoing projects to be reviewed against its recommendations.

In addition to calling for a public accounting of a project's risks, other key issues in which the WCD would have provided strong guidance include assessing the nation's energy needs and performing a comprehensive options assessment for meeting those needs; studying the scope for demand-side management (DSM) and how to improve existing systems before building new supply (Uganda loses more than a quarter of its electricity through its aging transmission system), and analyzing cumulative impacts of multiple dams on a river.

"Just one year after the World Commission on Dams' report described a better way to plan for energy needs, it is deeply frustrating that the World Bank chose to forge ahead with Bujagali without any attempt to step back and reassess the project in the light of the lessons from the WCD," said Patrick McCully of IRN, a key NGO participant in the WCD process.

Even the industry publication *Engineering*

News-Record slammed the Bank over Bujagali, calling its approval of the project after co-sponsoring the WCD "deplorable hypocrisy." *ENR's* January editorial stated, "Like alcoholics who have announced that they are going on the wagon, the World Bank couldn't resist sneaking one last nip of top-down dambuilding, while promising not to do it again. As a result, the upper Nile River will never be the same again."

Secrets and Lies

Publicly debating the allocation of risks is key to the WCD's overall approach, and certainly something that project proponents could have done if they were keen to have a project that tried in a very basic way to comply with the WCD report's recommendations. Yet a briefing by the Bank on the project and the WCD does not mention risk at all. Moreover, Ugandan groups' repeated calls for a public release of the project's Power Purchase Agreement (PPA), which outlines how much AES is paid for its electricity and how various parties take on economic risks, went unheeded. The PPA is rumored to lay major project risks onto Uganda.

When the World Bank and AES refused to release the document, local NGOs took their concerns to the Ombudsman's office of the IFC (the private investment arm of the World Bank), which agreed that "it is difficult if not impossible to have a useful discussion regarding the economic implications of Bujagali without access to the PPA." Some groups in Uganda also filed a claim containing similar concerns with the World Bank's Inspection Panel; the Panel's report is expected to be released soon.

A Dutch government commission which reviews the environmental studies of large infrastructure projects also called for the public release of the PPA in its October 2001 report, stating: "The lack of information in the EIA studies related to costs, financial conditions of the Power Purchase Agreement between the government of Uganda and AES, are seen as a serious omission in the justification of the project ... The Commis-

sion recommends that a specific assessment on the economic and financial implications of Bujagali be prepared including any references on energy prices to the consumer...."

The Dutch commission's report also stated, "The Commission concludes that the EIA studies as published in April 2001 are incomplete with serious gaps in information, and therefore not sufficient for decision-making ... The EIA does not present any information related to alternative options for [electricity] generation. Also, no economic evaluation of costs, benefits and the role of Bujagali in export of energy to neighboring countries (in particular Kenya) are presented. Such studies create justified doubts regarding the economics of the project and the resulting energy prices as well as the achievement of stated objectives of the project such as rural electrification and poverty alleviation."

The secrecy surrounding the PPA has heightened concerns that AES is getting a sweetheart deal at the expense of Uganda's people. PPAs guaranteeing high rates of return to developers have been at the center of numerous controversies over private-sector power plants, most notoriously Enron's failed Dabhol gas-fired power plant in India.

A Better Way

Uganda does have other alternatives to meet its energy demands. NGOs have been pressing for an energy options assessment as described by the WCD that would fully explore all available options for electricity generation, in particular Uganda's estimated 450MW worth of geothermal reserves. The World Bank's Bujagali project documents describe the geothermal power option as "speculative," yet evidence indicates that geothermal power could be available sooner than Bujagali, at a competitive price, at lower risk of exposure to drought and climate change, and with greater flexibility in meeting changing growth in demand for grid electricity. One reason why the Bank may feel able to dismiss geothermal power so easily is that while the Bank and Ugandan government have paid millions of dollars to hydropower consultants to show the viability of dams on the Nile and develop plans, only a tiny fraction has been spent on researching geothermal power.

In neighboring Kenya, according to the utility Kengen, studies show geothermal to be the least cost option for new power sources in the country. Kenya currently has 45MW of geothermal capacity in operation and two 64MW geothermal plants under development. By the year 2017, Kengen states, geothermal is expected to represent about 25% of Kenya's power requirement. ■

For More Information

See www.irn.org/programs/bujagali for more on the Bujagali Dam. IRN's analysis of how the project fails to meet WCD guidelines is available at www.irn.org/wcd/bujagali.shtml. The WCD web site is www.dams.org. The Inspection Panel web site is <http://wbln0018.worldbank.org/ipn/ipnweb.nsf>