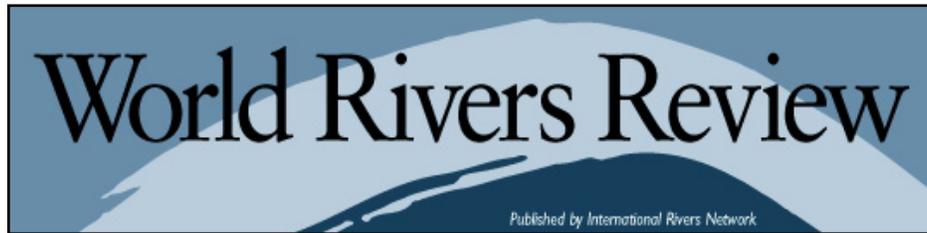


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International Rivers Network

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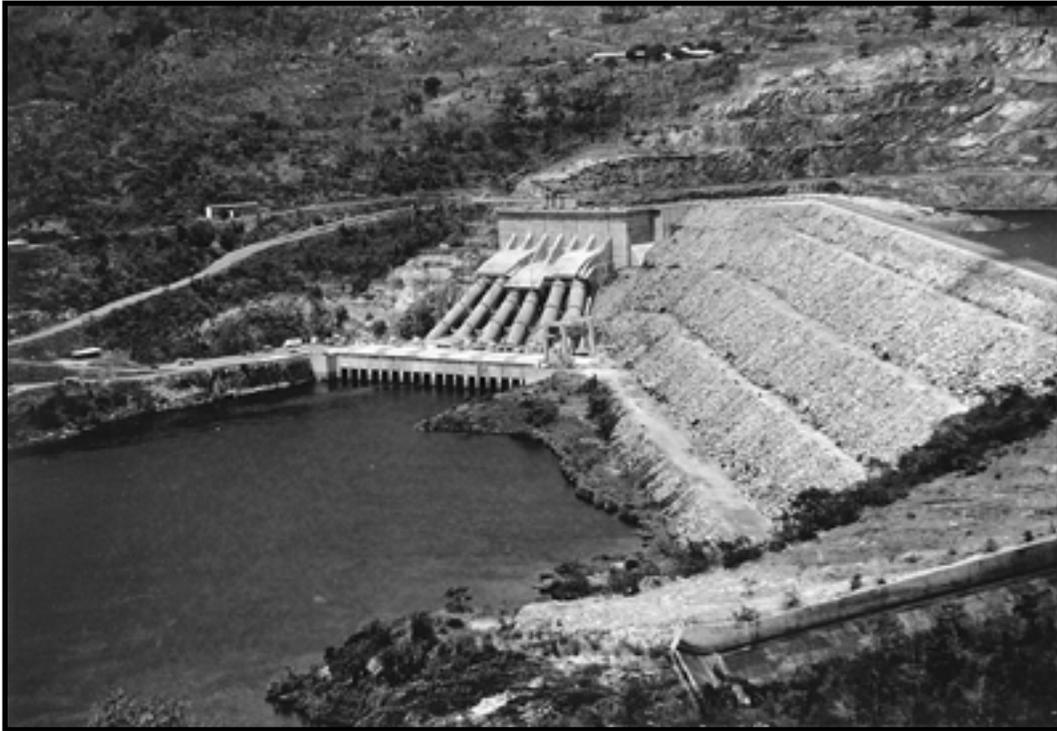
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World Rivers Review

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Akosombo Dam was described in a recent World Bank review of its dams as having only "possible negative environmental impacts," although it inundated 4 percent of Ghana's landmass. The report's inadequacies led to an agreement to form an international independent review of the world's dams.

Photo: World Bank.

Independent Commission to Review World's Dams

by Patrick McCully

An unprecedented gathering of dam critics and proponents has agreed to establish an international independent commission to review the social, economic and environmental costs and benefits of the world's dams. The need for an independent review was agreed to at a workshop held in Gland, Switzerland on April 11-12. The meeting was attended by senior World Bank officials, critics of large dams, representatives from dam-building companies and agencies, and dam-affected people. The workshop was co-sponsored by the World Bank and the World Conservation Union (IUCN), the world's largest network of conservation organizations and agencies.

As well as reviewing the record of existing dams and looking at on-going and proposed projects, the commission is to recommend ways of providing reparations to people whose livelihoods have suffered because of dams and of restoring the environmental damage caused by dams. The review commission, intended to be formally launched in November 1997, will also recommend international standards on dam construction and assess sustainable, equitable methods of land and water management and energy production.

A team of senior staff from IUCN and the World Bank is currently working to find funding for the review initiative, clarify its work plan and select commissioners. This interim joint team is committed to regular consultation with all the participants of the Gland meeting. The 5-8 commissioners will be eminent figures acceptable to the different interests represented at Gland. Once established, the review will have two years to receive submissions, hold hearings, commission studies and publish its conclusions.

Nongovernmental organizations (NGOs) represented at Gland included International Rivers Network, India's Save the Narmada Movement (NBA), Brazil's Movement of People Affected by Dams (MAB), the Alliance for Energy from Nepal and the Berne Declaration from Switzerland.

The two-day workshop in Gland was held to discuss the findings of a review of 50 World Bank-funded dams, carried out by the Bank's semi-independent Operations Evaluation Department (OED). Participants at the workshop largely agreed that the OED's conclusion - that the benefits of large dams "far outweighed" their costs - was based on inadequate data and flawed methodology. International Rivers Network presented to the Gland workshop a detailed critique of the OED review showing that its conclusions were not based on the actual costs and benefits of the dams it assessed, and that it systematically exaggerated benefits of dams, for example by citing unrealistically high figures for electricity generated and the price paid for this electricity.

Shortly before the workshop, IRN sent a copy of its critique to World Bank President James Wolfensohn together with a letter endorsed by 49 other NGOs. The letter stated that for a review of World Bank-funded dams to be seen as "credible and unbiased" it must be done by a commission of eminent persons independent of the World Bank. The letter also called on the Bank to impose "a moratorium on the provision of loans, credits, guarantees and other forms of support for large dams" until such a review is completed. Similar demands for an independent review of World Bank-funded dams were made in the Manibeli Declaration (endorsed by 326 NGOs and coalitions in 44 countries in 1992) and the Curitiba Declaration, approved at the First International Meeting of People Affected by Dams, in Brazil in March, 1997.

NGOs at the Gland meeting reiterated this demand for an independent review of World Bank-funded dams, and the Bank's willingness to accept an independent review of all dams can be seen as at least partly due to a desire to deflect attention from its own role in promoting dams. The NGOs at Gland, meanwhile, were glad to endorse a more wide-ranging independent review than they had originally demanded.

The OED has not responded to IRN's critique, although President Wolfensohn has said in a letter to IRN

that OED "will be giving careful consideration" to IRN's comments. Wolfensohn has given his full endorsement to the independent review initiative.

Peter Bosshard of the Berne Declaration, one of the participants at Gland, says that the meeting was characterized by "a self-critical atmosphere among industry and World Bank representatives. Participants also showed a lot of respect for the arguments of dam opponents - popular resistance to dams is clearly hurting the industry."

Industry representatives made numerous references to the need to find ways of consulting with affected people and mitigating negative impacts. Some World Bank representatives were also openly critical of the Bank's record on dams, of its poor record of implementing its own policies, and of the weakness of these policies.

Bosshard added that the independent international dam review commission "has great potential to seriously restrict the building of destructive dams" but that NGOs "will need to be constantly vigilant to ensure that the review is truly independent and that its terms of reference are as comprehensive as agreed in Gland."

Shripad Dharmadhikary, who participated at the Gland meeting for the Save the Narmada Movement, also welcomes the agreement to establish the review and says that his group would be willing to participate in the process as long as it is "independent and participatory and is willing to address the basic question - are large dams necessary." Dharmadhikary is keen to remind dam proponents that participation in the review "in no way means that we will lessen the intensity of our campaigns against dams, for justice for dam-affected people, and for the implementation of equitable and sustainable alternatives."

Participants at the workshop also agreed that there was an immediate need to tighten World Bank policies on dams and to improve the implementation of their existing policies. There was also wide consensus that the World Bank's requirement that dam-builders eventually restore the incomes of people negatively affected by dams was inadequate and that instead people should be immediately better off.

- For more information see the [Proposed Independent International Dam Review Commission Campaign Page](#).



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Dam Industry Faces Judgment Day

by Lori Pottinger

In 1992, signatories of the [Manibeli Declaration](#), which included representatives from hundreds of nongovernmental organizations in 44 countries, demanded a moratorium on World Bank support for large dams pending the results of an independent review of Bank-funded dam projects. A similar demand was issued in the [Curitiba Declaration](#), approved this year at the First International Meeting of People Affected by Dams held in Brazil.

As our [cover story](#) reveals, the World Bank is moving forward with a dam review - although not exactly on its own initiative, and not supported by a concurrent moratorium on dam funding. The Bank found itself cornered at a recent meeting on large dams (held in Switzerland and cosponsored by IUCN), where participants from both sides of the big-dam debate agreed that an internal Bank review of 50 of its dams was inadequate. The poor quality of the review put the Bank in a weak position, forcing it to make concessions at the meeting - including agreeing to help establish an independent, international review of dams. Bank representatives insisted that the review look at more than just Bank-funded dams, a move that is sure to deflect criticism from the lending institution and onto the dam-building industry as a whole.

The World Bank has been the world's most important funder of large dams, having lent some \$58 billion (in 1993 dollars) for more than 600 dams in 93 countries, including many of the world's largest and most controversial projects. Despite the widespread criticism these projects have attracted, the Bank had never done even a cursory review of the performance of its dam projects. Then came the controversial internal review by the Bank's Operations Evaluation Department (OED).

The OED report, "The World Bank's Experience With Large Dams: A Preliminary Review of Impacts," glossed over negative impacts and exaggerated benefits of the dams reviewed. [A detailed critique of the report](#) by Patrick McCully, IRN's campaigns director, revealed numerous problems with the OED report. The IRN critique shows how the report not only exaggerated benefits, but even ignored the Bank's own findings about many projects:

"One of the more extraordinary statements in the review is that Akosombo Dam provides Ghana with 'a reliable supply of low cost electricity.' It is in fact well known that power supply from

Akosombo has been anything but reliable. When the dam was crippled by a serious drought in 1982-1983, Ghanaian electricity supplies had to be rationed for the next three years. Because of this, Akosombo was redesigned with a minimum operating level several meters lower than originally planned. In mid-1994, however, after two more dry years, the level of the reservoir fell below the new minimum operating level and electricity consumers suffered black-outs lasting 20 hours a week. In February 1995, *World Bank News* stated that among Ghana's current problems was 'an over-dependence on hydroelectric power.'

Despite the trouncing the OED report received in Switzerland and in the IRN critique, Robert Picciotto, Director General of OED, has recently been defending the report around the world. The report remains confidential, and the Bank has not disowned its conclusions.

There are other indications that the Bank may not have taken the dam meeting's lessons to heart. The Bank was roundly criticized by meeting participants for its weak environmental and resettlement policies, and for its inability to implement them effectively. But internal memos reveal that, in response to the criticisms it heard in Switzerland, the OED is proposing weakening the policies further to make them easier to implement. "The [resettlement] policy should emphasize opportunities rather than outcomes," a leaked OED memo says. "The Bank's posture should shift from aiming at enforcement of its policy toward a more detached role as a facilitator towards securing fair negotiation and mediation arrangements acceptable to all."

NGO participants at the large-dam meeting see the new independent review as a great opportunity for a true evaluation of large dams that will incorporate the concerns of dam-affected people and come up with meaningful recommendations on dam planning, alternatives to dams, and on providing reparations for those who have suffered because of dams. The fact that the process is to be open and independent of the World Bank will go a long way toward keeping it honest. IRN and our colleagues will be following the review closely as it grows from grand idea to reality; we'll keep you posted.

- For more information see the [Proposed Independent International Dam Review Commission Campaign Page](#).



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Namibian Government Clings to Epupa Dam Despite Opposition, Alternatives

by Lori Pottinger

The Namibian government has said it will not abandon its proposal for a large dam on the Kunene River despite a recent agreement between NamPower (the national power company), South Africa's national power company and Shell Exploration to develop a 750-megawatt gas plant from the offshore Kudu gas fields. The plant would make Namibia self-sufficient in power for the foreseeable future and even allow some export of electricity.

NamPower Managing Director Leake Hangala told *The Namibian* that the move would not in any way affect the Epupa project. He said the dam would remain an "excellent" venture for Namibia despite the gas development. "The agreement will in fact enhance the Epupa project. We have seen that there is a market for both Kudu and Epupa," the NamPower chief said.

At a January 28 meeting with Nampower and US officials, the Namibian government said it wants to



These Himba people could be displaced by Epupa Dam.

Photo: © Angela Fisher & Carol Beckwith

develop both Kudu and Epupa, in part to take advantage of job opportunities Epupa would bring in the north.

"Maximizing employment opportunities is clearly a factor in Nampower's thinking," a leaked US State Department memo stated. Kudu power would be strictly for export, according to the report, requiring a commitment from South Africa to be successful, while "Namibia would meet its own needs with cheaper hydropower."

Far-Reaching Impacts

A US\$7 million feasibility study of the dam, financed by Norwegian and Swedish agencies that have subsidized many overseas dams, is to be completed by October 1997. A final report will be submitted to the Namibian and Angolan governments by April 1998. Two sites for the scheme are being studied: the first would put 350 square kilometers of land under water at Epupa Falls, while the second would cover 45 square kilometers and leave the scenic falls intact.

The dam would displace as many as several thousand members of the indigenous Himba tribe, a semi-nomadic tribe who have stated they do not want the dam on their lands. In addition to intense social disruption, the tribe would be affected by diseases introduced by the reservoir and construction workers.

Environmental impacts would be severe on downstream ecosystems, including Namibia's rich offshore fisheries. Water quality and biodiversity would also be harmed. The river supports 234 recorded bird species, numerous mammals (including hippopotamus, rare otters, cheetah, lion, leopard and impala) and a variety of riparian vegetation.

But one of the greatest impacts on dry Namibia will be the loss of a potential water source, as there is not enough flow to meet both power and water needs. Each year the reservoir would evaporate many times the amount of water currently used by Namibia's urban population. Recent periods of water scarcity have led to proposals to pipe water from the Okavango River in Botswana to Windhoek, Namibia's capital.

The dam's viability has even been called into question because of the area's frequent, severe droughts. One hydrologist familiar with the project has estimated that in the past decade, the Kunene River's flows would have produced full-capacity power for only two years out of ten for a dam 40km downstream of Epupa Falls, and only one year in ten for a dam at the Falls.

The US State Department reports that a height of 203-meters would "drought-proof" the dam, allowing power to be produced for 2-3 years in dry times, though not necessarily at full power and not for a more

extended drought. Many southern African dams have been hobbled by drought in recent years.

Opposition Grows

Epupa has the unusual distinction of being found objectionable by the World Bank, in addition to being criticized by human rights and environmental groups around the world. Lately the project has run into political opposition at home as well. The Democratic Turnhalle Alliance (DTA), the main opposition party in the Namibian parliament, has vowed to do everything in its power to stop the Epupa Dam, including attempting to block financial assistance for construction of the project, reports *The Namibian* (March 25, 1997).

The DTA made the pledge after consulting residents in areas to be affected by the dam. DTA spokesman Nico Smit said it was clear that the people living in the area did not want the dam. "Everyone at the meeting was against the way the government is handling the project," Smit told *The Namibian*. The party said it will try to block any financial assistance which the government or NamPower might seek to build the dam, which may cost in excess of US\$500 million.

The Director of the Namibia-based Legal Assistance Centre, Andrew Corbett, has also warned the government that it could end up in court defending its decision to build the dam by if complaints from the Himba people were not properly addressed. And the Namibian group National Society for Human Rights (NSHR) urged the government to exercise extreme caution over Epupa to avoid a situation which could lead to bloodshed.

"The prevailing socio-economic situation in Namibia is one of glaring disparities characterised by increasing poverty, feeling of civil, cultural, economic, political and social marginalisation and alienation," said an NSRH statement. According to NSHR, even if the promised 5,000 jobs from the project were a reality, the indigenous Himba people would not be the beneficiaries as they lacked the required skills.

- See the [Southern Africa Campaigns Page](#) for more information.



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Defending Dam PR

We received the following response to "[PR Patrol: The Fine Art of Selling A Dam](#)," which appeared in the December 1996 issue of WRR. Our article was critical of a recent public relations campaign on the Lesotho Highlands Water Project in Southern Africa. The author of the letter works for the project authorities in charge of the massive dam scheme.

From reading the article one is left with the impression that the Author has lost interest in substantive issues like what the project authority are doing to counteract any adverse effects of the project. The project has brought many benefits to the country and here one is not talking about the country as in the capital of the country. The benefits, direct, are social infrastructure projects which benefitted many Basotho particularly during the last drought.

The Author should also bear in mind that no one in Lesotho I mean no one says the project should be stopped or that it has brought more negatives than positives. The Lesotho Highlands Development Authority [LHDA], the implementors of the Lesotho Highlands Water Project, are conscious of the need to protect the environment, and are doing everything in their power in conjunction with other stakeholders to see to it this is achieved. We have now developed the Environmental Action Plan after consulting affected communities, non-governmental organisations whose criticism and suggestions we welcome as we recognise their important role in the community. We believe we can work in partnership without compromising the basic principles of independence for which they have come to be known. If we were to co-opt NGOs we would be the less richer for it in terms of fresh ideas as they have their ear on the ground. We work with Environmentalists not because we want to be green as the Author suggests but because it is the right thing to do.

The Author also loses sight of the fact that Lesotho does not have other alternatives but to develop a resource it has in abundance, water. Lesotho is richly endowed with water and it is only exporting surplus water. Instead of writing a line-by-line critique of the LHWP tenth anniversary calendar, the Author might have usefully used his/her time to make suggestions of survival techniques because for us this project is a make-or-break situation, without it we do not have much else. This is the reality of life. We would like the Author to take time off and come to Lesotho and she will be amazed to learn that the project is fully accepted by the people. Yes, there are minor problems here and there and we are addressing them with all the stakeholders.

The Public Relations function is important to us to address unfounded criticisms, but more importantly to let the owners of the project, the Basotho people, and other stakeholders know what we are doing. We do not see our public relations function as papering over the cracks as insinuated in this article. We tell about the opportunities, and they are numerous, that the project continues to present. To continue with the Author's analogy of a doctor prescribing aspirin for a brain tumour, to us stopping the LHWP would be like stopping oxygen to a patient. For further information on the Lesotho Highlands Water Project (LHWP) please visit our home page at <http://www.lesoff.co.za/lhda/home.htm>.

Tsabo Makhakhe
Public Relations Manager, LHDA

Lori Pottinger Replies:

I have visited Lesotho, and met many people who have not "fully accepted the project." I believe many affected people would disagree that the problems they have experienced because of the project are minor. I stand by my critique of the expensively produced 10th anniversary PR package: the money would have been better spent on helping the people affected by the project. And as for using PR to tell local people about the project, a better use of resources would be a more extensive translation of project documents into Sesotho, the native language of the Highlands.

Mr. Makhakhe's description of Lesotho's rich endowment of water may be a bit misleading. A May 1997 news story by the South African group PRODDER notes that "studies have indicated that within the next 10 to 30 years, Lesotho will join Malawi, South Africa and Namibia as countries where water is very scarce." The story goes on, "Legnolo Monyake, a senior Southern African Development Community (SADC) official, warned on 21 May 1997 that water, a scarce resource in the region, could trigger conflict unless it was shared and properly used." By treaty, Lesotho will not be able to access LHWP water for its own needs.

- See the [Southern Africa Campaigns](#) page for more information.



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Lesotho Villagers Sue Dam Authorities

by Lori Pottinger

Villagers affected by road construction for the Mohale Dam - the second dam in the massive Lesotho Highlands Water Project (LHWP) - have filed a lawsuit against LHDA, the project authorities, for violating national laws that require written notification before seizing land. The suit states that the village of Ha Nqheku has had its fields, trees and water supply affected by the advance infrastructure for the project, but that LHDA has not registered the names of property owners in a "book of reference" as required by Lesotho law and the project's own legal documents.

The suit was filed in mid-May in the Lesotho High Court in Maseru, the capital, on behalf of an unknown number of villagers. The claimants are asking the court to "declare the operations of the project a violation of our rights" and direct LHDA to make the books of reference, or to stop construction if the project authorities refuse. It further questions the legality of the project's 1990 compensation regulations, and asks the court to "direct the authority to submit its accounts dealing with compensation to be inspected by our representatives."

Construction on Katse Dam, the first of the LHWP's planned five dams, was recently completed and marked by an official celebration. But local NGOs say that social problems caused by Katse have still not been solved. The number of people affected by Katse is low compared to those to be affected by Mohale, and critics worry that LHDA will have trouble managing the resettlement for the next phase. Mohale Dam will displace about 300 households (1,500-2,000 people), according to the World Bank, only 70 of which are moving voluntarily. The reservoir will inundate 1,300 hectares of the Highlands' best arable land and 1,600 hectares of grazing land. At least 300 households will be affected by the loss of communal lands.

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Fired Striker Killed in Lesotho

Fired workers from the Lesotho Highlands Water Project are in fear for their lives after the death on June 2 of Moralepi Kobo, one of about 600 workers fired during a strike last September, reports the *South African Business Report* (June 3). Kobo was beaten to death by unknown assailants and his body dumped in the yard of a traditional leader who has lent his support to the strikers, said Sydney Senoko, the general secretary of the Lesotho Workforce Trade Union. The group was formed by the striking workers and claims to represent about 900 strikers.

Last September, five workers were killed and at least 30 injured after the project contractor called in police to disperse hundreds of striking workers at the Muela powerplant site. Shortly after the killings, local NGOs called for an international commission of inquiry into the unrest. Instead, the government undertook an internal investigation that included members of the police but no former strikers. As part of the requirements for approving a loan for the next phase of the project, the World Bank has asked project authorities and the government to establish an independent commission to look into the September killings.

Kobo's death comes as the latest in a string of incidents which have led workers to believe that a concerted campaign of intimidation is being waged against them, Senoko said. About three weeks ago another dismissed striker was accosted and beaten by police after they overheard him talking about workers' grievances with the Lesotho Highlands Project Contractors, the consortium building the water project. Senoko said that before the man was beaten, the police officers warned him not to talk about the strike. Other fired strikers have experienced intimidation as well, reports Mpho Mofolo, a Maseru attorney representing the dismissed workers "I have also received reports from workers that there is still a great deal of tension and victimisation by the contractor against older employees," Mofolo said. Jean-Loui Lucazeau, the construction manager for the Lesotho Highlands Project Contractors, said he was unaware of any violence and that this was the first time he had heard of any attacks on dismissed strikers. "There is no tension on this site," he said.

- See the [Southern Africa Campaigns Page](#) for more information.
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Massive Nile River Diversions Planned

by Aaron Gladman

The Egyptian government has broken ground on what will become the world's largest water pumping station, able to move 22,712 cubic meters (6 billion gallons) of Nile River water per day. The pumping station is the first step in a grand irrigation scheme for Egypt's desolate Western Desert, using the station and a giant canal to irrigate hundreds of thousands of acres in one of the world's driest climates.

The project is essential, the president said, because the country is quickly running short of both water and living space. Today, nearly 90 percent of Egypt's 62 million people live on and work the land in the Nile River Delta, which totals only four percent of Egypt's entire area. Farmers have managed to maximize arable land by irrigating desert along the Nile's edge and around Lake Nasser, the mammoth reservoir created by the Aswan High Dam. But with a projected population of 85 million by 2015, the government contends that new areas for cultivation must be developed.

The project's cost is to be more than US\$2 billion. The massive pumping station, which will lift water 55 meters from Lake Nasser, will cost \$810 million. The rest of the money will provide for construction of a three-mile tunnel and a canal, which may become the world's longest, at 150 miles (240 kilometers). This channel will provide irrigation for over 500,000 acres and link the oases of El Kharga and Farafra. Nearly 10 percent of all the water collected each year in Lake Nasser would be pumped along this ditch into the Western Desert.

Legal agreements with Sudan and Ethiopia, who control the headwaters of the Nile, entitle Egypt to 55.5 billion cubic meters of water each year. Currently, the country uses every drop and more (recycling programs produce an extra 7.5 billion cubic meters per year). This leaves a paltry 300 million cubic meters to flow into the Mediterranean Sea annually - a fraction of the river's natural flow. Hydrologists familiar with the area have raised many concerns about the project.

Tony Allan, of the University of London's School of Oriental and African Studies, calls the plan "preposterous, a national fantasy." He points out that both Sudan and Ethiopia are planning to build more impoundments on the upper Nile, and thus Egypt "is going to have less water [in the future], not more." Farouk El-Baz, an Egyptian hydrologist who teaches at Boston University in the US, also says the canal is not justified. He points out that the open channel will suffer enormous evaporative losses, and could easily be filled with sand blowing from the area's large dunes. El-Baz has also warned that the

new scheme will likely cause problems with poor drainage and waterlogged fields. Because most of the valleys along the canal are in depressions, he says, "fields would become waterlogged and pools would become breeding grounds for mosquitoes."

Opponents of the project, both local and international, say that Egypt would be better advised to research more efficient use of water in existing irrigated areas in the Nile delta, to prudently use available ground water, and to expand sewage-water recycling programs.



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A Grassroots Success Story in Slovakia

by Robert Muraskin

Michal Kravcik has been smiling since November. His NGO, People & Water, has overcome widespread doubt, apathy, and politically-motivated lawsuits to achieve a stunning victory: it derailed the state water company's effort to build a destructive dam in eastern Slovakia.

The story began in 1954, when the Czechoslovakian state water company, spurred by the lack of adequate drinking water in eastern Slovakia, proposed construction of a 65-meter dam on the Torysa River, creating a reservoir just west of the small village of Tichy Potok. Over the next 25 years, many studies were undertaken for the project, but no construction was ever begun.

Still, major damage had already been done to six villages near the proposed site. The water company's intention to build the dam at Tichy Potok had originally meant the evacuation of these villages, many of them over 700 years old. Living under the threat of forced evacuation and legally unable to build or expand anything in their villages for over 30 years, the villages were nearly killed by attrition. The number of inhabitants dropped from 6,000 to 1,500.

In 1992, the state water company initiated plans to revive the Tichy Potok project. The decision sent a shock-wave through the six villages. In the past, the local citizens would have been forced to mutely accept any government decision, but under the auspices of the newly democratic system, they were free to speak out. However, they were unsure of how to assert their rights, and so they called upon Dr. Michal Kravcik, a hydrologist who had recently formed People & Water to explore alternative water policies for the Slovak Republic.

Besides growing up in eastern Slovakia, Kravcik had spent most of his career as a government hydrologist in the region, a position that had convinced him of the urgent need for more sustainable water policies. He found that consumption in the area had dropped 25 percent in the past four years, that bad pipes accounted for 30 percent water loss, and that eastern Slovakia's Starina Dam was running at only 38 percent capacity. The core leadership of People & Water, Dr. Kravcik and Dr. Jaroslav Tesliar, went to Tichy Potok to fire up a grassroots campaign.

People & Water began to hold regular consultations at the local villages, expressing their concerns about the project's negative environmental and sociological impact with local representatives. "The main idea,"

Tesliar explains, "was not only to speak with local mayors, but to educate them." As part of that process, People & Water arranged two weekend bus trips to other regions of Slovakia, where dams had been built by the state water company in years past.

"We organized the trips so that the people and politicians of Tichy Potok could meet citizens who had once been in the same situation. These were people who had lived in villages where dams were built under the communist system," says Tesliar. "They had lost everything when the dams were built and they were forced to move." At these meetings, the people of Tichy Potok listened to speaker after speaker tell how the construction of a dam had destroyed their homes, their way of life, their livelihoods. The trips galvanized the villagers.

Alternative Proposal

In April 1994, People & Water prepared what they called the "Blue Alternative" proposal for the citizens of Tichy Potok. The plan suggested a more ecological approach to water management in the region. By constructing an array of small catch-basins and underground sources, it proposed, the water company could harvest as much drinking water as it needed for one-tenth the price of building the dam. Both their alternative proposal and the results of a referendum in the affected villages (which indicated 98 percent of citizens were opposed to the proposed dam) were presented to the government's Ministry of the Environment. The ministers refused to consider either.

How do you get a government that is not particularly friendly to NGOs to sit up and take notice? The group responded to the setback by initiating a series of open town meetings with the residents of six villages. They also decided to make their issue more visible. In July of 1995, they initiated a pilot project to prove the Blue Alternative proposal could work. With funding from citizens, other NGOs, and local government, People & Water organized an environmental camp in Tichy Potok. Over the course of the summer, 45 young people came from all over Slovakia to construct 20 wooden catch-basins - visible and dramatic examples of the viability of "green" water management.

In October 1995, citing the absence of a building permit, the government's Environmental Department halted the construction of the pilot project and fined the NGO. People & Water's experts contended the work did not require such a permit. The group decided to draw attention to their issue through the media, garnering substantial coverage. What had begun as a tiny NGO joining a group of villagers to fight an impossible battle against the Slovak government suddenly became an issue of national debate. For the water company, what had once been seen as a quiet rubber-stamp project had become a major headache.

With assistance from USAID and The Foundation for a Civil Society, People & Water organized a series of town meetings in Tichy Potok and the surrounding villages, inviting residents, local and national politicians, water company representatives, agricultural and environmental ministers, scientists, and media representatives. The meetings took place from February to March 1996, and provided a forum for people to discuss both the dam proposal and the group's Blue Alternative proposal.

In November 1996, the Slovak Ministry of Environment issued a final EIA report on construction of the project: in a startling turnaround, the report opposed the Tichy Potok Dam. Instead, it recommended that

the water company concentrate on improving water management and conservation at existing facilities and create conditions for natural water retention and groundwater infiltration - all of which had been first proposed by People & Water.

Barring a decision from the highest levels of the Slovak government to overrule the decision (which could prove internationally embarrassing), the \$200 million dam will not be built. What is more, the decision will likely force the country's water company to steer away from dams and toward more ecologically sound projects.

Ultimately, what accounts for People & Water's success is a combination of tenacity and publicity. The NGO's leaders soundly believed that the water company's policies were archaic and harmful, and they took every opportunity to explain and demonstrate their belief to whomever would listen. "These people didn't have information at first," says Kravcik, who estimates that over 400 articles have been written about the dam since People & Water began its campaign. "We believe that the more information people have, the wiser the decisions they will make. In this respect, Tichy Potok was not just about water. This was about alternative proposals."

This article first appeared in NGO News (Budapest).



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Volume 12, Number 3 / June 1997

Earthquake Hits Narmada Valley

by Patrick McCully

A strong earthquake hit the Narmada Valley on May 22, killing around 50 people and injuring 1,000 in the city of Jabalpur in the state of Madhya Pradesh. The epicenter of the magnitude 6.0 earthquake is believed to have been about 20-40 kilometers from Bargi Dam, which completed filling in 1990. No damage to the dam had yet been reported at press time. The earthquake has focused attention on the seismic risks faced by the scores of large dams planned for the Narmada Valley, and on the risk of reservoir-induced earthquakes.

Indian seismologists have noted an increase in seismic activity in the Narmada Valley over the past 20 years, which may be linked to reservoir impoundment. The world's worst confirmed reservoir-induced earthquake was triggered by the Koyna Dam in the watershed of the Krishna River in Maharashtra state in 1967. Nearly 200 were killed in the magnitude 6.3 tremor. Some seismologists, however, believe that the devastating magnitude 6.4 earthquake which struck Killari, Maharashtra in 1993, killing 10,000 people, was induced by a nearby reservoir. In the Narmada Valley itself, a series of tremors were felt soon after the completion of the Sukta Dam.

Indian seismologist Dr. Arun Singh told a government-commissioned review of the Sardar Sarovar Dam in 1995 of the risks of a "major earthquake" striking the Narmada Valley in the "near future." Singh recommended then that the seismicity of the Narmada Valley be re-evaluated in the context of the recent increase in tremors.

Following the Jabalpur quake, a new coalition representing people affected by dams throughout the Narmada Valley has accused the Indian government of trying to "downplay or even conceal the dangers of both seismic risks and reservoir-induced seismicity in the Narmada Valley. The coalition, the Narmada Valley Struggle Coordination Committee, is demanding that the government appoint an independent panel of experts to review the issue of seismicity and high dams in the Narmada Valley and that work on all dams in the valley be stopped until the review is completed.

Meanwhile, work on Sardar Sarovar, the most infamous dam on the Narmada River, remains suspended after the New Delhi Supreme Court on March 3 rejected an application from the project authorities for permission to raise the height of the dam from its current 63.5 meters (about half of the dam's final height). The Supreme Court has consistently refused to allow the dam to be raised due to the inability of

the authorities to rehabilitate people who would be displaced by a larger dam.

The Narmada Bachao Andolan (NBA - Save the Narmada Movement) filed its case against Sardar Sarovar in the Supreme Court in April 1994. The next hearing of the case, now mired in complex constitutional issues, will be in July.

While the court case moves slowly forward, the NBA has been actively building links with people affected by other dams and destructive development projects. In December 1996, 50,000 people attended a rally held beside the Narmada with the theme "Against Large Dams - Towards a New Water Policy." Representatives of people affected by 15 large dams throughout India attended the rally as did representatives of anti-dam groups in Nepal and Thailand.

- [Sidebar](#): "About Reservoir-Induced Seismicity".
- See the [Narmada Campaign](#) page for more information.



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About Reservoir-Induced Seismicity

by Patrick McCully

It is well established that large dams can trigger earthquakes. There is evidence linking earth tremors and reservoir operation for more than 70 dams. Reservoirs are believed to have induced five out of the nine earthquakes on the Indian peninsula in the 1980s which were strong enough to cause damage.

As with most aspects of seismology, the actual mechanisms of RIS are not well understood, and it is impossible to predict accurately which dams will induce earthquakes or how strong the tremors are likely to be. Most of the strongest cases of RIS have been observed for dams over 100 metres high - but dams just half this height are also believed to have induced quakes. Reservoirs can both increase the frequency of earthquakes in areas of already high seismic activity and cause earthquakes to happen in areas previously thought to be seismically inactive. The latter effect is the most dangerous as structures in areas thought to be quiescent are not built to withstand even minor earthquakes. Complicating the picture further are five reservoirs, including Tarbela in Pakistan, where a reduction in local seismic activity was noted after impoundment.

The most widely accepted explanation of how dams cause earthquakes is related to the extra water pressure created in the microcracks and fissures in the ground under and near a reservoir. When the pressure of the water in the rocks increases, it acts to lubricate faults which are already under tectonic strain, but have been prevented from slipping by the friction of the rock surfaces.

For most well-studied cases of RIS, the intensity of seismic activity increased within around 25 kilometers of the reservoir as it was filled. The strongest shocks normally occurred relatively soon - often within days but sometimes within several years - after the reservoir reached its greatest depth. After the initial filling of the reservoir, RIS events normally continued as the water level rose and fell but usually with less frequency and strength than before. The pattern of RIS is, however, unique for every reservoir.

Leonardo Seeber, a seismologist at the Lamont-Doherty Earth Observatory at Columbia University, New York, believes that official maps which show the areas most at risk of earthquakes should also indicate the increased risk near many reservoirs. If this were to happen, communities near reservoirs could presumably demand compensation to "earthquake-proof" buildings, greatly increasing the cost of dams. The dam industry would probably strongly oppose any such measures which would raise awareness of RIS. Seismologist Harsh Gupta, Vice-Chancellor of Cochin University in India and a

professor at the University of Texas, notes a "general reluctance in parts of the engineering community, worldwide, to accept the significance or even the existence of the phenomenon of reservoir-induced seismicity."

Excerpted from [Silenced Rivers: The Ecology and Politics of Large Dams](#) by Patrick McCully, Zed Books, 1996. Copies of the book are available from IRN for \$20 (members), and \$25 (nonmembers), plus shipping costs for outside the US. Please contact Aleta Brown for details: (510) 848-1155; email: aleta@irn.org.



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Juan Pablo Orrego has been fighting for six years to stop a series of large dams on Chile's Biobío River, and to protect the rights of the Pehuenche people who live on the river. As director of the Santiago-based Grupo de Acción por el Biobío (GABB), Orrego has championed the Biobío and the Pehuenche, taking their cause from small, local meetings to the highest levels of the World Bank. This year, in recognition of his work with GABB, Orrego received a Goldman Environmental Prize - the world's largest prize honoring grassroots environmentalists.



When IRN spoke with Orrego by phone, he had just returned from the streets of Santiago where he and at least 1,000 indigenous Mapuche people (the larger group to which the Pehuenche belong) were protesting the continuing efforts by the Chilean government to deny them their fundamental rights as guaranteed under Chilean law. Ralco Dam has become a rallying cry for Chile's indigenous movement, because if the dam is approved, the national Indigenous Law - designed to protect the rights to land, water, and resources of indigenous peoples - will be meaningless.

Juan Pablo Orrego. Photo by IRN

Fighting for the Biobío

An Interview with Juan Pablo Orrego

by Aleta Brown

IRN: *How did you become involved with the Biobío campaign?*

JPO: I was working for the Special Commission for Indigenous Peoples (CEPI), which wrote the 1993 Indigenous Law. The same group would later become the National Commission on Indigenous Development (Conadi). I knew a little about the Biobío issue because several groups in Chile had been trying to do something about it ever since Katherine Bragg, a North American ethnobotanist, raised concerns on the proposed project in 1987.

One day, I got a call from ESPN [an all-sports cable TV channel]; they wanted to go down the Biobío in canoes and kayaks and wanted to invite some Chilean professionals on the trip. I was brought along as an ecologist. They had really done their homework. When we saw the land that would be underwater (and now is), I just couldn't believe it. I also met with the Pehuenches living along the river. When I went on this trip I already recognized rivers to be living spirits. I already had developed a love and respect for cultures that lived in harmony with nature, and I knew that you could not have a harmonious environment with an unfair, eroded society. I just couldn't believe that a harmonious world was being destroyed to feed power to Santiago. It was and is very disturbing. When I got back to Santiago, I did some more research on the project and found it to be so horrendous that I began lobbying against it.

I thought that it would be a straightforward campaign. I thought that all we needed to do was expose the fascist nature of Endesa and the government would see how harmful the project was. What I didn't expect to find was the total approval of the Pangué project by the government.

IRN: *What was your background before GABB?*

JPO: I was born and raised in Santiago. After graduating from high school I went to New York and worked in a flower shop, selling flowers on the streets of Manhattan to save for an electric guitar and a bass. After a year I went back to Santiago and studied biology for a couple of years. I was also in a group called Los Blots. I ended up quitting school to become a professional musician. Our songs usually had either an ecological theme or questioned the paradigms of the time and we were quite popular. You wouldn't believe it, but sometimes I still hear one of our songs being played on the radio.

In 1973 when Pinochet took over, our music came under attack and they actually burned two of our master recordings. It was a crazy time. The government killed friends of my mother and father. I had an uncle in Canada and went to live with him. It was in Canada where I began to rediscover the roots of my own country. Until recently, the indigenous people of Chile were not even known by the general public. They were pushed off to the corners of the society. I spent most of my time in Canada in the library listening to ethnic music, and that served as a bridge to learning about indigenous peoples and their cultures. When I finished school in Canada, I went to Ecuador, where I lived and worked with an indigenous group for a year. Then I went back to Canada to get my Master's degree in Environmental Studies.

I went back to Chile in 1986. Pinochet's dictatorship ended in 1989 with a popular election. Three months after Chile returned to democratic rule, the Pangué project was approved, being one of the first

decrees of the new government. I believe the new government was afraid it would be overthrown if it didn't keep pace with the economic growth rate of the former fascist government. Chile's growth rate of seven percent a year is the driving force behind the push for increased energy growth rates. And Chile, like other Latin American countries, pays a heavy price for economic growth. Our relationship with northern countries is still based on the colonial model. We sell all our natural resources, then end up paying for it with enormous environmental and social costs. It would be different if the power and the wealth were distributed among all the people, but Chile is owned by 46 families, and they are the primary beneficiaries. Endesa is the richest company in Chile, even richer than the copper companies. Endesa wrote the water and energy laws, which allows them to take the Biobío River's water for free and turn it around to make millions. They are the owners of the game, the playing field, everything.

Until 1994, Chile didn't have one environmental law on the books. The motivation for passing the first environmental law in 1994 was in reaction to the North American Free Trade Agreement (NAFTA), because the Chilean government knew that the US wouldn't enter into economic trade with Chile unless they had some sort of environmental standards. But it was the industrialists and the wealthy who were lobbying for the law. NGOs and environmentalists were against it because the law is designed to authorize projects. It starts with the assumption that projects must and will be built, and that they only require mitigation and compensation. In the law there is no mention of protecting water, soils, forest ecologies, or watershed systems.

IRN: *How has working with indigenous people influenced your life?*

JPO: When I began to learn about the indigenous people of my own country, the thing that interested me the most was their relationship to the environment. Their communities live in harmony with nature; their cultures create so little impact on the natural world, and in fact, their music and art compliment nature. I began to see my own culture as a negative agent in the biosphere. My experience in living and working with indigenous people has given me the hope that I have - they have taught me concretely that humans have the capacity to be marvelous, and not destructive. The reason that I am doing environmental work at all is because of my experience with indigenous people.

IRN: *What are your hopes for the future?*

JPO: I have faith that the Ralco Dam can be stopped. But I also had faith that Pangué could be stopped. You have to live in faith, don't you, otherwise you couldn't live. Chilean people have learned a lot in the last few years. We lost our fight to stop the Pangué Dam, but for the first time the people have hope because they have seen that a small handful of people can make a difference. Although Pangué was a lost cause, we won because we were successful in bringing the Biobío issue out from under the rug and into the public eye. Though the odds were impossible, the fight was important. We gave talks and interviews for radio programs and newspapers all over the country, and as a result the Biobío has become a focal point for many issues including true democracy, participation, genocide, social injustice and environmental degradation.

Chile was castrated by Pinochet and left impotent, but now the people can see how they can influence the destiny of this country and work toward the future by planting seeds of hope. Our economy is 90 percent dependent on exporting our natural resources. We need to change this, and in our future we need to sell intangibles like culture and intelligence. We need to conserve our natural resources like water, which is life.

- See the [Biobío Campaign Page](#) for more information.
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Background on the Biobío Dams

by Aleta Brown

Chile's Biobío River begins in the Andes near the Argentine border, and flows through basalt canyons and alpine forests of araucaria pines before reaching the Pacific Ocean nearly 400 kilometers later. The Pehuenche people have lived with the Biobío for hundreds of years, and their livelihoods and culture flow from the river.

The 450-MW Pangué Dam, the first of six planned for the Biobío, began operation in 1997. Pangué is currently producing just a fraction of its expected output, due to continuing drought. In late 1995, GABB filed a claim on behalf of the Pehuenche with the World Bank's inspection panel, seeking justice for violations of World Bank policies on the project. The dam was built with the help of a US\$150 million loan from the International Finance Committee (IFC), the Bank's private sector arm. This was the first claim ever brought against the IFC.

Although the claim was rejected on the grounds that the IFC is exempt from inspection panel investigations, World Bank President James Wolfensohn responded by commissioning an independent review of the project. The review, by Dr. Jay Hair, is reported to be quite critical of both the IFC and Endesa, the power company that owns the dam. Endesa is one of Chile's most powerful companies, controlling 60 percent of the national grid's generating capacity. At press time, Wolfensohn revealed that, "in light of the risks of litigation and legal liability," he would not release the complete Hair report. He said that excerpts (approved and edited by Endesa) will be made available to the public soon.

In February 1997, the IFC threatened to declare Endesa, Chile's largest electricity utility, in default for failing to meet environmental conditions set out in its contract for Pangué. Endesa evaded the threat by refinancing the loan with Dresdner Bank in Germany. Dresdner officials told a German NGO that the IFC itself recommended Endesa refinance through Dresdner.

Despite promises to lenders and other agencies that Pangué was a stand-alone project (a promise which enabled them to avoid looking at the cumulative impacts of more than one dam), a second project, Ralco, is now in the works. The 155-meter-high, US\$500 million Ralco Dam is projected to generate 570 MW of electricity at full capacity. The project would displace 600 people, 400 of them Pehuenche. Based on the 1993 Indigenous Law, Pehuenche land cannot be sold, only traded, and then only with full compliance of affected families.

In 1996, GABB commissioned a critique of the Environmental Impact Statement (EIS) for Ralco, prompting Conama, Chile's national environmental department, to declare the EIS unsatisfactory. However, pressure from Endesa and high government officials convinced Conama to back off. And Conadi, a governmental organization run by indigenous people, has produced a report that concludes the Ralco project is illegal based on the Indigenous Law. President Eduardo Frei responded to this denouncement by firing Conadi's Director, Mauricio Huenchulaf, who has been a strong supporter of the rights of the Pehuenche.

Though the project has not been approved, construction has begun in the project area and local people are already experiencing intimidation. Under pressure, many Pehuenches have already been moved upstream to inferior land. Ten families have refused to move and cannot be forced off their land unless the Indigenous Law is undermined. It is expected that Endesa will take these families to court in a lopsided battle that will pit the Electric Services Law of 1982, which allows the take-over of any lands needed for energy development, against the Indigenous Law, which protects the land rights of indigenous people.

- See the [Biobío Campaign](#) page for more information.



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Argentina's Paraná Medio Dam is Resurrected

by Jorge Cappato

A consortium of US firms closely linked to high officials from the former Bush administration have resurrected a 20-year-old plan for an enormous dam on Argentina's Paraná River that would create the longest lake in the world. The Paraná Medio Dam would be downstream from two other notorious large dams, Yacyretá and Itaipu (currently the world's largest hydroelectric project). But due to a less-than-perfect dam site, the huge reservoir would not produce comparatively huge amounts of power - the 760,000-hectare reservoir would be seven times the size of Itaipu's, yet generate just one-fourth of Itaipu's installed capacity (3,000 MW).

The Paraná Medio Dam was originally conceived in the 1970s by Argentina's Agua y Energía de la Nación (AyE), in collaboration with more than 500 technicians, including experts from the Netherlands, the US, and the Soviet Union. Among the group of Soviet advisors was the chief engineer of the Aswan Dam.

By 1975, the Paraná Medio dam was officially listed as a "National Priority" by the military government in Argentina. Then as now, project planners promised jobs, cheap energy, industrial growth, fishing, tourism, recreation and flood control.

But others were more skeptical, and leery of the project's enormous price tag of more than US\$20 billion. Bechtel engineers reportedly recommended that their company not participate in construction of a dam which, if it failed, could drown Buenos Aires. The project was shelved.

In March 1996, the Argentine government publicly introduced a new plan put forth by the US consortium Energy Developers International (EDI), which consists of the companies Avondale Industries, Brown and Root (a subsidiary of Halliburton), Forte and Tablada, and Dillon Read. Under the plan, the companies would build Paraná Medio for a bargain price of \$5 billion (the savings would come from using modular construction technology), and would assume total responsibility for raising the capital necessary to move ahead with the project. Reportedly, Texas Governor George Bush, Jr. made a personal pitch to Argentine President Carlos Menem and sold him on the idea.

Under the new proposal, EDI would have rights to sell electricity generated by the dam for 50 years, and to charge tolls for 40 years on ships passing through navigation locks and on cars crossing a bridge built

for the project. The project would be the largest dam built in Latin America entirely with private capital.

Meetings of the EDI consortium look somewhat like cabinet meetings of the Bush administration. Former Treasury Secretary Nicholas Brady is Chairman of Dillon Read, and ex-Defense Secretary Richard Cheney heads Halliburton. Avondale is a builder of vessels for the navy, which profited handsomely during the Bush military buildup.

No Competition

Menem liked the EDI proposal so much that he issued a December 20, 1996 decree which approved the terms of reference for feasibility studies for Paraná Medio, in effect handing the middle Paraná River over to the EDI consortium without competitive bidding. He appointed Jesus Gonzalez, executive secretary of the Paraguay-Paraná Hidrovia industrial waterway committee, to push the Paraná Medio project, and Gonzalez began working to sell the plan in communities along the Paraná. Gonzalez also brought Taylor Engineering of Jacksonville, Florida, to the project to do environmental studies. Again, according to Menem's decree, no competitive bidding was necessary.

The EDI consortium paints a glowing picture of their experience and financial strength. According to EDI's brochure for the project, Avondale has experience using pre-fabricated modules for dam building through its work on the Sidney Murray Dam in Vidalia, Louisiana, which according to EDI "has no environmental impacts." And to allay fears that cost overruns could leave Argentine taxpayers footing the bill, EDI notes that Avondale will receive investment guarantees from the US government as a "peace conversion" incentive.

As Argentine officials worked to convince local officials and the public of the dam's importance as a motor to revive a slumping regional economy, the dam plan began to spring a leak. First, local opposition led by environmental groups and fishermen caught the public's eye. A group of fishermen who would be affected by the dam travelled 1,000 kilometers by canoe from Yacyretá Dam to the city of Santa Fe to dramatize their opposition to the project.

As environmentalists demonstrated the scope of the environmental impacts the dam would have, residents along the middle Paraná grew wary of the EDI plan. The middle Paraná is Argentina's equivalent of the Pantanal wetlands, with an extraordinary biodiversity, which includes 250 bird species, 200 kinds of mammals, and nearly 400 reptile and amphibian species.

The alluvial valley is home to more than 300 fish species. According to Dr. Juan José Neiff, director of the Center for Applied Ecology in Corrientes, Argentina, "(Fish) do not disappear because of the catch, but rather due to the destruction of their habitat." The middle Paraná is an area where small fry are carried by the current, growing in sheltered wetlands until they are carried downstream by the subsequent floods.

Héctor Dalmau, former Argentine Environmental sub-secretary, calls the project "madness". According to Dalmau, "Construction of a dam as far upstream as the city of Goya will raise the water level to nearly the same height as Yacyretá Dam; consequently the Paraguay River will not be able to drain and

it will begin to back up, flooding lands in Paraguay, and dramatically increasing the cost of the project."

Activists also presented important economic arguments against the project. The dam will submerge 400,000 hectares of land used for cattle grazing. Yet, the dam would produce only 3.57kw per hectare flooded - a poor rate of return by any standards.

According to a study by the UN Food and Agriculture Organization, it is likely that productive agricultural lands on the west bank of the river, principally used for rice growing and cattle raising, would become more saline from the rising water table. Opponents of the project also point to the fact that the wetlands along the middle Paraná do a much better job of flood control than an engineered river, as has become obvious in recent years in the case of the Mississippi, the Rhine and others.

According to EDI, the dam would create 10,000 construction jobs lasting seven years. But Anacleto Llosa, a sociologist from Entre Rios province, has carried out a study which estimates that 30,000 permanent jobs in stock breeding, rice farming, forestry, fishing, and tourism would be directly destroyed by the dam.

EDI's claims of "investment guarantees" available to Avondale as a former defense contractor appear to be false. According to EDI, "the government of the United States will guarantee Avondale's investment since it is a Navy contractor which is transferring its technology to civil use." Sources on the House Armed Services Committee of the US Congress told *WRR* that such subsidies do not, in fact, exist.

Perhaps the greatest blow to the project came on February 27 of this year, when Juan Carlos Ferrari, a federal judge in Entre Rios province, ruled President Menem's decree unconstitutional, and issued a restraining order halting the project. This opened the way for opponents of the project to propose alternatives to the dam.

In April, the governor of Entre Rios province, Jorge Busti declared his government's opposition to the project, and established a Commission on Integrated and Sustainable Development for the province, with participation of NGOs. Since then, environmentalists and provincial legislators have worked together to draft anti-dam legislation that would fortify the province's legal position against the project.



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News Briefs

UPDATES

CHINA: The Swedish Export Credit Agency, Exportkreditnämnden, has promised export credits to support work on the Three Gorges Dam. The decision was made in December, but was not revealed until April 8, at a government-sponsored conference on the environment and exports held in Stockholm. Charles Berkow of Friends of the Earth - Sweden said the news was not actually announced, but came in response to a direct question about Sweden's involvement in the project to the director of the ECA. The export credit guarantees for Three Gorges were requested by the Swedish subsidiary of the Norwegian company Kvaerner, one of the world's largest suppliers of turbines and other mechanical hydropower equipment.

Kvaerner also supplied equipment for the Pangué Dam on the Biobío River in Chile, and have the contract for turbines for the Bakun Dam in Malaysia. The company has an office in Beijing and has taken part in several large hydropower projects in China. Last year it went into a joint venture with a Chinese firm to produce turbines in China. Kvaerner is considered a top contender. Contracts will likely be awarded this summer.

FoE's Berkow said, "The Swedish ECA's promise of export credits to the Three Gorges project is a scandal. In that this project risks major negative environmental consequences and will afflict large numbers of people who have no influence over the project, it is a classic example of what should not be supported. The lack of public discussion prior to the decision in Sweden is completely in character with the project and with export credits - and completely unacceptable."

- See the [Three Gorges Campaign Page](#) for more information.

LATIN AMERICA: The more than 100 dams on the rivers of the La Plata Basin are spreading diseases which had previously been under control in the region. More agile than the health authorities, the diseases and their vectors have ignored national boundaries in the basin, which encompasses Argentina, Brazil, Uruguay, Paraguay, and Bolivia. Schistosomiasis came from the Central-West of Brazil and is becoming common in areas flooded by dams. Malaria, previously controlled in the region, has taken off at Itaipu Dam and is threatening all the towns along the Paraná River. Dengue fever came from Minas

Gerais and Sao Paulo states via the Rio Grande and the Paranapanema River. Chagas disease, once under control in Brazil, was recently found in Paraguay and Argentina. Hepatitis, tuberculosis, diarrheas, and respiratory diseases are on the rise.

Some 50 million people are affected directly or indirectly by these dams' diseases. The region includes nearly one-sixth of the population of South America. The health impacts of hydroelectric dams was one of the themes of the 33rd Congress of the Brazilian Society of Tropical Medicine, which took place in Belo Horizonte in February. "The companies which construct large dams do not incorporate health impacts into their planning," said Jose Antonio Simas Bulcao, doctor of hygiene for Electrobras and Furnas. *Folha do Sao Paulo*

JAPAN: A district court judge ruled in early March that the Japanese government illegally expropriated land owned by indigenous Ainu farmers to construct the Nibutani dam. The ruling is considered a landmark decision since the Japanese Diet has consistently refused to acknowledge the Ainu's rights as an indigenous people. In his ruling, Judge Kazuo Ichimiya verified that the Ainu people had established a unique culture of their own in Hokkaido even before Japanese rule reached the northern island. He stated that maximum consideration should have been given to the Ainu's rights before construction was started.

The plaintiffs - two local Ainu farmers - claim that the building of Nibutani Dam "in the heart of their culture" denied the dignity of Ainu and violated their constitutional property rights. The dam site is home to Ainu remains and is considered sacred. Their land was taken in February 1989, and work on the 32-meter-high multipurpose dam began in 1990. Since work on the dam was completed in March 1997, the plaintiffs' appeal that the seizure of their land be nullified was turned down by Judge Ichimiya. Nonetheless, analysts agree that the ruling could have important consequences for establishing the rights of the Ainu people in the future. *Aaron Gladman*

ALTERNATIVES

UK: Breaking ranks with other oil companies, British Petroleum announced in May its plan to help counteract global warming - the gradual climate change linked by scientists to the burning of fossil fuels which most oil companies refuse to admit even exists. The company aims to increase sales of solar energy equipment tenfold in the next decade, to US\$1 billion, by working to make solar "competitive in supplying peak electricity demand," according to John Browne, BP's chief executive. Solar is already competitive for supplying power to customers without access to an established grid. BP is already the third largest seller of solar energy capacity in the world, with 10 percent of the market, the *Financial Times* reports.

NETHERLANDS: Power utilities in the Netherlands announced in February that they will boost renewable power fourfold by the year 2000, according to Reuters news agency. The Dutch utility

association EnergieNed said the companies aim to collectively cut emissions of carbon dioxide by 2.7 million tons per year from present levels. This pledge would apply to the level of renewable electricity produced in the year 1995, which was 0.8 percent of the country's overall electric sales. To fulfill the requirement, EnergieNed said, the utilities would be permitted to purchase green power from neighboring countries. The proposal seems certain to stimulate the market for wind energy, which is one of the most widely available renewable energy sources in The Netherlands. The Dutch government has previously called for renewables to provide 10 percent of the country's energy by the year 2020.

GREECE: A campaign by Greenpeace to stop plans for an oil-fired power plant and promote an alternative energy strategy has begun to flower. *Sustainable Energy News* reports that the national energy department has launched a pilot project to promote energy-efficient lighting with free "green" light bulbs. The program, which began last June, will save 10-30 MW of peak power in Crete. When the program is expanded nationwide, it is expected that 200-300 MW will be saved. The campaign also helped break down official resistance to wind power; the first 50 MW will be installed this year.

BIODIVERSITY

SWEDEN: Fewer plant species live along the banks of Swedish rivers dammed for hydroelectric power than alongside neighboring free-flowing rivers, reports *Science* magazine (May 2, 1997). Although ecologists have long known that dam construction and altered water levels can wreak havoc on riverbank communities, they have been divided over just how well plant populations recover and reestablish themselves along-side new, regulated waterways. Ecologist Christer Nilsson and colleagues at Umeå University in Sweden studied the vegetation at almost 90 sites alongside hydroelectric power schemes. The team compared both the simple number of species and an index of "species richness," which compensates for differences of riverside habitat.

Half the samples were at main storage reservoirs, where water levels can vary substantially over a year, and half were alongside smaller impoundments down river, which show much less variation in water level. The team found about one-third fewer species around storage reservoirs than at comparable undisturbed sites; the index of species richness was half as great for these sites. At impoundment sites, the richness index was comparable to that at control sites, but 15 percent fewer species were crammed into a much narrower band of habitat than in natural rivers.

Some ecologists suggest that this impoverishment in riverside plant life might significantly harm the aquatic ecosystems that depend on this vegetation as a food source. "We're just beginning to get some glimmers of the effects on biodiversity of changes in these habitats," says ecologist Stuart Pimm of the University of Tennessee, Knoxville. "These changes are likely to lead to higher local extinction rates for some species." The findings are also likely to fuel debate on the relicensing of Swedish hydroelectric schemes. Concerns about their environmental impact have already led to proposals for a five percent increase in flow through the schemes, but Nilsson says, "For the same reduction in generating capacity, it would make more sense to close down one in 20 schemes and restore their original river courses."

UNITED STATES: In a move with broad implications for loggers, ranchers and developers, the federal government agreed in March to set standards for non-point-source pollution in some waterways. The Environmental Protection Agency will set limits on the total amount of sediment and heat pollution for 18 Northern California rivers and creeks, said Joseph Brecher of the Sierra Club Legal Defense Fund, which negotiated the agreement. Non-point source pollution - runoff from diffuse sources such as soil erosion from logging and pollutants from roads or farms - has become the leading threat to safe drinking water in the US. In Northern California, the biggest violators are loggers, Brecher said. Logging not only puts silt into the rivers, it removes shade and raises the temperature of the water which affects all forms of river life.

EPA acted in answer to a lawsuit by 14 environmental and fishing groups aimed in part at protecting salmon and steelhead trout. Under the agreement, the EPA has 10 years to draw up its standards, which could be enforced through existing logging, grazing, water and development permits. Included among the affected waterways are the Trinity, Klamath and Eel rivers. The limits on non-point-source pollution were called for under the 1972 Clean Water Act, but states have been slow to act.

UNITED STATES: Douglas County, Oregon, has proposed to build the 186-foot-high Milltown Hill Dam on Elk Creek, a free-flowing tributary of the Umpqua River, primarily to provide irrigation water for a small amount of marginal farmland. Although Elk Creek provides important habitat for the endangered Umpqua cutthroat trout, coho and chinook salmon, and steelhead, no fish passage facilities are proposed and prime habitat would be inundated behind the dam. In addition, there is a risk of water contamination from a nearby abandoned mercury mine.

The dam is one of the last authorized for federal funding by the Bureau of Reclamation under the Small Reclamation Projects Act, which was suspended in 1991 because an internal audit found that many of the projects authorized under the statute were a waste of taxpayer dollars. But eight pending projects won a congressional reprieve, including Milltown Hill Dam. The \$46 million project would be built with \$30.3 million in federal funds (including a nearly \$6 million grant), despite evidence that the project is not financially viable and that it could cause significant harm to valuable fish resources and water quality. County studies show the dam's irrigation water is likely to sell for only one percent of the amount needed to break even, according to the Eugene newspaper *The Register-Guard*. Another BuRec dam in the area, the Galesville Dam, has lost nearly \$100,000 a year for seven years, the newspaper reports. *American Rivers*



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Volume 12, Number 3 / June 1997

Second Annual

River of Words

Contest

by Pamela Michael

Ten talented children, plus assorted siblings, teachers and parents from around the United States spent four days in Washington, DC in early May as winners of the [1997 River of Words Environmental Poetry & Art Contest](#). The young artists and poets visited the Smithsonian and National Geographic Explorers' Hall, had a VIP tour of the White House, met their respective Congressional representatives and were feted at an awards ceremony and public reading at the Library of Congress. The Library's literacy and education division, The Center for the Book, is International Rivers Network's new partner in this innovative, two year old education project.

By blending science, cultural and natural history and the arts, River of Words (ROW) seeks to help children discover their "ecological address" by exploring their local watersheds. The project encourages interdisciplinary collaboration and is designed to be locally implemented by teachers, ecologists, park rangers and librarians, utilizing a curriculum guide that was prepared with the help of poets Robert Hass and Gary Snyder, watershed activist Peter Berg and others.



Grand Prize Art Category I
"The Pond Seen from the Pipe"
Emily Forbes - Kindergarten, Kennesaw, Georgia

Outgoing United States Poet Laureate Robert Hass, the project's co-founder (with IRN) and its most fervent supporter, envisions developing watershed-specific curriculum materials in the coming years that would give students a firm grounding in the natural landscapes of the places where they live, as well as examining the literary and artistic traditions, authors and artists, nurtured in those places. Georgia students would study sweet grass, for instance, and the Native and African American basket-making arts that the plant made possible; students in the West might study John Muir in relation to the natural terrain that inspired his writing, and so on.

One of this year's "watershed" events for River of Words is the decision to add an international category, allowing children from around the world to enter their poems and paintings. Due to the complexity of conducting an international competition (and our limited budget), only poems in English or Spanish will be accepted. Our Teacher's Guide, for now, is available only in English, but we will be working with foreign partners to help them translate our material. It is hoped that the project will spark the imagination of young people everywhere and inspire them - and by extension, the general public - about their natural landscapes in the hopes that a "connection of the heart" will nurture a thoughtful and active stewardship. This page contains some of this year's poetry contest winning entries.

River Histories

*In the river's deep heart
a forked stick strains from the
water
like the fingers of a Nile
woman who,
last century,
touched them to her forehead,
then plunged them into
rushing swiftness;
beads of sweat flying past her
still,
stick folding under,
acquiescing.*

*On the river's still bank
footprints lead up the soil
where
a family of ducks plodded last
season,
perfect webbed fossils getting
smaller,
smaller as water-droplets
splash them,
muddy them, make them fall
back,
get up again
and again.*

*On the river's sturdy log,
forming a bridge over water,
a friend
sits and shows me where
her farther led horses.
Where she puts her feet in,
the currents curl her toes
forward.
I look to her face - a smile of
histories,
her eyes the color
of the river.*

The Forest's Haiku

*Walking the deer path
Milkweed seeds catch in my
hair
Eight quial in bramble*

***Grand Prize Winner Ben
Santos,
Grade 8, Columbia, Missouri***

Oh Pointy Birds

*Oh pointy pointy
you go to the lake edge
the silky water
touches your feet*

***National Poetry Finalist Alice
Zell,
Grade 3, Mill Valley,
California***

Johnny Pump Down

*We siphon off water from
the Johnny pump.
Rebelliously and
Quite naturally.
For The simple
fact -
It's HOT!!!*

*No one
in their
right mind
gonna wait
to the
next rain drop.
Controllers
of the inner city,
Water irrigation systems-
Victims of
Water fights,
Get more,
but cops come around
Yellin' bout they laws
We close up shop
till they leave
then enjoy summer once more.*

***National Poetry Finalist
David Reeves,
Grade 12, Newark, New
Jersey***

*National Poetry Finalist
Rebecca Givens,
Grade 10, Atlanta, Georgia*

- See the [River of Words](#) page for more information and other winning poems and art.



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Bakun Tunnel Collapse Reportedly Kills Workers

by Patrick McCully

Rockfalls during the construction of diversion tunnels for Malaysia's Bakun Dam have killed at least 10 workers, according to on-site witnesses quoted in *The Australian* on May 10. Project authorities admitted in May -p; after at first strenuously denying rumors of the disaster -p; that work at the site is now five months behind schedule and that construction on the dam itself will not begin before December. The diversion tunnels are being built by Korean firm Dong Ah with engineering help from German consultants Lahmeyer International.

Swiss-Swedish engineering multinational ABB, which was awarded the main contract to build Bakun, is downplaying what it calls the "slight delay" in starting full-scale construction. They have not commented on the reported worker deaths.

On May 23, ABB's Senior Vice-President for Environmental Affairs, Jan Strömblad, met with representatives from the Malaysian Coalition of Concerned NGOs on Bakun. After the meeting, the Coalition issued a press statement condemning ABB for "hypocrisy and double standards." The Coalition noted that while ABB's corporate literature professes a commitment to social and ecological responsibility, the company refused to accept any responsibility for environmental damage and human rights abuses linked to the Bakun project.

Although evictions of the 10,000 people to lose their homes to Bakun's reservoir were scheduled to begin in June 1997, affected communities have still not received any detailed information on what compensation they will get for the loss of their homes and lands. Community representatives have announced that they will not move to the proposed resettlement sites. Members of the Coalition report that Strömblad told them that ABB will continue building the dam even if security forces have to force people out of their homes.

Strömblad refused to confirm or deny reports that ABB did not consult its own environmental advisors before signing the Bakun contract, but did admit that ABB did not carry out any environmental study of the project. When asked to verify ABB claims of financial reports "which give a good rating for the project," Strömblad was unable to name any international investment company which had issued such a report.

The delays and tunnel problems can only have worsened the project's financial woes. The main publicly available official report on Bakun, which was issued in February 1996, states that project financing would be secured by June 1996. However, the initial offering of shares in the Bakun Hydroelectric Corporation has since been delayed numerous times. At the time of writing, press reports stated that the offering had been delayed once more, from mid-June 1997 to the "end of July or early August."

The reason for the delayed share offering is clearly the lack of investor interest in the project due to its low prospective returns (estimated at around 11 percent compared with 15 percent or more for other independent power projects in the region) and its high risks of delays, cost overruns and technical problems.

- See the [Bakun Campaign](#) page for more information.



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