

Turkish Dam Displacement Vastly Underestimated, Report Reveals

A leaked report reveals that the proposed Ilisu Dam on the Tigris River in southeastern Turkey will destroy the homes and affect the livelihoods of over 78,000 people – about three times the number originally reported in project documents.

The report, which was leaked to the UK newspaper *The Guardian* in early September, makes clear that thousands of already poor people are at risk of “falling into greater destitution” if the project goes forward, according to a September 5 article in *The Guardian*. The report said the dam would inundate the most fertile land in the area where landlessness and poverty are already widespread.

The British, Swiss, German and US export credit agencies are considering funding the project. The British engineering firm Balfour Beatty would be the prime contractor. A Balfour Beatty-led group of companies is seeking \$850 million in export credits. Balfour Beatty is currently enmeshed in a bribery scandal surrounding the Lesotho Highlands Water Project in Africa.

The report’s author, ex-World Bank resettlement expert Dr. Ayse Kudat, was hired by

the export credit agencies to report on Turkish plans for resettlement. Dr. Kudat said the Ilisu catchment already contained thousands of people displaced from previous projects who had not been properly resettled.

A coalition of environment and human rights groups opposing the dam said the report highlighted 10 serious problems with the Turkish resettlement plan which violated World Bank and OECD guidelines on financing such projects. These included Turkey’s failure to provide a resettlement budget and failure to meet World Bank standards.

Said Emilie Thenard of the Washington D.C.-based Center for International Environmental Law, “Large scale involuntary resettlement has historically been a proven failure when done by the World Bank. The leaked plan for Ilisu reveals a pending disaster. The report demonstrates that the US Export-Import Bank is about to exacerbate an already dismal human rights situation with the Kurds in Turkey.”

In other news, in late September, the consortium negotiating to build Ilisu suffered a serious blow when one of the eight member companies pulled out. *The Financial Times*

reported that Skanska, a Swedish construction group with a 24 percent stake in the consortium, said it had withdrawn because of unspecified “negotiating problems.” Friends of the Earth-UK (FoE) said it believed Skanska was worried that its involvement would damage its international reputation.

“This is a body blow to the consortium, not only because of the signal it sends about the risks of Ilisu, but also because of the practical difficulties of finding another company that is prepared to put its reputation on the line,” said Tony Juniper of FoE.

The dam has been the subject of intense international controversy for its impact on the Kurdish people and because it will submerge the 10,000 year-old city of Hasankeyf. The reservoir will inundate at least 68 other towns and at least 215 cultural sites. The dam may cut off downstream flow of the Tigris into Syria and Iraq, thereby inflaming regional water conflict. ■

For more information on the campaign to stop Ilisu, contact the Save Hasankeyf Campaign (email: info@hasankeyf.org, web: <http://hasankeyf.org>).

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World Rivers Review

Volume 15, Number 5 / October 2000

Published by International Rivers Network

World Commission on Dams Study Exposes India's Dismal Track Record on Large Dams

by Himanshu Thakkar

“The marginal contribution of large dams to increased food grain production [in India] is less than 10 percent.” This startling fact was among many other findings of the India Country Study on large dams conducted by the World Commission on Dams (WCD). The study exposes the poor track record of large dams in India on all accounts – social, economic, environmental and financial – as well as the availability of better options than large dams.

The report concludes that the major and medium irrigation projects built in India are unviable. On hydropower dams, the report concludes, “Given the high capital cost, long gestation period and the environmental and social costs, hydropower development is not the preferred option for power generation compared to other sources.”

Not only is there insufficient internalization of social and environmental costs in project design, but the report found that “Costs are systematically underestimated and benefits exaggerated so that requisite benefit-cost ratio is shown to have been arrived at. Further, during actual implementation, there



Problems with large dams in India have given rise to one of the most successful people's movements in the world. Here, a protestor is arrested in the Narmada Valley during the 1999 monsoon protests.

are enormous escalation in costs, and considerable delays and changes in design of projects. Benefits, on the other hand, fall

well below anticipated figures as actual irrigated area and achieved yields fall below projected levels.”

The report consistently highlighted the absence in India of the political will, legal framework and planning infrastructure to mitigate the substantial negative effects that large dams have on the environment and society. “Apart from not acknowledging the social and environmental costs, most of the dams were also not required to internalize the costs of preventing, minimizing and mitigating most of the adverse impacts,” which have been very significant, the report notes.

Huge Numbers Displaced

The study estimates that large dams have displaced a monumental 56 million people in India. The report found that the majority of those displaced were from poor or marginalized communities. “The distribution of

NGOs Call for Nationwide Review of Indian Dams

The Delhi-based NGO South Asian Network on Dams, Rivers and People (SANDRP) has stated that “there should be a serious rethinking of dams in India” based on the findings of the WCD report.

The group made this statement upon the report's release: “Over two-thirds of India's water resources budget has been spent on large projects in the past 50 years. As the WCD report notes, there has been no attempt to really evaluate the performance of large dams. As another year of drought faces the nation, we demand that a truly independent, credible national commission be set up to review the costs, benefits and impacts of large dams, including who has paid the costs and who has benefited. Pending the report of such a commission, no more large dams be started, work on ongoing large dams should be stopped and the water resources and hydropower budget should be allocated to available alternatives.”

For more information about SANDRP, email them atcwaterp@vsnl.com

From the Banks of the Nile

With this issue we launch a semi-regular column written by people affected by destructive river-development schemes. This first is a letter by a Ugandan to the World Bank; he is protesting their plans for a dam that would destroy a culturally significant waterfall. The Bujagali Falls Dam, proposed by the American company AES, is currently being considered for World Bank financing (see www.irn.org for more information on the Bujagali Dam). The author is from the Busoga tribe, whose culture is linked to the Nile River and the falls.

"BUDHAGALI TAFANGA" (*Bujagali should never die*). Bujagali Falls is unique in nature and rare in the world. Many of us, the silent majority, cry out, and carry the vision and the mission about Bujagali Falls on the river of our hearts, Kiira (the Nile).

In 1951 I was a schoolboy when our class visited Ripon Falls, Bujagali Falls and other natural wonders. The Bujagali Falls were more serious-furious and spectacular than they are now! Rippon Falls [inundated in 1954 for Owen Falls Dam] were real falls and one could hear them running away to Cairo from afar. It is only possible to say that it was a marvelous site. The beautiful source of the great river has been obliterated! I have it in my mind but how can I put it on paper when I only have it deep inside! It is impossible to do so.

Our teachers who traveled with us on our trip charged us to "always love, respect and conserve nature forever." We witnessed a man go across the falls on bark-cloth! Then we went to the source of Kiira, the Rippon Falls. Now they have been destroyed by the Owen Falls Dam. Rippon Falls were beautiful and it was spectacular to watch the river start its long journey to Cairo in a hurry. It plunged down, but such a plunge is now only in history books and only a few peoples' minds!

We students went through the thick Mabira forest, stopping here and there to identify medicinal plants until we eventually reached the impressive Sezzibwa Falls. These were impressive but not as frightening and spectacular as the Bujagali Falls. The surroundings were cool and of secret nature with no signs of hurry. The following day we left for Kampiringisa and walked kilometers through the forest, being charged always to preserve and conserve nature.

This was a landmark trip for 25 of us. The common mission or message these outstanding teachers and churchmen were trying to instill in our minds was that we had a beautiful country with wonderful physical features and climate conducive to good living. We had to make sure that we appreciated, maintained and protected Uganda, the pearl of Africa. It may not have made much sense to children of our age then. Now, those words keep coming back into my mind. *Bujagali Falls shall never die!*

The Rippon Falls are no more, but we had no say then and we could not protest. Now, the famous Bujagali Falls are under siege, threatened by the construction of a dam when an alternative can be found! No, no, no, Bujagali should never be destroyed. The river, Kiira, belongs to Uganda, and is particularly owned by the people of Busoga. They are the only social rituals oriented towards the river and Bujagali. The Basoga have oriented their lives along and on Kiira particularly at Bujagali and Mbulamuti. Our diet, livelihoods and cultural traditions all come from the river. Many Basoga have their religious foundation and annual ceremony performed by the clan related to Bujagali Falls. To destroy this falls will be to disorient and eventually destroy the people's spiritual life.

Why have the advocates of destroying Bujagali Falls only advanced and highlighted the advantages in constructing the dam but have succeeded in covering up its disadvantages? Do Ugandans, and the people of Busoga in particular, understand that once constructed, the dam will stay almost indefinitely, and our tears will flow forever? Do project advocates know that destroying Bujagali Falls is a crime, and their sin will be unforgivable?

It is therefore humble to suggest that it is true that Uganda should maximize her benefits from Kiira (Nile), but should have a prolonged exercise of careful planning and consideration of not only hydroelectric benefits but a multi-dimensional approach.

It should include preserving the environment and life of the people. *Bujagali should never die!*

Prof. Joseph M. Ngobi-Igaga.

Volume 15, Number 5

ISSN Number 0890 6211

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Design/Production: Jeanette Madden

Printing: West Coast Print Center

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International Rivers Network is an affiliate organization of Friends of the Earth International.

And Then There Was Light

by Dilip D'Souza

The old woman scrambles down the gentle slope as our boat gets ready to leave. She waves to a young man who is with us. He waves back with a shy grin. Then, as the boat begins moving, we notice that she is weeping. Tears running down her cheeks, she continues to wave as we move off down the river.

Her name is Khatri Vasave, and she lives in a tiny village called Domkhedi, on the banks of India's Narmada River. The young man's name is Anil Kumar; he is from Kerala. After a few weeks here, he is returning to his home. In those weeks, Khatri has grown very fond of this tall engineer from Kerala. And that fondness has its roots, I suspect, in a single light bulb.

For here's what Anil and his colleague Madhu accomplished in this hamlet. They got here on July 15. They surveyed the area and found a small stream gurgling through the hills a few hundred yards from the village. Enlisting the help of the villagers, they built a 1 meter high, 4 or 5 meter long dam across the stream. From the resultant reservoir, they laid a pipe through trees and across slopes, to a concrete tank halfway to the village. From that tank, they ran another pipe steeply downhill about 30 meters, to a little shed they built at the bottom. In the shed, they set up a small turbine they had brought from Kerala, and fed the pipe into it. Finally, they strung wires from the turbine to some huts in Domkhedi.

A turn of the valve one recent Tuesday, and there it was. On India's 53rd birthday, for the first time ever, an electric bulb glowed in Khatri Vasave's hut, and a few others. In a mere one month here, Anil and Madhu had given these villagers what 53 years of Indian governments had not.

No wonder Khatri weeps to see Anil leave.

Domkhedi is scheduled to vanish under the waters of the Narmada, as they rise behind the Sardar Sarovar Dam. In fact, even at the dam's present height, at the peak of the rainy season Domkhedi already does get almost totally submerged. Its villagers are being drowned to build a dam that will apparently supply drinking water and electricity to areas of Gujarat very far from here.

The irony must have occurred to them at some point: nobody ever cared to bring Domkhedi's residents drinking water and electricity. And yet their lives here are the

price they must pay so others in Gujarat can enjoy those things.

No wonder, too, that the people of Domkhedi simply do not want Sardar Sarovar built. Last year, hundreds of people from here and around made that point by standing in the water as it rose: past their waists, chests and to their chins, flooding their homes. For hours and days they stood, until a nervous state administration pulled them out and arrested them.

This year, Domkhedi remains a focal point of the protests against the dam. Except that this year, there's a small difference. The huts here actually have electricity: just as good, just as potent, just as desirable as that dam claims it will provide some indeterminate number of years from now. But this is electricity produced right here in the village. Generated with the toil and sweat of these very villagers. In some ways, this year's is the loudest protest of all: this is a demonstration that even if they have been deprived of electricity, even if there is no chance they will get it any time soon, even if their lives are devastated so that someone else can get the stuff – even so, they are willing and able to produce it for themselves. And with help from Anil and Madhu, that's just what they have done.

Of course, it's important to retain some perspective here. The turbine that's up and running in the village can supply 300 watts of electricity at best. That means perhaps ten houses lit with low-power bulbs. For the time being, the electricity flows for just three or four hours every evening. Without doubt, this is a small effort; a "micro-hydro" project that Anil himself told us is better described as "pico-hydro."

But there is another perspective to consider. Here in Domkhedi, a few ordinary Indians have made creative use of their own resources. Scanty resources, yes, but they have been exploited right here, by those who live right here. And isn't that what self-reliance is all about?

If you look at it like that, you know that it is no mere toy that's on display in Domkhedi. Anil, Madhu and the villagers take it very seriously indeed, and then the larger scale is hardly the point. Anil said they have installed other turbines like this one in different Kerala villages. One supplies as much as 4000 watts (4 KW). He believes the total micro-hydro capacity in Kerala is 2000 megawatts. Compare that to the



Making "pedal power" in Domkhedi

Photo: Aravinda P.

installed electricity capacity in Kerala – about 2800 MW – and you start understanding the potential. Anil wants to make a study in this part of the Narmada Valley to estimate the capacity here. And China, Anil and Madhu tell me, has about 10,000 such plants in operation. They even supply power to the national grid there.

Not a toy. Besides, it also gives Domkhedi drinking water. The women here used to have to clamber up and down the hills every day to bring water to their families; in the monsoons especially, the water from the Narmada itself is very muddy. But now a pipe brings clear stream water from that tank right into the village. In addition, the Kerala engineers are building small check dams to prevent soil erosion in the stream's watershed. The idea is to give the water more time to trickle into the ground and recharge the groundwater. In one or two years, they expect that the recharging will allow the stream to flow perennially, making the micro-hydro project more useful still.

And if all that's not enough, there is even a pedal-operated generator, designed by a student, operating in Domkhedi. Pedaled for an hour, it charges a battery enough to power a couple of bulbs for four hours.

No doubt what's going on in Domkhedi is small. But it is a demonstration of what is possible, of what the alternatives are to major projects that cause such major destruction and displacement.

It seems that this is what those who have fought this dam so long have been saying all these years.

Let us decide, they are saying. Let us have a say. Let us make our lives, our futures. Don't take that away.

No wonder Khatri Vasave is crying. ■

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Another Nail in the Coffin for Maheshwar Dam

by Susanne Wong

Proponents of the Maheshwar Dam suffered another blow in August when German multinational Siemens withdrew its application for credit from the German export credit agency Hermes. The German bank HypoVereinsbank also stated that it will no longer be involved in the project. Siemens had asked Hermes to guarantee a US\$115 million loan from HypoVereinsbank to Indian project developers for the purchase of Siemens' equipment.

"This decision has been greeted by jubilation all throughout the Narmada valley," said Chittaroopa Palit, an activist with the Narmada Bachao Andolan (NBA, or Save the Narmada Movement). "It is clear that Siemens' decision is a direct consequence of the mass struggle in the valley. Without doubt, the withdrawal of the Hermes guarantee is yet another nail in the coffin of the Maheshwar Project."

Located upstream of the stalled Sardar Sarovar Project, the Maheshwar Dam would submerge the lands, homes and livelihoods of over 40,000 people in 61 villages and inundate thousands of acres of rich soils, scores of extremely profitable sand quarries and a rich local culture.

Activists and villagers have long argued that no land for resettlement exists, which violates state and national policies dictating that people receive land-for-land compensation. They have also questioned the prohibitively expensive power to be generated by the dam.

Critical Project Review

In May, intense lobbying by the German NGO Urgewald forced the German Ministry of Economic Cooperation and Development to commission a team of international experts to investigate the status of the project's rehabilitation and resettlement. The team, led by Dr. Richard Bissell, a former chairman of the World Bank's Inspection Panel, visited the project area and released a strongly critical review of the project resettlement in June.

The report concludes that "the approach of the R & R [resettlement and rehabilitation] programme to date has failed to be transparent, participatory or democratic, and dissent has been handled with police force rather than communication. The provisions for monitoring and evaluation are token efforts rather than a serious



Photo: NBA

A July protest against Maheshwar at a village that will be submerged by the dam.

endeavor to ensure a comprehensive R & R process."

The team also found that the number of people who would lose their lands and jobs to the project is "much higher" than had been claimed by project authorities, and the amount or replacement land required for resettlers "would be many times higher than the currently calculated requirement."

The report also criticized the payment of cash compensation to farmers by project authorities which "clearly violates the standard" that farmers should be provided with replacement land. In addition, the report stated that "the benefits of the dam to the regional and national power sector have become increasingly controversial as the cost of construction is now four times the estimate submitted to the government ten years ago."

"The Siemens decision is a vindication of the issues that the affected people have been raising for years – that the impacts on populations and the rich natural resources of the area will be much larger than anticipated, and that reparation of these losses and rehabilitation of the affected people is impossible," said NBA activist, Palit.

This is the latest in a series of victories against the Maheshwar Dam. In the last few years, numerous multinational corporations have been forced to withdraw from the proj-

ect due to intense opposition in India and internationally.

Activists are now focusing their attention on New York-based Ogden Corporation, which signed a Memorandum of Intent in March to take a 49 percent equity share in the project. ■

Stop Ogden From Investing In Maheshwar!

On March 23, the New York-based Ogden Corporation signed a Memorandum of Intent to take a 49 percent equity share in the Maheshwar project. The dam would be a social and economic disaster, negatively impacting over 40,000 people. No land is available for resettlement and electricity generated from the project is expected to cost 4-5 times current prices. Call or write Ogden and urge them to get out of the Maheshwar Dam:

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Ernst & Young Plagiarizes EIA for Indian Dam

“They didn’t even correct our spelling mistakes!”

by Susanne Wong

In what is being called “the worst case of fraud and environmental decision-making in India’s history,” international consulting firm Ernst & Young has been charged with plagiarizing the “Rapid Environmental Impact Assessment” (REIA) of one dam and submitting it for another unrelated project.

In an August 18 press release, two Indian NGOs, the Environment Support Group and Parisara Samrakshana Kendra, revealed that all but five pages of the 65-page REIA for the proposed Dandeli Dam are an identical copy of the REIA for the Tattihalla Augmentation Scheme, which was completed in September 1999. The two projects would impact very different ecosystems.

“Word for word, paragraph to paragraph, except for a few minor differences, the villages, the species, the climatological data, the water and soil analysis, are all absolutely the same,” stated the NGOs.

The “rapid” EIA process has been criticized for speeding up the clearance process at the cost of failing to adequately assess environmental and social impacts. An REIA takes about three months to complete, versus a full year of study for a typical EIA.

The proposed US\$40 million Dandeli Mini-Hydel Project involves construction of two dams across the Kali river near the Dandeli wildlife and Ulvi bird sanctuaries. If built, the project would submerge about 87 hectares of moist deciduous and evergreen forests in the Western Ghats mountain range, listed as one of 21 biodiversity hot spots in the world by the group Conservation International. In contrast, the Tattihalla Augmentation Scheme, located over 100 kilometers away, would submerge 564 hectares of dry and moist deciduous forest on the Bedthi River.

NGOs argue that the process of approval for Dandeli Dam makes a mockery of the environmental clearance process in India. Project developer Murdeshwar Power Corporation Ltd. was assured by the government that project clearances would be expedited once an EIA was produced. Based on the plagiarized study, the Karnataka state government issued an “in-principle clearance” to the project and held a public hearing.

“The report was written and submitted in haste. We will be preparing another report and submitting it afresh.”

Ernst & Young

Though the charges of plagiarism were revealed a week before the scheduled public hearing, the state government went forward and held the public hearing. At press time, the dam was moving through the approval process.

The groups also charge that the report was submitted in a matter of days after the government requested it, although REIAs typically take months to complete. The REIA was also backdated before the project was officially on record. Special clearances required under the Wildlife Protection Act were not secured. In addition, a 30-day public notice period, required once an EIA is issued, was cut to 11 days.

Ernst & Young, which says it prides itself on delivering “innovative business solu-

tions that help clients achieve their goals,” has dodged questions about the report’s origins. “I’m neither denying nor acknowledging these allegations,” said Ernst & Young New Delhi Director Kashi Nath Memani. “We are investigating how this happened. The report was written and submitted in haste. We will be preparing another report and submitting it afresh.” He also attempted to place blame on an errant employee who had since resigned.

This contradicts the company’s initial response in late August. Ernst & Young’s Director of Environmental Services, Sudipto Das, claimed that the only mistake they could have made was “not attributing the source of the data.” He insisted that “ethically and professionally, no wrong was done.” He also claimed that the Institute for Catchment Studies Environmental Management (ICSEM), which prepared the REIA for Tattihalla, was a joint signatory to the report.

Nonsense, responded Anand Rao, ICSEM’s Scientist in Charge and one of the authors of the Tattihalla REIA. “It’s copied word for word,” said Rao, adding that there’s no way both projects can have “identical environmental impacts even at the macro level. The forests around the Tattihalla project are degraded and the fauna is rare. But the forests surrounding the Dandeli project are evergreen. Even the places mentioned in the Ernst & Young report are nowhere near the Dandeli project. They didn’t even correct our spelling mistakes!”

NGOs are demanding that the public hearing held on August 21 on the basis of the plagiarized report be declared null and void, that a judicial inquiry be ordered to investigate government responsibility, and that Ernst & Young be disqualified as an EIA consultant in India. ■

WCD continued from page 1

most of the costs and benefits of large dams seems to accentuate socio-economic inequities. This seems primarily due to a lack of policy direction regarding the equity aspects of projects,” the authors state. Significantly, the report has recommended that those already displaced must be properly rehabilitated and compensated before any further displacement occurs.

The report outlines other recommendations for better management of water resources, including performing better evaluation of both needs and options to meet those needs; greater emphasis on demand-side management and more efficient use of available systems; independent monitoring of compliance and transparency; and decommissioning some problem dams.

The findings of the study will be incorporated into the final report of the WCD, a body endorsed by various stakeholders. The WCD’s final report is due to be released to the public in London on November 16, 2000. ■

(The full India Country Study is available on the web: www.dams.org)

US Barge Company Plans Port in Pantanal Wetlands

by Glenn Switkes

A channelization project that would harm the largest tropical wetlands in the world has been reinvigorated by a large US shipping company's plan to build a new port on the Paraguay River in Brazil. The port proposal, by the Indiana-based shipping company American Commercial Lines (ACL), is the latest plan to expand the Paraguay-Paraná River industrial waterway, or "hidrovia," a project to channelize 2,100 miles of the river to enable huge barge trains access to inland soy plantations.

The port would be constructed in Morrinhos, 80 kilometers downstream from Cáceres, in the state of Mato Grosso, where millions of acres of the *cerrado* (savanna) are being converted to soybean plantations for export.

ACL has prepared an environmental impact assessment for the port, which it hopes will receive an environmental license from state authorities. But in September, two lawsuits were filed, one by a state deputy and the other by the federal historical and archaeological protection service (IPHAN), challenging the jurisdiction of the state government to decide on the port operation, and arguing that any decision should come from the national government's environmental agencies. The company's environmental studies have not yet been made public.

ACL is the largest shipper on the Mississippi, the Paraguay-Paraná, and the Orinoco rivers. On the Paraguay and Paraná, the company ships soy, iron ore and wheat on 170 barges. According to ACL's Senior Vice President for Latin America, Martin Pepper, "the company sees an opportunity to attract soybeans currently being shipped by road or by rail." Most grain is being carried by road to the port of Paranaguá, by the new Ferronorte railway to the port of Santos, or by barges on the Madeira River and then via the Amazon River. The largest consumers of Brazilian soy are Germany and Holland, where it is used to feed chickens and hogs.

The port project is expected to cost about US\$7 million, not including the cost of a spur road which the Mato Grosso government has committed to build. The government plans to pave an existing dirt road which would connect the port site with the



The Pantanal could be devastated by development schemes.

Cuiabá-Cáceres highway. The prospect of a paved road in the wetlands has raised concerns by environmentalists. Alcides Faria, of the Brazilian NGO Rios Vivos Coalition, wrote in the *Folha de São Paulo* newspaper, "This project, if carried out, would result in considerable direct and indirect environmental impacts. Other related works such as roads will require building dykes, which could change flow patterns within the Pantanal."

Attempting to paint a "green face" on its project, ACL says that building the port downstream from Cáceres will eliminate the need for dredging and curve-straightening on some critical stretches of the river – processes that will alter water flow in the Pantanal. Environmentalists counter that official studies have shown that the stretch below Morrinhos, where the company proposes to build the port, is also problematic.

ACL also says it will eventually use new barge designs, but these have not yet been used on the Paraguay, nor is there any indication of when they would be available for use. At least publicly, ACL says it has no plans to navigate during low-water periods, and that it will restrict its shipments to the soy harvest period. The company estimates initial cargo will be 500,000 tons per year, eventually rising to double that.

The expansion of soy monocultures in central Brazil has had impacts in the central United States as well, where soy trading companies and shippers are calling for an expansion of the upper Mississippi lock and dam system so that US companies can better compete with Brazil. The multi-billion dollar Mississippi waterway expansion would be paid for by US taxpayers, and is being opposed by a wide range of organizations on economic and environmental grounds. ACL's expansion plans, and the increasing domination of the South American soy business by US agribusiness giants Cargill, Archer Daniels Midland, and Bunge, demonstrate that the multinationals are adept at an old game – playing both sides against each other.

The Ferronorte railway (which links eastern Mato Grosso with Atlantic ports) and the North-South railway line (under construction) has made the Paraguay-Paraná hidrovia a low priority for the Brazilian government. Officially, the government still downplays the need for the megaproject, while commercial interests press for "improvements" along the waterway in Brazil, Paraguay, Bolivia and Argentina. Environmentalists are remaining vigilant, since there has been no move to assess the cumulative impacts of these "isolated" engineering works by the government. ■

Photo: Glenn Switkes

Brazilian Fishermen Suing Operators of Itaipu, World's Largest Dam

by Glenn Switkes

In a David and Goliath battle, four fishermen's associations are suing the company that operates the world's largest dam, Itaipu, on the Paraná River on the border of Brazil and Paraguay. The associations took their case against Itaipu Binational, which manages the huge 12,600-megawatt-capacity dam, to a federal district appeals court earlier this year. The groups say that the company's deliberate lowering of Itaipu's reservoir level to maximize power generation during dry periods has caused massive fish kills, adversely affecting their livelihood. Some 1,000 artisanal fisherman earn a living from fishing in the Itaipu reservoir.

With Itaipu supplying 25 percent of Brazil's electric power, the company opened the floodgates of the dam to maximize power generation during the dry season this year, resulting in a drastic drop in the level of the reservoir – up to five meters. This has caused the margins of the reservoir to recede by three kilometers in some places along its 160 km extension. Coming

as it does during the period of fish reproduction, the impact on fish populations has been significant.

High-value migratory fish, such as the dourado, pintado, and cachara, have long since vanished from the reservoir area, and now lower-value fish, such as the bottom-feeding armal, are affected by the death of millions of tiny crustaceans that normally are found on the reservoir's edge.

Itaipu was built before environmental laws were enacted in Brazil. In the 18 years since its inauguration, the dam has not been subject to environmental impact studies, nor required to obtain an environmental license. Some 60,000 people were relocated to make way for its construction. According to Aparecido da Silva Martins, lawyer for the fishermen, "Itaipu is a relic of the military dictatorships, which chose most of its current directors. It is run as if it were a separate country – a country without laws."

The fishermen's appeal follows a decision by a lower court judge that they cannot sue

for personal losses because the river is a "commons" which is available to the public for use, and is not their private property. In his opinion, the judge said that the dam has had significant impacts on fish stocks. The fishermen argue that they fish under federal licenses, in the same manner that Itaipu operates as a federal concession. They say that this means that the company has no right to destroy their means of earning a livelihood, just as they would not be permitted to do anything to interrupt the functioning of the dam.

Itaipu Binational has responded to the claim by saying it is now constructing a canal which will permit migratory fish to bypass the dam. The company denies charges of a significant fish kill, and says it uses backhoes to dig temporary channels for fish that are trapped in dry areas, and that it even manually rescues some fish with nets. The fishermen respond that these efforts are symbolic, and have little effect on the broader impacts of Itaipu's reservoir management. ■

Colombian Paramilitaries Suspected of Murdering Indigenous Leaders

by Monti Aguirre

Heavily armed gunmen suspected of belonging to a paramilitary group murdered four leaders from the Embera-Katío indigenous communities in Colombia's Upper Sinú river basin on September 19. Twenty-one Embera-Katío were abducted by the gunmen, but all were later released.

After the incident, the Colombian press agency Caracol reported that the guerrilla group FARC has declared it intends to take over Urrá Dam, located in the Upper Sinú basin. The group also stated its intention to take over Tierralta, the town closest to the dam site. Armed groups consider the Embera territory a strategic corridor, as it allows access to several regions of Colombia.

The murders are just the latest evidence that the peaceful Embera are caught in a war between paramilitaries, who protect the interests of large landowners and are backed by the US-supported Colombian military, and the nation's guerrilla movement. Paramilitaries last year killed four Embera leaders. Those murders are thought to have been a reaction to the Embera's attempts – all non-violent – to pressure authorities to recognize their land rights and acknowledge and mitigate the damage to their river, lands and livelihood caused by the Urrá I dam.

The Colombian Supreme Court last year agreed with the Embera that mitigation measures proposed by the dam builders were inadequate, and ordered negotiations to take place. However, it took a march by the

Embera to the capital, Bogotá, and a four-month vigil outside the Environment Ministry before successful negotiations went ahead. The resulting agreement, signed with the government on April 19, 2000, promised to address human rights issues affecting the Embera, including granting them rights to lands to replace those flooded by the dam and providing protection for them against paramilitary, or other violence.

In their most recent attack the gunmen also seized fishing supplies, which were provided to the Embera as part of a settlement reached in April with the government to mitigate the impacts of the dam. The construction of the 340-megawatt dam has radically reduced fisheries, which had been the mainstay of the Embera diet. ■

Snapshots from the Senegal River

Senegal River Valley Suffers from “Development”

by Adrian Adams

For over 20 years now, I have been living in a village near the town of Bakel in Senegal, on the banks of the Senegal River. My husband, Jaabe So, returned to the valley in the early 1960s from working abroad to take up farming once more. At first, the rains came and there were good harvests; but after 1965, drought set in. He had



Jaabe So & Son

seen irrigated farming in his travels. So he went to work in a factory in the outskirts of Paris, and earned enough money to buy a small motor-pump. He returned home in 1973. “When people saw what irrigation could do, they all fell in love with it. I decided the best thing to do

was to try and make development for everyone who wanted to take part.” He hoped that people would once more be able to grow enough to feed themselves; and that their sons might be able to earn a living from the land, rather than seeking work abroad.

By the end of 1974, Jaabe So had organized farming groups in most of the riverside villages there. Group members, in addition to having individual rain-fed fields of sorghum and maize (for men) and groundnuts (for women), together farmed a collective field. For the dry season, in addition to their flood-recession fields, they put in wells and grew vegetable gardens, a novelty in the area. The idea was that they would sell the product of their joint labors, and save up money to invest in irrigated farming. There was considerable enthusiasm at the time, and the area received visits from both the Director of Senegalese State development corporation (SAED), and the Minister of Rural Development. Some were afraid that the administration might try to make trouble. But Jaabe So said no: “When people work to develop their country, the government is pleased.”

Snapshot 1: 1975

A village courtyard surrounded by mud walls. Some men in suits are rising from a table; several dozen men in traditional robes remain seated on mats, and there are women on the verandas. The men in suits do not look pleased; they are from SAED.

I was in the Bakel area then on a research grant. That is how I happened to be at the meeting, which was to announce that the government had drawn up development plans for the area. Peasant farmers would be

organized and trained to grow irrigated rice. When members of the farming groups said that they would be pleased to receive technical assistance, but would prefer to keep their own form of organization and choose their own crops, they were told this was not an option. When they persisted, a member of the delegation accused them of being against the government; another stated that no development was possible without the administration. After that meeting, some people were angry, but most were afraid.

Brochure Describes Issues on Senegal River Dams

The following is an excerpt from a new booklet on the Senegal River Basin by the US government agency USAID. “The Future of the Senegal River Basin,” printed in French, English, and three local languages, describes some of the problems caused by the dams now blocking the river’s flow, and how the dams could be operated to minimize problems. It is being distributed by Senegalese and Malian NGOs to people who potentially should be consulted by project authorities.

As of the end of 1999, the electric power turbines had not been installed at Manantali. Under current plans, power that is eventually generated will be exported from the valley to larger cities. Irrigation has been costly and far below levels anticipated.

Since the dams were finished a decade ago, useful floods have occurred only rarely, and irrigated farming has expanded only modestly, with far higher costs and lower yields than anticipated. Consequently, food production in the valley has declined. The resultant decline in nutrition has left the population even more vulnerable to diseases.

Because of reduced flooding, clean drinking water is harder to find. Some people are forced to travel long distances to draw water. Providing several hundred thousand middle-valley residents with new, safe and reliable sources of potable water will be costly.

Parasitic diseases in the valley have reached epidemic proportions because

the changed ecology of the basin provides ideal habitats for snails and mosquitoes.

Dam construction has forced the displacement of 10,000 villagers in the valley. At present, the relocated population is as poor as it was before the move, if not poorer. There is also concern that conflict will arise between the resettled and host populations over access to land.

Options for the Future

One option is to maintain the current water regime – reduced, haphazard flooding, timed to serve the needs of irrigated agriculture only. Another is to proceed with the proposed energy generation plans. A third is to institute a system in which the annual flood would be controlled to meet the objectives of energy production and the water requirements for the productive areas discussed earlier.

In the Senegal River basin, the most influential groups for many years have been those concerned with hydropower and irrigation for large-scale agriculture. Small-scale farmers, fishers and herders have been much less involved in the decision-making process. It’s time for the hydropower and irrigation proponents to make these small-scale producers partners in the decision-making process.

The publication is available for free downloading: <http://www.dai.com/projects/basis/basis-pdf/senegal-english.pdf>

iver Valley

' Schemes

When I returned to the area in early 1977, USAID had provided \$3 million in funding for the "Bakel Small Irrigated Perimeters Project," largely on the grounds that it was "the result of a truly grassroots development process." This money went to the government bureaucracy SAED – it paid for SAED's office and administrative costs, and for building irrigation networks in all the villages organizing under the plan. People weren't happy: they were forced to grow rice, often with poor results on sandy soil, and ran up heavy debts for fuel and fertilizer. A group that grew irrigated sorghum instead had its motor-pump taken away. They decided to form an association, the *Fédération des Paysans Organisés du Département de Bakel*, to represent them. But the government steadfastly refused to grant it official recognition. Many people considered they had no choice, other than to leave the farming groups.

Snapshot 2: 1978

The same courtyard as in Snapshot 1, at night. By the light of a kerosene lamp, two young men, one French, one Senegalese, are reading from a booklet. An older man in traditional robes is listening attentively.

The two young men had been sent by a French NGO to visit people in the Valley to discuss with them the implications of plans for building dams on the river. They had brought with them copies of booklets and articles criticizing the dams, and spoke of the campaign being organized in France by an association of Senegalese migrant workers. They had found that people in the Valley, on the whole, had not heard of these plans.

I had read about these plans during my research. In 1973 the Senegal River Authority (OMVS), announced its program, centered upon the construction of two dams. The main dam, upstream at Manantali in Mali, would store the waters of the Bafing, which contributes about 60 percent of the flow of the Senegal River. The secondary dam at Diama, at the mouth of the river, would stop salt water from penetrating the delta and the lower valley. The program had three components: irrigation, navigation, and energy,

In Memory

The world lost a great river activist in August when Adrian Adams was killed in a car accident in Senegal. Adrian lived in the Senegal River valley, and worked tirelessly to support its peasant farmers who suffered serious setbacks to their livelihoods from the construction of the large dams. An obituary in The Guardian (UK) stated, "She gave unstinting support to her husband's efforts to organise co-operatives to represent the interests of peasant farmers. This involved resisting attempts by the Senegalese state, encouraged by the International Monetary Fund and other international agencies, to oblige rural communities to abandon strategies of subsistence – well adapted to a precarious environment – in favour of commercial agriculture, carrying high burdens of debt and a perilous dependence for water on the management of high dams. When, last January, she promoted their case to the World Commission on Dams, in Cairo, she could, at last, feel encouraged by its reception." This is an excerpt from her presentation to the WCD's Cairo hearing.



with the construction of a hydroelectric plant at the Manantali Dam.

The aim was to bring up to 400,000 hectares of land under irrigation, with two crops a year, mainly rice and wheat. For 20 years, Manantali's reservoir would be used to simulate the river's annual flood, so that people could continue the traditional flood-recession farming. But the level of flooding would decrease steadily every year: it was expected that after 20 years, the entire population of the valley would be engaged in irrigated farming.

Had it not been for OMVS's plans, there might have been a small chance of influencing river development plans in the direction of greater flexibility, which might have enabled it to better weather the storms of the 1980s. The Senegalese government's plans for irrigated farming, however, were

designed from the outset to fit in with OMVS' program of dam-building and large hydro-agricultural schemes.

Snapshot 3: 1985

An official seated at a desk has tossed a paper over to a man in traditional robes seated in front of him. The man looks at him with indignation at this lack of respect.

The scene is the Préfecture of Bakel, a handsome fort on the river. After some eight years of applications, the *Fédération des Paysans Organisés du Département de Bakel* has finally been granted official recognition by the government.

This was at the start of the second phase of Senegal's structural adjustment program. The slogans of the New Agricultural Policy emphasized phasing out state intervention,

continued on page 14

Destructive Dam Considered for Okavango River

by Steve Rothert

Namibia is studying the feasibility of a 30-megawatt (MW) hydro-power dam on the Okavango River at Popa Falls, less than 50 kilometers upstream from the Okavango Delta in Botswana, according to the Namibian newspaper *The Windhoek Observer* (September 9, 2000). The dam, being studied by the Namibian Ministry of Mines and Energy, would be six meters high and one kilometer across. The project's likely drastic impact on the delta and Popa Falls tourism will undoubtedly provoke stiff opposition.

The location of the proposed dam could not be much worse. The Okavango River drops a mere 3.5 meters at Popa Falls, but it represents a significant tourist destination in remote northeastern Namibia. Popa Falls is the centerpiece of the Caprivi Game Park, which is slated to become the Bwabwata National Park, and provides habitat to several hippos, elephants and other wildlife. Thousands of tourists visit Popa Falls each year and support several lodges in the area, including one run by a community of indigenous Barakwena people, bringing

scarce income to this undeveloped corner of the country.

Perhaps the most alarming aspect of the project are its likely impacts on the downstream Okavango Delta. Nearly 100,000 people live in and around the delta, and the spectacular mosaic of wetlands, pools and dryland forests supports world-renowned wildlife populations and a \$350 million per year tourism industry. While evaporation from the proposed dam will decrease the Okavango's total annual flow of 10 billion cubic meters by only 1.5 million cubic meters – enough water for 5,000 Namibian households of five for one year – the dam could drastically alter the most important aspect of the delta's dynamic ecosystem, flooding.

Each year in April, the Okavango River floods its banks and stretches out across thousands of square kilometers of sandy grasslands dotted with wooded islands, transforming the parched landscape into a verdant oasis. Along with the annual floodwaters, the Okavango River brings with it tons of sediment, much of it sand from the

Angolan highlands. This reliable supply of sediment sustains the dynamic flooding in two ways. First, it keeps the channel bed relatively shallow in relation to the floodplains, which allows floodwaters to easily overtop the banks. Second, it causes many channels to alternately constrict and open over the years so that all areas of the vast delta receive flooding often enough to prevent the surrounding Kalahari Desert from permanently establishing itself. If the delta is deprived of sand, the main channels will erode below the floodplains too far to flood regularly. These eroding channels will not receive the sediment necessary for the periodic constrictions or blockages, thereby concentrating the floodwaters in a few permanent channels and depriving vast areas of life-sustaining floods.

As Okavango Delta expert Dr. T.S. McCarthy has written, "The importance of sediment to the dynamics and renewal of the Okavango Delta ecosystem cannot be overstated. As such, the construction of weirs or impoundments should not take place under any circumstances." ■

Congo River Water Eyed by Drier Neighbors

by Steve Rothert

The leaders of arid southern African nations are taking a serious look at the concept of piping water from the Congo River in the Democratic Republic of Congo (DRC) to make their dry rivers run and deserts bloom. Sapa news service reported that Botswana's Water Affairs Minister Boometswe Mokgothu said, "We need a lot of water in our country. Agriculture will come into force, wildlife will come up, and tourism will be revived" if water is diverted into Kalahari desert rivers such as the Nosob and Molopi; these rivers form part of Botswana's border with Namibia and South Africa, respectively. This year, the government of Namibia budgeted US\$50,000 to study the possibility of Congo River diversions, and is reportedly in negotiations with the DRC for access to Congo water.

Tapping the Congo River for use in Namibia, Botswana and beyond would require a pipeline system that is unprecedented in

sub-Saharan Africa in size, complexity and cost. The project would require pumping water through 1,000 kilometers of pipeline to the Angolan highlands, some 1,500 meters above the Congo River. The water would then be channeled into any of a number of rivers that originate in Angola, including the Okavango, which flows to Namibia and Botswana. The Okavango cannot deliver the water to areas where it is needed most, however. Namibians would have to pump the water again through a 250-kilometer pipeline that climbs 500 meters to an existing canal that could then deliver it to Namibia's capital, Windhoek. Botswana would have to pump the water at least 400 kilometers to the nearest agricultural area, or 700 kilometers to the capital.

This proposal faces several serious obstacles and raises numerous concerns. First, delivering water over such great distances and heights would render the water prohibi-

tively expensive. All told, capital costs would likely exceed \$1.5 billion, and the annual operating costs would top \$175 million, making the cost to consumers approximately \$2 per cubic meter – more than four times existing costs, and roughly equivalent to cost of desalinated water from the coast of Namibia delivered to customers in Windhoek. Second, as with any inter-basin transfer scheme, the project creates the danger of transferring aquatic plants and animals from the Congo River basin into other river basins, where they could proliferate at the expense of native species, or do other harm. Third, the DRC and Angola do not represent safe and stable countries in which to invest hundreds of millions of dollars or to depend on for a reliable supply of a critical resource. Although interest in the massive Congo pipeline seems greater than ever before, the scheme appears to be a pipe dream – at least for the foreseeable future. ■

Tanzanian Dam Sends Species to Brink of Extinction

by Elisabeth F. Olsen

The Lower Kihansi hydropower project on the Kihansi River in Tanzania is causing significant environmental damage, a newly released World Bank report reveals. The Bank's Environmental Review states that the project is destroying a unique ecosystem and eradicating several endemic species. The report is causing worries among project donors, who fear the project may violate their own guidelines, as well as the international Convention on Biological Diversity.

The Tanzania Country Director of the World Bank, in cooperation with the Africa Region Environment Group, decided to carry out an environmental review after the scientific community and NGOs expressed concerns that the dam's current operation would lead to severe and possibly irreversible species losses in the Kihansi Gorge.

The 180-MW dam, which officially began operating this July, destroyed an 800-meter-high waterfall, brought development to a protected natural area, and directly affected about 22,000 villagers. Financing for the US\$275 million project included a \$123 million IDA loan (IDA is the World Bank's lending agencies for the world's poorest countries), \$59m from Norway, \$29m from Sweden, and \$32m from the European Investment Bank.

The environmental review states that drying out of the river's wetlands from reduced water flow is seriously threatening the Kihansi spray toad and two rare plant species, both of which are endemic to the Kihansi Gorge. These species will go extinct if adequate mitigation plans are not carried out, according to scientists. Tanzania has ratified the international Convention on Biological Diversity, which means it has committed to conserving endangered species.

The World Bank report describes three alternatives for mitigating the damage from Lower Kihansi Dam, none of which is likely to stop the extinctions. The first option is to do nothing. The second option is to implement captive breeding of the spray toad, but the report says that the risk of extinction will remain very high. The third option is to increase the water levels released from the dam. Even if this option is chosen, the threat of extinction is still high.

The environmental problems are not surprising. The hydropower plant is situated in the mountainous Rufiji Basin, long known to hold unique ecosystems and high biodiversity. Even today, some of its ecosystem types and species of flora and fauna are yet to be identified or classified. Proper environ-

mental impact assessments were therefore of high importance for evaluating the dam. But project environmental evaluations have been defective from the beginning.

The Lower Kihansi Hydropower Project was initiated in 1990 by the World Bank and the Tanzanian government. The Bank investigated two dam alternatives and a natural gas project. The feasibility study led to the decision to pursue Lower Kihansi Dam. The environmental assessment only covered the most basic requirements, and only analysed impacts on habitat inundated by the reservoir. The area downstream of the gorge was not taken into consideration, and neither water rights nor dam safety was mentioned. The report did not identify any potential ecological impacts on the downstream Kihansi Gorge.

The Bank's Board of Directors approved the project in 1993. The Norwegian aid agency NORAD was asked to join the project in 1994. NORAD's technical review team found the World Bank environmental assessment of such poor quality that it decided to finance an Environmental Impact Assessment (EIA). This EIA was the subject of a 1995 public hearing in Norway, at which Norwegian scientific experts expressed several concerns, including the inadequacy of the report's data, lack of adequate water-discharge plans, lack of dam management plans, and the lack of consultation with local people. Many recommended that NORAD not support the project. The Norwegian Water and Energy Directorate nevertheless recommended NORAD support the project under the presumption that further environmental studies would be carried out.

During the new environmental studies, researchers discovered, in 1996, the Kihansi spray toad and two rare plant species endemic to the Kihansi Gorge. The spray

toad is only found within the natural spray area of that gorge. NORAD was immediately informed and decided to carry out a new environmental study of the endemic species, which is still underway. For unknown reasons, the Tanzanian parastatal that operates the dam was not informed about these developments until 1998.

Civil society groups inside Tanzania and internationally are now working to hold project donors responsible for the environmental problems in Kihansi. Friends of the Earth (FoE) US have written letters demanding donors react to the problems at Kihansi. In its response, the World Bank de-emphasized environmental problems, and claimed that the spray toad is not really in danger of being exterminated. It also says that water releases will increase in the future, but the proposal for such releases is far below the minimum required, according to experts.

FoE's letter to NORAD prompted a debate in Norway, both publicly and internally at NORAD. The main concern internally was reportedly how to save the endemic spray toad to avoid transgressing the International Convention on Biological Diversity.

The Norwegian NGO FIVAS has criticised the environmental planning at Kihansi from the beginning, and advised NORAD not to engage in the project. FIVAS also recently wrote NORAD, pointing out that the environmental problems in Kihansi are far bigger than the threatened species, and urging mitigation measures that address the full range of problems, not just those affecting the spray toad. ■

The author is a member of FIVAS (Association for International Water and Forest Studies).

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New Dam Approved for Cape Town

The South African Ministry of Water Affairs and Forestry has approved the construction of Skuifraam Dam on the Berg River, about 50 kilometers from Cape Town. The dam wall will be almost a kilometer long and 60 meters high. Dam operators will release 43 million cubic meters per annum in average years and 19 million in drought years in attempts to mitigate impacts to the ecological system. About 4 sq. km. of river habitat would be flooded. Environmentalists have raised concerns about the schemes' impact on the Berg River estuary, an internationally renowned wetland and birdlife habitat.

The government had previously maintained that the dam would not be approved until the Cape Metropolitan Council ("CMC", the regional government) had developed a comprehensive water conservation and demand management program as Cape Town's neighboring city of Hermanus did in the mid 1990s. To date, however, the CMC has implemented only rising block tariffs and public education campaigns to achieve its modest goal of reducing consumption by 10 percent by 2010.

Children Help Revive River in Siberia

by Maria Cherkasova

A small dam was recently removed on Russia's Khotuya River, after an eight-year struggle led by a small environmental group called "Ecoclub" and the Yakut people of Siberia.

Ecoclub compiled information from several years of expeditions on the Khotuya River, and by 1996 had convincing evidence supporting their case for decommissioning and removal of an 8-meter-high dam, which was constructed for "land reclamation" purposes. The small structure was the cause of significant problems, including stagnant waters, and the deterioration of forest, meadows, and hay-harvesting lands.

Children from Ecoclub collected signatures from the local population demanding removal of the dam. Finally, the authorities examined the dam together with club members, resulting in a 1997 decision by the authorities to remove the dam and return the river to its natural state.

In its work to document problems caused by the dam, Ecoclub members gathered water

samples and did other research. The greatest attention was paid to the collection of the indigenous people's nature conservation traditions, including their songs and stories. Teaching the children the native culture is an ever-present component of Ecoclub's work. No important work is done without a traditional ceremony, a small sacred fire, where the food for the Spirit of Fire is offered. This may be a simple cup of milk.

The authorities were slow to begin removal of the dam, so Ecoclub decided to start the removal themselves. Before they began working, lightning struck the sluice gates, burning them. The decommissioners from Ecoclub pulled out the burned wooden gates, releasing the first water from the reservoir.

In 1998, another expedition of Ecoclub gave children the opportunity to study the changes in the natural environment, which occurred after the partial dismantling of the dam. Spring waters cleaned up the gap and the results surpassed all the expectations. In a meadow, newly free from the reservoir's

water, bright green healthy grass was found, and big orange lilies were growing. Even old people had forgotten about such flowers. The river Khotuya had started to return to its old bed, which had been dry for several years. On the banks one found happy children. There is no more smell of decay, and the forest is full of life. In the autumn the removal works continued; again, the volunteers were responsible for the progress.

In July 1999, the authorities promised to financially support the work of Ecoclub, and agreed to "study the possibility of creating a special area on the Khotuya River for the study of restoration of the natural environment at the area of the drained water reservoir." ■

The author is director of the Center of Independent Environmental Programs. This article originally appeared in "Beregina," January 2000. Translated by Fedor Krylov.

Removing Dams to Restore Wetlands in Czech Republic

by Mojmír Vlasín & Elizabeth Brink

A 10-year struggle to restore vital wetlands in the southeast Czech Republic is currently in a crucial phase. Since 1991, local NGOs have been campaigning to decommission three small dams that impound thousands of acres along the Morava and Dyje rivers. Conservation groups have succeeded in securing restoration of part of the affected area. The Czech Ministry of Agriculture is currently making decisions that could reverse this positive trend.

South Moravia is the home to extensive marshes, oxbow lakes and the largest remaining fragments of hardwood floodplain forest in Central Europe. Originally a continuous complex of floodplain habitats along four rivers, today it no longer experiences annual flooding due to dams, channelization and agriculture. The watershed supports numerous species of rare plants, and is an important habitat for migratory birds. There have been many proposals to make the area into a national park.

Between 1969 and 1989, a scheme of three dams was completed on the Morava

River. Although the Nove Mlyny dams are only 2-9 meters high, due to their location on flat plains, 1,300 acres were covered by water. A small village, "Musov," one of the most important ancient Roman sites in the Czech Republic, was completely inundated when the reservoirs filled, leaving only one small church above water. Archaeological evidence suggests that the Roman camp may have dated as far back as the first century AD.

Ramsar Site

The broader region surrounding the reservoirs was designated by the Ramsar Convention as a wetland of international importance in 1993. The Ramsar listing obliges the Czech government to take all steps necessary to ensure the maintenance of the site's ecological character.

A major campaign to decommission two of the three dams was launched with a demonstration of 3,000 local citizens in 1991. After more than three years of negotiation between state authorities and non-governmental organizations (NGOs) it was

agreed that two of the reservoirs would be partially drained. The water level was lowered in 1995, and it was determined that the situation would be re-evaluated in approximately five years.

This year, environmental NGOs such as the Ecological Institute Veronica and the Union for the Morava River assessed the formerly inundated areas, and determined that revitalization and natural succession is possible and rapid when reservoir beds are exposed. For example, 18-foot-tall trees can be found in areas that were covered by water only five years ago.

Now the situation is crucial because the five-year trial period is ending. Sustained pressure from the national concrete lobby, which fears that any momentum toward decommissioning will lead to removal of all dams, is providing formidable opposition to the groups fighting to restore the wetlands.

This year, the Czech government will choose between the following possibilities: decommissioning one or more of the dams,

continued opposite

Reversing a History of Devastation in Florida's Everglades

Dam Decommissioning May Be Cheaper, Easier Than Army Corps Plan

by Elizabeth Brink

In 1948, the US Congress instructed the Army Corps of Engineers to regulate the flow of water through the Florida Everglades, and the Corps did it well. It routed the region's slow-moving rivers through a maze of canals and levees and pumps, redirecting billions of gallons of fresh water from sawgrass prairies and cypress swamps to the businesses and residents of South Florida. This feat of engineering led to the devastation of the Everglades' ecosystem, bringing 68 plant and animal species to the edge of extinction.

Recently, decades after the damage was first revealed, the Corps unveiled a \$7.8 billion plan to redistribute the region's water again. The project is being billed as the most ambitious environmental restoration effort ever, but a shadow looms over the restoration plan. Some of America's most prominent scientists and environmentalists believe it will not restore the Everglades.

Critics call it an overly political plan, with too many water guarantees for sugarcane growers and local residents, and hardly any for the environment. They call it an over-engineered plan, reflecting the Corps' unceasing desire to micromanage nature with elaborate structures, and contend that simply removing key structures would re-create a much more natural hydrological regime for much less money. These concerns come at a time when old criticisms about the Corps are re-surfacing in new ways.

As early as 1836, the House Ways and Means Committee was exposing "useless" Corps construction projects. In 1951, US Department of the Interior Secretary Harold Ickes called the Corps "the most powerful and most pervasive lobby in Washington," describing the agency as it lawless and irresponsible. In the 1970s, the dawning of the environmental movement led to a growing chorus of critiques against the agency. Today, the Corps' approach to river management is based more on ecological science

and less on concrete interventions, but its results are mixed.

In the Everglades, the agency intends to build elaborate new structures to engineer water instead of simply eliminating old structures and letting nature take its course in restoring the troubled wetlands. One example is the Corps' plan to build hundreds of 1,000-foot-deep aquifer storage wells. This plan involves injecting more than one billion gallons of fresh water a day into these deep wells, to be pumped back up to the surface as needed (a highly energy-intensive proposal, among other criticisms of it). This is just one of a number of controversial schemes proposed by Corps engineers.

Environmentalists are delighted that the agency is attempting to restore ecosystems and create new wetlands, but they are dismayed that it is still pushing huge projects that damage ecosystems and drain wetlands. Conservationists fear that the Corps may be too political and insufficiently ecologically minded to do major environmental projects right and that its efforts could give restoration a bad name.

But in at least two cases, the Corps is making strides toward a simpler approach to restoration. In partnership with local and state agencies, the Corps is helping remove dams that feed the Everglades. One dam was recently removed to allow the Kissimmee River to flow more freely, and another dam on the Ocklawaha may follow suit. It is not clear if the Corps will continue to move away from its engineering bias and fully embrace a "deconstructionist" approach, but it is a start.

Taking Dams Down

A thunderous red-and-yellow flash sent chunks of concrete hurtling through the air on the Kissimmee River this June, signaling the destruction of an eight-foot-high dam, one of the last vestiges of an elaborate river-engineering scheme that many say was Florida's worst environmental mistake. Workers

dynamited the structure as part of a \$500 million restoration of the Kissimmee River, which feeds the northern reaches of the Everglades.

About 40 years ago, in an effort to provide flood control for developing residential and business areas in Central Florida – which was eventually to include Walt Disney World – the Army Corps of Engineers turned 56 miles of the meandering Kissimmee River into a 30-foot-deep, 300-foot-wide canal, destroying as much as 35,000 acres of wetlands. The dam removal and related wetlands restoration is expected to reduce the amount of harmful agricultural runoff going into Lake Okeechobee by about 20 percent, and to increase the amount of habitat for 320 species of fish, birds and other wildlife.

"The bottom line is that real rivers don't have dams, they don't have water-control structures, they don't have locks," said Lou Toth, project scientist, a consultant for the South Florida Water Management District. "We are getting rid of all three of those to allow the river to have an opportunity to heal itself."

Florida Governor Jeb Bush announced in July that he now supports the solution that conservation organizations have been advocating for years – tearing down Rodman Dam to restore the Ocklawaha River.

This was the only choice the governor could make, said Bob Sparks, a spokesman for the state Department of Environmental Protection (DEP). Fish kills in the 1980s wiped out more than 10 million fish, and the 43-foot-high dam is also a hazard for endangered manatees, which are crushed in its locks. Ripping out the dam will cure those ills, say river activists, who contend the river will largely restore itself. "Sometimes you have to yield to nature and realize that it's dynamic," DEP Secretary David Struhs said Friday. "That means removing the dam." ■

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retaining current water levels for five more years, or raising the reservoir to the former level. None of the water stored in the reservoirs is used for irrigation, and the region currently has a surplus water supply. However, national public perception seems fixed on the premise that additional water may be

needed to fuel future economic prosperity. The Ministry of Agriculture is likely to return the reservoirs to their former level, claiming that the water may eventually be needed for irrigation.

Czech conservation groups are calling on the international community to support

decommissioning of the Nove Mlyny and to protest raising the reservoirs to their former levels. For more information on how to help, please visit www.riverrevival.org. ■

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Snapshots continued from page 9

giving farmers more say in their own affairs, and promoting the private sector. The slogans sounded good; and seemed in line with what the Federation was doing. But it gradually became clear that this was not the case. Only the private sector was good, and it did not include peasant farmers. SAED's only construction work during the 1980s was for local politicians and civil servants. USAID brought in private consultants; they did not work with the Federation.

While the dams were being built, SAED's plans for expanding irrigated farming fell into big trouble. As structural adjustment began to bite, peasant farmers, who were unprepared for its financial hardships, began to lose their grip on irrigation. They coped either by reducing expenditures, even at the costs of lower yields; or by emigrating in search of work. In some cases, farmers bought inputs with cash advances from wealthier people, and repaid these advances in kind after harvest, at less than the official price – a disguised form of share-cropping which allowed outsiders to invest in irrigated farming without having been granted land. In the end, people sold their plots of land, or simply gave up irrigated farming.

Some of the most successful schemes were initiated by former SAED cadres who benefited from their connections to gain access to land and financial support. But many of the private schemes were hastily built and ill-conceived.

Snapshot 4: 1990

The river bank, early morning. Something seems to have happened to the river: a group of women are staring down at a blank expanse of black mud.

It seemed clear to us that one way of helping peasant farmers to remain in irrigated farming was to use irrigation as a complement to other forms of farming. In the Bakel area, with improved rainfall, rain-fed farming remained a risk worth taking; but flood-recession farming was another story. Something unprecedented began to happen: one could wake up one morning to find that Diama Dam had been opened, and the river drained overnight like a bathtub. People would despairingly rush to plant their maize, beans, calabashes and pumpkins, only to see much of their work destroyed by an unexpected release of water from Manantali.

Diama was completed in 1986, and Manantali in 1988. Both dams were inaugurated during a period when irrigated farming encountered increased difficulties: massive unpaid debts, an ecological disaster in the making in the delta, irrigation schemes lying

abandoned. Yet during the dams' first years in operation, at a time when there was every reason to supply an artificial flood to ensure a certain degree of food security, OMVS broke its promise, year after year.

A more agreeable snapshot from this same period would have been the same courtyard as in Snapshots 1 and 2, with a party dining on roast mutton. The guests would include an American woman named Muneera Salem-Murdock. She headed a team from the Institute of Development Anthropology (IDA) which in 1987 began the Senegal River Basin Monitoring Activity. This research demonstrated, among other things, that flood-recession crops offer a better return on capital and labor than irrigated farming, while reducing risks. It successfully defended the idea that a permanent artificial flood from Manantali, which would raise the river to the level achieved by a natural flood, was justified by the increased production, income and work it would provide, while also protecting the environment. The research also revealed that, contrary to what OMVS consultants had claimed, there was no incompatibility between controlled flood releases and the production of electricity. IDA's research would henceforth be an essential reference point for discussions of the future of farming in the Valley – except those conducted by the official river development agencies.

When IDA's results were presented at a seminar in Dakar, in November 1990, they were favorably received by the Government of Senegal, which had just drafted a Master Plan calling for a permanent artificial flood. However, the then High Commissioner of OMVS stated that IDA's research was an affront to the authority of OMVS, which alone was entitled to decide how to use the water in Manantali. Indeed, IDA was told by OMVS staff that it was "dangerous" even to ask questions about the artificial flood, as that might give farmers the idea that they were entitled to it.

Snapshot 5: 1997

A large hall filled with several hundred people. Most of those in the front rows are wearing Western dress, often the khaki tenue of Senegalese administrators; most of the others are wearing traditional robes. A man in traditional robes has the floor; he is addressing some people seated at a table facing the audience.

The Groupe de Réflexion Stratégique (GRS), an independent think-tank attached to the Ministry of Agriculture, had con-

vened a meeting in the Middle Valley to inform the inhabitants of the conclusions of its report on river agriculture. A number of farmers and pastoralists spoke: their main themes were an ardent desire to see flood-recession farming and grazing revived, and great anxiety about indebtedness from irrigated farming. Because their preoccupations were mirrored in the GRS report, they were dismissed as hired agitators; the organizers of the seminar, including myself, were attacked by the Prime Minister and the Minister for Agriculture. The GRS was dissolved shortly thereafter.

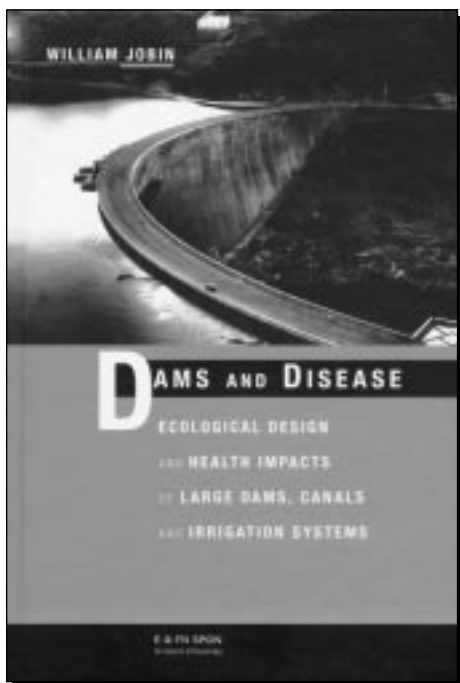
A valley-wide union of farmers' associations in 1992 issued a manifesto which, among other things, asked the authorities to regulate the artificial flood in such a way as to favor flood-recession farming and the reproduction of river fish, and to take into account all possibilities for developing the land, not just irrigation. They received no reply.

According to SAED's own statistics, the total area laid out for irrigation on the Senegalese bank of the river was 71,751 hectares in 1995; but the area actually farmed that year was just 29,792 hectares. Under the headline "30 thousand hectares are being farmed in the River Valley, out of a potential 240 thousand hectares," a Dakar newspaper in 1998 quoted a minister as saying: "If peasant farmers aren't capable of cultivating those 240 thousand hectares, other people will have to be allowed to do so; and that implies solving the land tenure question."

Thus, the Government still refuses to acknowledge that its agricultural policy for the Valley is in deep trouble, let alone to amend it to take account of reality. There is no way forward. During the 1990s, several projects were put forward which relegated agricultural development in the valley to the background. The Manantali Energy Project is due to install hydroelectric turbines to supply Dakar, Nouakchott and Bamako with electricity. The World Bank, which is funding the project, has stated that provision will be made for flood releases, in the interests of downstream farmers. But there seems, on precedent, little reason to believe that.

The Director of SOGEM, responsible for supervising Manantali, said recently: "We will have to provide both a constant supply of electricity and water for farmers in the valley. This necessarily means a shift from traditional to irrigated farming, for the sake of regional food security. The dam offers magnificent economic opportunities, both for agriculture and energy."

Will they never learn? ■



Dams and Disease: Ecological Design and Health Impacts of Large Dams, Canals and Irrigation Systems, by William Jobin (E&FN Spon, London, Routledge, NY, 1999).

This long (nearly 600 pages) and highly technical book fills an important void in the small library of dam literature. Based on the assumption that water projects should not make people ill, *Dams and Disease* reveals how large-scale water projects have in fact worsened health problems in poor communities around the globe, especially in the tropics. Malaria, schistosomiasis, river blindness and other tropical diseases have all increased in this century because of large water projects, and usually in places ill-equipped to handle additional health problems.

Peppered with technical information intended for experts working on water projects – covering, among other things, how to calculate deaths from various diseases, and “the seven laws of Bilharzia control” – this book is not for the average reader. But it is invaluable for its careful history of the world’s disease-causing water projects and its recommendations for change.

The author proposes strengthening the UN agencies that deal with water and health, and fundamentally rethinking project design at dam-building agencies such as the World Bank. “World Bank water projects have come to represent the worst in

unhealthy and socially destructive enterprises. There must be a better way,” the author states.

Specifics on how to improve water projects range from the simple, such as requiring the World Bank to use World Health Organization experts to evaluate its projects rather than private consultants hired by corporations, to the more complex, as detailed in a “ten step” program for designing healthy water projects.

One of the book’s case studies highlights a particularly egregious World Bank project, the Manantali Dam on the Senegal River (see page 8, this issue, for more on this project). The author describes the Bank’s machinations to push the project forward despite its implications for thousands of downstream residents, who would not only lose their livelihoods but also be exposed to much greater chances of contracting a host of deadly diseases. The project was approved by the Bank with a small health budget. Once implemented, it is expected to result in the deaths of 8,500 people a year due to changes in the river’s ecosystem. This project, Jobin writes, “illustrates one of the most tragic examples of narrow-minded planning in Africa. Some of the worst aspects of the development were championed by the World Bank.”

A final note: Although “Acknowledgements” are rarely of much interest to anyone not mentioned in them, this book offers something unique – it “acknowledges” not just people, but important rivers in the author’s life, including a life-changing walk across Alabama’s Selma River in 1964 with Dr. Martin Luther King and 10,000 other civil rights marchers.

Dubious Development: How the World Bank’s Private Arm is Failing the Poor and the Environment by Friends of the Earth (Washington, DC, September 2000). Available free for downloading as a “PDF” file from www.foe.org.

This new report details how the World Bank’s private sector lending arm, the International Finance Corporation (IFC), is not just failing to fulfill its mission to alleviate poverty, but is better known for bankrolling the interests of corporations. One of the key reasons for this disconnect, the authors argue, is that “IFC is focused more on economic growth than the quality of growth. Achieving development requires more than

increasing growth rates or income levels.” *Dubious Development* cites IFC’s taste for funding luxury hotels and bottling plants as evidence that the agency’s projects don’t benefit the poor, and its investments in natural resource extraction and fossil fuel development (such as the Chad-Cameroon pipeline) to show how it is harming the environment. The report also recommends that IFC cease financing companies with poor environmental and social records until they change their practices.

The authors call on the IFC to adopt a “development screen,” or a set of criteria that would steer it toward projects that will enable it to meet its poverty alleviation goals while safeguarding the environment. Such a screen, the report argues, would be based on clear development objectives and “would provide criteria for evaluating whether or not projects will contribute positively to development.”

The concept for a development screen is based on the experience of the socially responsible investment community. This method considers a potential investment’s social and environmental impact in addition to expected financial performance. The group recommends that the IFC develop its screen through a “participatory process that seeks input from a variety of stakeholders and civil society.” The report includes criteria that could be included in a screen for IFC projects.

HOT LINKS

American Energy Use Drops

A new study by the American Council for an Energy-Efficient Economy (ACEEE) reveals that energy use in the US fell 42 percent between 1970 and 1999, and carbon emissions per unit of gross domestic product fell by 47 percent. The study, “**National and State Energy Use and Carbon Emissions Trends**,” shows that progress throughout the country is uneven. “The best states (Hawaii, New Mexico, Arizona, California and Utah) cut their energy use per capita about 10-20 percent during 1970-97. The worst states, including Alaska, North Dakota, Maine, South Carolina and Kentucky, saw their energy use per capita rise 30-90 percent during this period,” the study reports. The main reason for the discrepancies is energy prices, but other factors play a role too. The report is available at: <http://aceee.org/pubs/e001.pdf>