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Deserted in the Desert

A Firsthand Account of a Visit to a Sudan Dam's Resettlement Site

by Peter Bosshard

The Nubian desert in the North of Sudan is a barren place. Rock, sand and shrubs are the only things the eye can see. Suddenly, the road crosses a narrow irrigation canal. Near the canal, a group of houses in closely packed, regimented lines emerges. We have reached the settlement of El Multaga. More than 800 families have been moved here from the fertile Nile Valley to make way for the Merowe Dam project.

The US\$1.8 billion Merowe Dam is the largest dam project currently being built in Africa. The 67-meter-high dam will create a 174-kilometer-long reservoir that will displace about 50,000 people. The main purpose of the project is to generate electricity for Sudan's cities and the petroleum industry. It is being built by Chinese companies. European companies Lahmeyer (Germany) and Alstom (France) are also involved.

At meetings in Khartoum, Sudanese government officials urged us – Nicholas Hildyard from the Corner House, a British advocacy group, and myself – to see the resettlement site with our own eyes. "Life at El Multaga is getting better every day," Mutaz Musa Abdalla Salim, the finance director of the Merowe project authority, claimed when we met with him.

Farmers in a Squeeze

The situation at El Multaga is in stark contrast to the official pronouncements. The soil is so poor that even with irrigation, the farmers can't sell their produce on the markets. On the other hand, they have to pay for fertilizer and electricity to power the irrigation pumps – services that the annual floods of the Nile provided for free at their previous homes. So the farmers are in a financial squeeze. In less than two years, the poverty rate in El Multaga has increased from 10% to 65%, one of the village leaders explains. Many people now rely on religious

charity – something these proud and independent farmers have never experienced before.

In the next two years, the project authorities plan to resettle 40,000 more people for the Merowe Dam, and mostly to places that are even more desolate than El Multaga. The situation is likely to turn from bad to worse.

The demands of the affected communities are modest. "If this project is really beneficial to the Sudan and there is no other alternative option," community leaders explain, "then let us accept the idea, but under the following conditions: our full rights in just compensation for our property, and resettlement in areas which we willingly propose and accept, must be fully honored by the government." The farmers demand that the project authorities engage in negotiations about all their grievances, and provide free basic services and food security until their sandy plots become productive.

However, the project authorities refuse to negotiate with the representatives of the affected communities. They have responded to popular protests with police violence and arrests. "Our own government is treating us like adversaries," one of the displaced farmers says bitterly.

Other dams on the Nile have had serious impacts on the environment. Their reservoirs have silted up, and have withheld valuable nutrients from agriculture and fisheries



Representatives from some of the communities resettled for Merowe Dam.

Photo: Nick Hildyard

in the downstream areas. According to Sudanese law, an environmental impact assessment must be conducted for every investment project, and must be certified by the Ministry of Environment. In the case of the Merowe Dam, this has not happened.

A Test Case

On January 9, the Sudanese government and the armed opposition movement of South Sudan signed a peace agreement that will hopefully bring an end to 40 years of civil war. Foreign governments and international organizations are expected to reward the peace agreement with a multi-billion-dollar aid package. After decades of political and economic isolation, Sudan will also once again be open for business to Western investors.

Sudan has a big need for infrastructure. Western donors plan to spend more than \$500 million on a rapid reconstruction program in the electricity sector. Among other things, they will assess four potential

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Reflections from IRN's new Executive Director

My commitment to water and energy justice began in 1992 when I traveled to India's Narmada valley for the first time. I was inspired by the integrity, commitment and intelligence of those resisting the Narmada dams, and horrified at the dishonesty and callousness of those pushing the projects. Since then I have learned much about the problems with big dams and the huge potential for better energy and water management, but my inspiration stays the same – to support honesty, compassion and reason against lies, abuse of power and greed.

I'm deeply proud of IRN and the global network of activists to which we belong. IRN has helped nurture an effective global movement pushing for just and sustainable water and energy management. The rate of big dam construction has fallen sharply in recent decades – in large part thanks to our collective efforts.

Our work to oppose destructive dams and propose better options addresses one of the most critical questions facing modern society: how can we meet global water and energy needs without destroying the planet?

We are still far from this goal. Ecological sustainability and social justice demand drastic changes in energy and water practices, policies and institutions. Yet there is a concerted effort from political and corporate vested interests around the world to reinforce the status quo.

The big dam lobby is co-opting the language of concern for the poor and the environment. India, China and Brazil, with approving nods from the World Bank, are pushing for a new generation of dam-and-diversion megaprojects. The International Hydropower Association is trying to convert support for renewable energy into subsidies for large hydro.

International agencies and some governments continue to push privatization despite more than a decade of experience showing that the private sector will not and cannot meet the energy, water and sanitation needs of the poor.

The choice of US deputy defense secretary Paul Wolfowitz to head the World Bank sent a chill down the spine of advocates for global justice. Many now fear that a bad institution may get much worse.

But these threats only highlight the vital importance of the work of IRN and the broader movement to which we belong. And while the forces of injustice and destruction may often seem unstoppable, there are reasons for hope, and levers we can pull to advance our mission.

The global development industry now expresses strong backing for the UN's Millennium Development Goals (MDGs). Civil society pressure for debt relief and increased aid may finally be on the brink of bearing results. Support for the MDGs shows widespread recognition of the shocking failure of our societies to meet the basic needs of billions of our fellow citizens.

The challenge for water and energy activists is to convert the rhetoric of support for the MDGs into projects and programs that promote the rights-based approach to development championed by the World Commission on Dams. Implementing the WCD's approach would go a long way to ensuring that new water and energy infrastructure really does meet the needs of the poor. At the same time it is imperative that we prevent the World Bank and other donors from using the MDGs as a smokescreen for pouring more money into counter-productive mega-infrastructure projects and privatization policies.

The recent entry into force of the Kyoto Protocol shows widespread acceptance of the need to take action on global warming (although we need to do much more than the modest Kyoto-mandated emission cuts). Concern over global warming is building momentum for the implementation of clean, renewable energies. Awareness that a changing climate will worsen floods and droughts is building support for water conservation and sustainable water management.

The decentralized approaches to energy and water management and participatory politics promoted by IRN can help slow global warming and lessen the social impacts of climatic changes. But, as ever, there is another side to the coin. We must challenge efforts to use climate change as an excuse for building more destructive dams, and to use carbon trading to avoid emission cuts.

Self-interest, greed and misguided ideologies will always be with us, blocking progress to a better world. But with the support of our members and funders, and together with our colleagues in civil society groups around the world, we will do all we can to progress toward our ambitious goal of a socially just and environmentally sustainable world.

Patrick McCully

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Corruption Report Shines Light on Dams and Construction Industry

by Lori Pottinger

A new report by the international corruption-fighting group Transparency International (TI) focuses on corruption in the construction industry, and calls attention to a number of large dam projects. *The Global Corruption Report 2005* includes detailed assessments of the state of corruption in 40 countries, and describes the findings of the latest research into corruption and ways to combat it.

The list of specific corrupt projects singled out for special attention in the report include the following large dams:

- Africa's Lesotho Highlands Water Project (LHWP), which involved US\$2 million in bribes by a dozen international dam-building companies.
- The Yacretá hydropower project on the border of Argentina and Paraguay, built with World Bank support. According to the head of Paraguay's General Accounting Office, \$1.87 billion in expenditures for the project "lack the legal and administrative support documentation to justify the expenditures."
- The Bakun Dam in Sarawak, Malaysia resulted in 10,000 people being forced to move for the project while it was still on hold for lack of funding. The contract for the project, which would submerge 700 sq. km. of tropical rain forest, went to a timber contractor and friend of Sarawak's governor who has never before developed an energy project. The government is still looking for customers to consume the power to be generated by the project.
- The Bujagali Dam in Uganda, which was cancelled by the World Bank after a bribe by a subcontractor to Uganda's energy minister was discovered. The project was not subject to competitive bidding. (Bujagali is now being revived by the Ugandan government, with a lack of transparency in the process, local NGOs say.)
- The Jatigede Dam on the Cimanuk River, Indonesia, which will drown 30 villages and displace around 41,000 people. Construction is expected to start this year. Experts argue that the dam is not needed.

The TI report says bribery is "ingrained" in the construction industry, swallowing \$300 billion a year. Bribery is so prevalent in this industry in part because the infrequency of large construction projects makes each

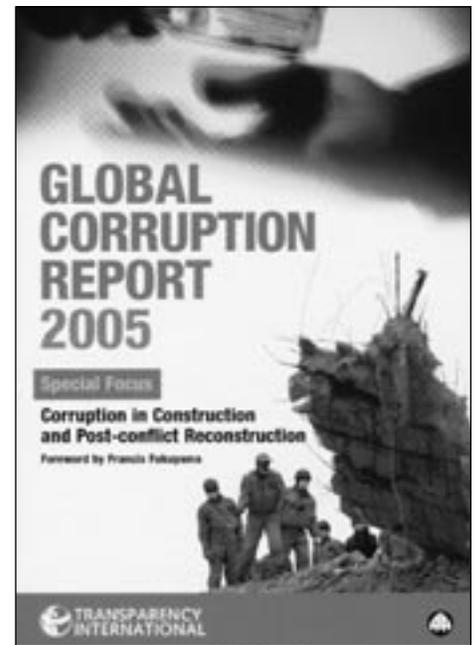
one inordinately important for its lucrative, long-term contracts and thus creates incentives to bribe. Other reasons include the size and complexity of large projects, the large number of people involved in them, and the uniqueness of each project, all of which make it more difficult to compare costs and easier to hide bribes; and the industry's culture of secrecy.

Lessons from LHWP

A section of the report devoted to the Lesotho dam project begins, "Even while the court trials are still continuing, enough has already been established to make the Lesotho Highlands Water Project (LHWP) one of the most prominent cases of international bribery ever. In a small and very poor country, several major international construction companies have been taken to court and dealt with resolutely. The case sets many important precedents, not only for the legal pursuit of such cases, and for how international financial institutions (such as the World Bank) respond, but also in the wider message that it sends out: companies that bribe to win international business risk punishment and blacklisting, irrespective of where they commit the crime."

Currently, the Italian firm Impregilo is facing charges in the LHWP case; the company's trial is slated to begin in April in Lesotho. Previously, the German firm Lahmeyer and the Canadian firm Acres International were found guilty of bribery in the case. In July 2004, the World Bank debarred Acres from Bank contracts for three years.

The TI report commends the World Bank for its action on the Acres debarment (which marks the first time a large company has been blacklisted by the Bank), but points out that the Bank risks a major increase in corruption under its plan to develop more large infrastructure projects under its new "high risk, high reward" strategy. TI recommends that the Bank take steps to "mainstream" corruption with the following measures: "staff incentives that reward corruption-free projects; rigorous corruption risk assessment throughout project cycles; and extending the commitment made by the World Bank with regard to the extractive industries sector (to refuse support to new investment 'where the



risks are deemed too great and cannot be mitigated') to all sectors, including infrastructure." It also recommends greater disclosure and transparency and an increase in public participation. "Oversight would be enhanced by the publication of documents throughout the project lifecycle, including audit reports, all contracts between government and contractors and subcontractors, and full details of the bidding process on Bank-backed projects ... Citizen participation in project design and in oversight committees would help reduce opportunities for corruption," states the report.

IRN's Peter Bosshard, who contributed to the report, notes that "sunlight is the best disinfectant" for corruption. "Complete transparency is needed to discourage fraudulent practices in the process of assessing the needs and options of infrastructure development. Parliaments and civil society organizations must hold governments and financial institutions accountable for their decisions even during the early planning stages of infrastructure development," he states. ■

The new corruption report is available from <http://www.transparency.org/>
For more on the corruption case in Lesotho, see <http://www.irn.org/programs/lesotho>

Xingu Dam Project Not Technically or Economically Feasible, New Report Reveals

by Glenn Switkes

In the most in-depth study undertaken to date on the potential impacts of dams on the Xingu River in the Brazilian Amazon, an independent panel of experts has cast new doubts on the feasibility of official plans for exploiting the Xingu's hydroelectric potential. The study (in Portuguese), "Tenotã-mõ: Warnings on the Consequences of Hydroelectric Projects on the Xingu River," will be published in Brazil in April. The study's 13 chapters analyze the legal, human rights, environmental, social, and economic implications of hydroelectric projects planned for the Xingu.

Antonia Melo of the Movement for the Development of the Transamazon and Xingu (MDTX) says, "The people have been kept in the dark, manipulated and harassed by Eletronorte. This book will help to mobilize public opinion against the damming of the Xingu."

The original plan for the hydroelectric exploitation of the river basin, carried out in the 1980s, projected five huge dams on the Xingu, and another on the Iriri, a tributary of the Xingu, with a total installed capacity of nearly 18,000 MW. These six dams would flood nearly 20,000 sq km of rainforest, equivalent to half the areas flooded by all dams built in Brazil until now. A good part of these two million hectares of land are riverine ecosystems, and included are a significant group of indigenous territories, many officially protected and others still not officially recognized.

The Xingu is one of the most powerful rivers of the Amazon, but it has a highly variable stream flow, varying from 450-500 cubic meters per second or less during low-water periods, to upwards of 25,000 cubic meters per second during the rainy season.

State electric company Eletronorte says that, for now, it is only planning a single dam on the Xingu, called Belo Monte. A fundamental conclusion of the new study is that Belo Monte, a run-of-river dam originally projected to have an installed capacity of 11,182 MW, will generate only a small fraction of that capacity during 3-4 months of the year, likely making it unfeasible without a large, upstream reservoir to regulate stream flow. This upstream project, called Babaquara, would create a reservoir of 6,500 sq. km. in the rainforest. New feasibility studies for Babquara are currently underway.

Long, Troubled History

Belo Monte has run into trouble before. Protests by indigenous leaders and their supporters, both in Brazil and abroad, culminated in a famous incident known as the "encounter of indigenous peoples of the Xingu," which took place in Altamira in 1989. During this encounter, Kayapó and other indigenous leaders, accompanied by international notables such as rock star Sting and cosmetics magnate Anita Roddick, demonstrated their categorical opposition to dams on the Xingu. The protests, as well as visits to the World Bank and other potential project financiers, succeeded in shelving the original project.

Eletronorte, whose past record on large dams includes social and environmental disasters like Tucuruí and Balbina dams, in the 1990s announced a "new" engineering model for the Belo Monte project.

However, Eletronorte's Environmental Impact Assessment for the project, awarded without competitive bidding to a Pará state agency, was ruled illegal by Brazilian Federal courts after it was filed with state environmental authorities, and the project was suspended. The most serious obstacle Eletronorte encountered was the courts' confirmation that even the new design would impact the Juruna and other indigenous populations, who enjoy guarantees of their rights under the Brazilian constitution. The project is still legally barred today, but Eletronorte has insisted it plans to go ahead with the project, and the Lula government has spoken in glowing terms of Belo Monte's potential for solving the country's energy needs.

One of the most serious impacts of the project's latest engineering design is that, rather than drowning indigenous lands, the



A Xingu tributary

Photo: Pedro Martinelli

Eletronorte insisted the new model would result in just one dam being built on the Xingu, and that the project would flood "only" 440 sq. km, instead of the originally designed 1,200 sq. km. reservoir, thus sparing the Paquisamba indigenous reserve of the Juruna people.

dam threatens to dry them out. The Juruna reserve and the land of some 400 other indigenous people, in addition to riverbank dwellers and small farmers, would be severely affected by Belo Monte's construction. In order to maximize the volume of water channeled to the powerhouse, the Pimentel dam

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Indigenous girl, Big Bend of the Xingu.

(part of the Belo Monte complex) would divert nearly all the water which normally flows through the Big Bend of the Xingu River, reducing what Eletronorte has termed the “ecological flows” to between one-quarter and one-half of historic lows. This would have drastic effects on water quality and supply, vegetation, fish, navigation, and human health in the Big Bend area.

In addition, some 16,000 people would have to be relocated if Belo Monte were built, according to Eletronorte. Tens of thousands of migrants would come to the region in search of work, more than doubling the regional population. Vast areas of nearly intact surrounding forests, now in the process of being combined into one of the world’s largest mosaics of natural reserves, would certainly be deforested, according to Tarcísio Feitosa da Silva of the Pastoral Land Commission. “It’s still possible to protect this region, with its forests being used in a sustainable way by families and communities, with a minimal impact on the environment,” da Silva writes.

Bad to the Last Drop

The coordinator of the Xingu experts’ panel was Oswaldo Sevá of São Paulo State University at Campinas (Unicamp). According to Sevá, “Eletronorte continues to disseminate information designed to sell a project which they still have not managed to make economically and technically feasible. We hope this book will make their true intentions obvious, which is to eventually dam the Xingu to exploit every last drop of its hydroelectric potential.”

The University’s electrical energy laboratory carried out a simulation of Belo Monte’s generating capacity with the Hydro-lab model, using actual stream flow data covering a 65-year period. The modeling

found Belo Monte’s generation would decline to about 1,356 MW during the low-water season, compared with Eletronorte’s contention that Belo Monte would have a “firm” generation of 4,700 MW. Only by building Babaquara or a combination of Babaquara and other upstream dams could Belo Monte’s assured energy generation be raised to this level.

Robert Goodland, one of the founders of the World Bank’s environment department, provides an analysis of why Belo Monte does not meet “best practices” for planning and building large hydro projects. And Philip Fearnside, of the National Amazon Research Institute in Manaus, calculates that the Xingu hydro project would release a greater

quantity of greenhouse gases than a natural gas plant would.

According to Fearnside, the Belo Monte and Babaquara complex will release more greenhouse gases than a natural gas power station generating the same amount of electricity for about four decades after the filling of the first reservoir. Fearnside says that even though Belo Monte Dam’s reservoir will be relatively small (440 km²), the huge Babaquara reservoir will be an enormous greenhouse gas emitter.

As originally planned, the Babaquara reservoir will vary 23 meters between the dry and wet seasons, and as a result, an area of 3,580 km² will be periodically exposed. This will facilitate growth of plant matter that will then decompose quickly each year in the rising reservoir, releasing methane. Methane is a powerful greenhouse gas that is far longer-lasting than carbon dioxide.

The dam’s turbines and spillways will pull water from below the “thermocline,” a layer

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Eletronorte Has Long History of Ignoring Dam-Affected People

In the two decades since Tucuruí Dam was built, much has been written about the project’s huge environmental and social impacts. Anthropologist Sonia Magalhães explains in “Tenotã-Mô” how it took Eletronorte 20 years after construction was completed to acknowledge the dam’s downstream impacts. That’s still a long way from repaying the enormous social and environmental debt incurred with the building of Tucuruí. Although a recent project expansion displaced hundreds of new families, no environmental impact studies have been carried out for the expansion, as Eletronorte contends (and Pará state environmental authorities agree) that the new powerhouse was conceived as part of the dam project before Brazil’s environmental laws required EIAs.

Eletronorte now faces serious problems with its plans to dam the major rivers of the Amazon, because nearly all projected dams would affect indigenous populations, who have the right to be “consulted” before projects go ahead, according to the Brazilian constitution. These constitutional guarantees led Eletronorte to change the engineering design for Belo Monte – originally, the “Kararaô” project would have flooded 1,200 sq. km., inundating the Paquisamba indigenous

reserve. To “avoid impacts” on the indigenous community, Eletronorte’s second design, now called Belo Monte, sited the principal dam some 50 km upstream from the previous location. While it is true that the Paquisamba reserve would no longer be submerged, the reserve would be seriously affected by the drying of the river bed, since flows downstream from the dam would be radically reduced to only a small percentage of the historic average.

In addition, the number of indigenous people in the region who would be directly affected by Belo Monte Dam is far greater than the 50 or so Juruna living in the Paquisamba reserve. The Indigenous Missionary Council (CIMI) documented more than 400 indigenous people of the Xipaia, Kuruia, Arara, Juruna and Kayapo ethnic groups who live downstream from the Pimental island, and who would be left high and dry by the damming of the Xingu.

If upstream dams were also to be built, thousands of indigenous people would be directly affected by the dams, including inhabitants of the Xingu Indigenous Park, considered the “showcase” of Brazil’s indigenous protection efforts.

Glenn Switkes

Grand Inga, Grand Illusions?

by Terri Hathaway

Grandiose plans are being made to develop the world's largest hydropower project in one of the most politically volatile and corruption-plagued areas of Africa. In February, Reuel Khoza, the chairman of South Africa-based electricity provider Eskom, announced plans to develop the massive Grand Inga hydropower project in the Democratic Republic of Congo (DRC).

"Africa urgently needs energy to lift its people out of poverty and deliver sustainable development. The Congo River offers enormous opportunities for doing this," declared Khoza. Implying the project will create trickle-down benefits to help fight African poverty, he added, "Hydroelectricity from the Congo could generate more than 40,000 megawatts, enough to power Africa's industrialization with the possibility of selling the surplus to southern Europe."

Designed as a series of 52 750MW turbine installations over the Inga Rapids on the Congo River in DRC, Grand Inga's installed capacity would be more than twice that of the huge Three Gorges Dam in China. Financing plans for Grand Inga are just beginning. With a price tag of US\$50 billion, and given DRC's recent rating among the top 15 "most corrupt countries" in Transparency International's latest Corruptions Perception list, concerns are growing that the project will primarily benefit local elites and multinational industrial interests but do little to ease the electricity or development needs of Africa's poor majority.

The Inga mega-project (which includes the related Inga 3 project, described below) is one of the highest priorities for the New Partnership for African Development (NEPAD), the Southern Africa Development Community (SADC), and Eskom, Africa's largest power company. Despite its priority position and high profile, very little about the project has been revealed, and virtually no engagement of civil society has been undertaken by any of the major players. There are concerns that closed-door deals for contracts to Inga could be linked to lucrative mining and logging concessions in DRC and elsewhere. Further deals such as special export zones and free trade agreements may be made to attract industry at the expense of local businesses and taxpayers. While some new business would be industrial expansion, other industries may simply shift existing production, often from other developing countries, to Southern Africa in order to capture lower production costs.

While Eskom continues to raise concerns about a coming energy shortage in Southern Africa within the next three years if no new energy sources are developed, this is not a logical rationale for building Grand Inga. Grand Inga would not be commissioned for over a decade at the earliest, while clearly exceeding the region's predicted domestic energy needs. Its viability will rely on either a massive growth in energy-intensive industries, or the export of its electricity to as far away as Europe – and even then, it is unclear whether the project would make economic sense.

Existing Inga Dams

In addition to the colossal Grand Inga, an estimated \$550 million rehabilitation of two existing dams, Inga I and Inga II, is planned. Inga I (351 MW) was built in 1972 and Inga II (1,424 MW) was built in 1982. Poor maintenance during the civil war left the two dams heavily silted and operating at only about 30% of capacity, according to the US Energy Information Administration and other sources. While the two dams are currently owned and operated by the state-owned utility, Société Nationale d'Electricité (SNEL), it has been rumored they will be privatized as part of their rehabilitation.

German-based Siemens received a World Bank contract in 2003 to participate in the rehabilitation of Inga I and II, and has set up an office in Kinshasa, but no further information is known at this time. A comprehensive rehabilitation agreement is currently being negotiated between several companies, including Eskom, Canadian-based companies MagAlloy and SNC-Lavalin, and Russian Aluminum (Rusal). Power purchase agreements are expected to be linked to the rehabilitation; MagAlloy has already negotiated to purchase 120MW from Inga II for its magnesium project in nearby Republic of Congo (RoC). Rusal is also considering building an aluminum smelter in RoC, which would become another significant user of Inga electricity. Electricity is already exported from Inga I and II to RoC, Zambia, Zimbabwe, and South Africa.

Stepping Up to Grand Inga

The first development phase will be the Inga 3 dam (3,500 MW), considered a stepping stone to Grand Inga. Including its 3,000 kilometers of transmission lines, this phase is estimated to cost \$5.23 billion. In October 2004, the governments and utility companies of five southern African countries – South Africa, Angola, DRC, Namibia, and Botswana



– signed agreements for the Western Power Corridor (Westcor), now a registered consortium in Botswana. Westcor will develop and manage power generation and transmission of the Inga 3 dam under a Build, Own, Operate agreement. Westcor's long-term goal is developing Grand Inga, as well as proposed hydropower dams in Angola and Namibia. Each of the five utilities in the consortium has an equal stake in the company and contributed \$100,000 to fund feasibility studies for the Inga projects and transmission lines. Westcor is attempting to raise additional funds through the World Bank and other development banks, as well as private sources. The World Bank has already made several recent loans for power line upgrades and extensions from the Inga sites to various southern African destinations.

The US Treasury Department plans to finance a technical assistance program for Inga 3 by providing an advisor as part of US diplomatic staff in DRC. According to African Intelligence Online, the Treasury Department's interest stems from opportunities the project might hold for American corporations.

At Whose Expense?

Proclaiming that Grand Inga will "light up Africa," Eskom and NEPAD are selling the idea that Inga will be the foundation for Africa's industrialization, thereby being a key component in alleviating the continent's poverty. But just as likely, its development will provide industrial economic growth for foreign businesses seeking cheap electricity and financial opportunities for Africa's elite business and government leaders, offering few trickle-down benefits.

Inga's centralized grid system is likely to do little to "light up" Africa for the 90% of people now living without electricity, most of whom live in rural areas outside the reach of power grids. Grid expansion is quite costly,

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Grand Inga continued from page 6

and trying to reach scattered rural communities would significantly increase project costs as well as the cost of electricity. Long transmission and distribution lines also increase electricity losses (older systems can lose up to 30% through transmission and distribution losses). Based on historical trends, the trickle-down effects in the form of jobs and taxes will likely be minimal for Africa's poorest, while also increasing unsustainable national debt loads. Potential direct impacts to locally affected peoples are unknown at this time, but remain of concern.

Myth of Green Energy

"The Inga project is one that really excites us because we believe that in one fell swoop we could address the bulk of Africa's needs and do it in a manner that is clean and environmentally friendly, by harnessing run-of-river hydroelectricity as opposed to damming up a river," Eskom's Khoza said. While run-of-river projects can have less damaging consequences than storage dams, they are often far from environmentally benign. The term run-of-river is undefined, and is often therefore used to "greenwash" projects. In fact, many run-of-river dams have large dam walls, major social and environmental impacts, and even reservoirs.* The extent of barriers and diversion

canals involved in this colossal project is still unclear, but the cumulative impacts of Grand Inga's 52 turbine installations, as well as Inga 3, on the river's flow could be considerable. Impacts to fisheries, riverine forests and river ecology will need careful study.

As more studies of GHG emissions from hydropower are conducted, scientists are finding increasing evidence that emissions from dams, especially methane, are a legitimate concern, particularly in tropical areas. The Inga projects will also need careful, independent study of their emissions impacts.

Project proponents have indicated they hope to gain a revenue stream for Inga 3 from the Clean Development Mechanism (CDM), a program to subsidize low-carbon projects in developing countries in order to minimize greenhouse gas emissions. Big hydro threatens the effectiveness and credibility of the CDM, and risks undermining the Kyoto Protocol by providing carbon reduction credits for projects that don't actually reduce emissions or would be built regardless of credit programs. Projects like Inga 3 turn the CDM into a subsidy mechanism for hydro developers and a carbon accounting loophole for industrialized countries, instead of a tool for climate protection (see story on p. 16 for more on this issue).

CDM credits for Inga 3 would also be a double blow to renewable energy in Africa. First, project investment attracted by CDM credits would divert potential investment from renewable energy such as wind, solar, and geothermal to large hydro. Second, revenue from CDM credits would divert additional CDM investment from truly sustainable projects, effectively crowding out funds for new renewables in Africa.

Development of Inga will also significantly increase Africa's vulnerability to climate change and political instability. Climate change will bring risks to hydro-dependent economies through increases in the severity and frequency of both droughts and floods. Worsening droughts will reduce hydropower production, while increased floods threaten dam safety and may also increase sedimentation (thus shortening the useful life of dams). Climate change will add to existing environmental stresses on riverine ecosystems and watersheds. Economic feasibility, environmental impact studies and engineering plans for Inga should take into account the hydrological uncertainties of a warming world.

Political instability is a very real concern across the region where the transmission grid would be built. The ongoing violence in DRC was recently rated the world's most forgotten crisis by Reuters. Over three million people have died since 1998 as a result of the civil war and ongoing strife in DRC. The Inga mega-project would centralize much of Africa's electricity source and require a grid of transmission lines through many of Africa's most politically unstable regions. Dams, power plants, and transmission lines are often made targets in political conflicts. The dependence of more countries' economies on Inga would increase its attractiveness as a target for sabotage by rebel groups. Less than 10 years ago (in 1998), rebels seized Inga II and cut its power to Kinshasa, the capital of DRC. ■

** For more information on run-of-river projects, see "Dams Lite? Run-of-River Projects No Panacea," WRR, Aug. 2001 (available at www.irm.org)*

Inga Mega-Project Quick Facts

- Located 150km upstream of the mouth of the Congo River, 225km downstream of Kinshasa, DRC.
- Inga I and Inga II are located in the Nkokolo valley; Inga 3 will also be located here.
- Grand Inga would build a dam across the entire Congo River and divert the flow into the Bundi Valley.

	Commission Year	Rated Generation Capacity	Cost for Current Project
Inga I	1972	351 MW	\$550 million
Inga II	1982	1,424 MW	(rehabilitation)
Inga 3	2012	3,500 MW	\$5 billion
Grand Inga	Unknown	39,000 MW	\$50 billion

Sudan continued from page 1

hydropower sites in South Sudan. A lot of private investment is expected to flow into the petroleum sector.

The Sudanese peace agreement should be more than a ceasefire between two warring factions. It needs to create space for the participation of civil society in decision-making. The recommendations of the World Commission on Dams offer a model for such par-

ticipatory processes.

After their fact-finding mission to Sudan, IRN and the Corner House will take the Western companies to task for the violation of international standards in the Merowe Project. We will start creating awareness about the role of Chinese companies in building dams around the world, and the need for Chinese dam builders to comply

with international standards. The campaign will also support Sudanese NGOs and affected communities in their efforts to democratize the country's development process. ■

A report about the Merowe Dam project will be available at www.irm.org. A previous article on Merowe appeared in the April 2004 issue of WRR.

Day of Action



Dam-affected people in Lesotho came together on March 14. Photo:TRC

by Willow Lune

Across the globe, in places where rivers and communities are threatened by destructive river-development schemes, dam-affected people and their supporters united on March 14 to celebrate the eighth annual International Day of Action for Rivers. As always, creative approaches were the norm, and actions ranged from hunger strikes to sit-ins; dam-site blockades to urban protest marches; children's events to public seminars; spiritual ceremonies to boat trips down threatened rivers. Thousands of people took part in more than 90 actions in at least 30 countries to fight for river protection and the rights of communities over their resources and lives. Here is a round-up of just some of this year's actions.

Dams in the Pipeline

More than 150 Thai villagers gathered in front of the World Bank's Bangkok headquarters to protest the Nam Theun 2 Dam in Lao PDR, now being considered for funding by the Bank. The majority of protesters were harmed by the World Bank-financed Pak Mun Dam, which was completed 11 years ago after years of protest from local communities and their supporters. The Nam Theun 2 Dam, if built, would displace more than 6,000 villagers and affect the livelihoods of another 100,000 people living downstream along the Xe Bang Fai, a large Mekong tributary.

The Earth Soldiers in Argentina held mobilizations in the cities of Esquel and Buenos Aires. The event in Buenos Aires focused on stopping the construction of six dams in the Corcovado River basin. These dams would flood 27,000 acres of productive lands and forests and displace local communities. And in Esquel, Mapuche indigenous people and local farmers sent this message to the world: "In the name of development, they evacuate us, they contaminate us and they flood us. We say: No to the dams in River Carrenleufú. No to the mines; no to the privatization of the territory and its resources; no to the clos-

ing of the Patagonia; no to the continuing genocide of the people of the Earth."

Friends of the River Indus (FOTRI) held more than 25 demonstrations in three countries to protest the Kalabagh Dam and Thal canal in Pakistan. Thousands of people offered prayers for the long life of the Indus River, observed hunger strikes and participated in protest rallies and sit-ins in London, Pakistan and the US. The Indus River flows through the heart of Sindh, and the livelihood of its citizens depend on it for drinking water, irrigation, and employment. Dam and canal projects upstream have created a water shortage that has devastated the region. The proposed construction of the Kalabagh Dam and completion of the Thal Canal are the latest threats to the Indus River and the Sindh people.

Salvemos Nuestros Pueblos (CASA) held actions in Mexico and the US to protest the proposed damming of the Rio Verde in Jalisco, Mexico. Citizens marched to government headquarters in Jalisco to protest the impending displacement of 48 communities and 10,000 people with the construction of the San Nicolas Dam. In the US, protesters demonstrated outside of the Mexican Consulate and delivered over 1,000 letters in opposition to the dam.

Focus on Dam-Affected Peoples

This year there was a special focus on the plight of dam-affected people, who suffer the brunt of the impacts of dam construction but receive virtually none of the benefits. An estimated 40-80 million people have been displaced by dams worldwide, according to the World Commission on Dams.

Affected peoples in Lesotho, where dams have harmed the livelihoods of tens of thousands of small farmers, came together with those who would be affected by a new dam. Some 2,000 people (a huge turnout for the small country) held an action at the site of the proposed Metalong Dam on the Phuthiatsana River, southeast of the capital city of

Making

Maseru. The Transformation Resource Centre and community members who have been affected by the multi-dam Highlands Water Project joined those who will be affected by the Metalong Dam. Participants in the event voiced concerns about the nation's dam-building, sang, danced, and celebrated rivers, water and life.

Brazil's Movement of Dam-Affected People (MAB) faced sometimes-fierce official opposition as its members carried on the annual tradition of multiple nationwide actions on March 14. Thousands of people joined in a number of actions to call attention to ongoing social problems resulting from the construction of dams in the country. Even the intimidating presence of the military at the Tucuruí Dam could not stop Brazil's dam-affected and their supporters from holding a public protest on this project. In Para State, more than 2,000 people affected by the Tucuruí Dam occupied the area where the navigation locks are being constructed, impeding work from continuing. More than 20 years have passed since the dam began operation, principally to power aluminum smelters in the Amazon. The dam displaced more than 32,000 people, and many have never received compensation and continue live without electricity. Also, in the northeastern state of Bahia, 400 people took over the offices of INCRA, the federal agrarian reform agency. In Rondônia, 500 farmers and fishermen affected by Samuel Dam blockaded the highway which provides access to the plant. This dam, built on the Jamari River over 20 years ago, displaced at least 2,000 families from their lands; most of them not yet been compensated.

Rivers Are Life

Activists celebrated the Usumacinta River by boating down the river after the Mexican government shelved plans for the construction of several dams. Plans for seven hydroelectric dams on the Usumacinta, the largest river in Mesoamerica, have been proposed a number of times in the past two decades. However, pressure from communities, environmentalists and archaeologists resulted in the government withdrawing them each time. The Usumacinta drains one of the largest areas of contiguous tropical forest in

a Stand for Healthy Rivers

the region and flows through the most economically and politically marginalized regions of both Guatemala and Mexico.

In Panama, the “Frente Unido en Defensa de la Ecología” alliance held river baptisms on the Tabasará, Santa María, Cobre and Narices rivers to celebrate their lands and people. The alliance says, “Rivers are our mother, our lives, and our family. We will never accept the destruction of our history. We demand respect – Human Rights and Nature Rights.”

Actions in Istanbul and Dersim included over 300 people marching and flowing like a river with signs reading “Munzur is Life!” and “The stream of life can not be stopped!” to protest dam projects and cyanide gold mining in Turkey’s Munzur Valley.

Information Sharing

Education about dams is an ongoing theme on March 14, and this year was no exception. Groups in Mozambique and Cameroon held events to educate citizens about new dams which are being promoted by their

governments despite the fact that existing dams’ impacts still have not been adequately addressed. And in Nigeria, a workshop by the Society for Water & Public Health Protection brought dam-affected communities and activists together to come up with a public statement on the plight of the communities.

In the Arunachal Pradesh region of India, students held a seminar with the theme “Sustainable Development and Tribal Rights on Rivers and Water.” The day included information on Jampa Village, which would be affected by a proposed large dam.

Focus on Women and Children

A children’s painting competition was held in Medan, Indonesia, involving over 800 young students. The event was aimed at building awareness about rivers and the meaning of “water for life.” The Deli River, which flows through Medan, is polluted by domestic and industrial waste.

In the Subansiri Valley of India, citizens held a forum on the role of women in resisting destructive development projects. The

women in the region resist being a “critical test case” of the disastrous consequences of large dams in India.

Children in Australia commemorated the Nepean River with a day on the beach. The celebrations included a river fairy, women drummers, singing, and cake. The children wore shirts that read “We Love Our Rivers,” and threw flowers into the river to bless and protect it. The upper Nepean River is under threat from coal mining by the world’s biggest mining company, BHP Billiton.

The Day of Action is a time for the global community to celebrate, educate and demonstrate the importance of healthy rivers to people’s lives and livelihoods. It is a time to honor affected peoples whose lives have been massively impacted by dams. For those who took to the streets on March 14, the world says thank you for standing up for rivers and making your voices heard. ■

For more information about these and other actions, see: <http://www.irm.org/dayofaction>

California Event Highlights Importance of Healthy Rivers to Tribes

As IRN’s coordinator for the International Day of Action, much of my work has been behind the scenes, supporting groups and helping publicize the day’s events. On March 14, I took to the streets, participating in an event (co-sponsored by the Sacramento group Friends of the River) that brought together tribes from the Klamath Basin and their supporters. We rallied in the state’s capital, Sacramento, to make a stand for healthy rivers and the communities they support. The day’s events told the story of the Hoopa, Yurok and Klamath tribes’ struggle against a complex of six dams on the Klamath River that degrade water quality and block access to over 350 miles of historic salmon spawning habitat.

We gathered in Old Sacramento for a press conference, where leaders from Klamath Basin tribes spoke to the press. Evidence of strong emotions blazed in slogans on signs and clothing: “Dams = Death,” “Dying 4 Water.”

Tribal drummers began a slow, steady beat while voices of singers rose in a wailing song with the rhythm. It was time for over 200 people to begin the march to the capital.

Our group stood out from the usual downtown Sacramento workday crowd: feathers and staffs, giant stuffed salmon on sticks, braids and beads and bones and fine embroidered garments, babies and elders, and very passionate peoples all moving in one rhythmic mass.

Mid-way through the march, we were joined by more than 50 members of the Winnemem Wintu Tribe, dressed in their traditional war regalia. This tribe is fighting an extension of the Shasta Dam on the McCloud River (see *WRR*, Oct. 2004).

At our destination, the state capitol, the Winnemem Tribe danced part of their War Dance, and Klamath Basin tribal leaders addressed the crowd of over 400 people. Tribal biologists, ceremonial leaders and elders and ranchers and fishermen all spoke. Tribal members with stuffed salmon on sticks bashed them symbolically against the walls of the capitol while other activists erected a false dam on the lawn that people could tear down.

Members from the tribes said they were there to bring the salmon home, so they came to speak to the “white man’s boss.” One woman said, “We dance and we pray and we sweat for these officials. How hard do they work for us?” A leader of the Winnemem Tribe said they were out to stand in solidarity with the Klamath tribes, and asked that they “bring some salmon up to us” once the Klamath River is restored.

No one from the state came out to address the crowd.

The rally closed with a song and a blessing.

– Willow Lune



What's Wrong with the World Bank's Approach to Resettlement?

Lots, Says Longtime Resettlement Expert and Former WCD Commissioner

*The following is an excerpt from the new book *The Future of Large Dams: Dealing with Social, Environmental, Institutional and Political Costs* by **Ted Scudder** (*Earthscan, 2005*). Scudder is a well-known anthropologist who has worked on resettlement issues on large dams for nearly 50 years, and has been an expert advisor on a number of World Bank dams. He was also one of the 12 commissioners on the World Commission on Dams. Here he reflects on the World Bank's resettlement record.*

A range of structural and policy issues undermine the World Bank's ability to deal seriously with resettlement issues. They include pressure on staff to move funds, which favors larger projects over smaller ones and interferes with the time-consuming involvement of local people in options assessment and planning. Local involvement is also hindered by the continued difficulty of getting Bank reports, although in that regard the Bank has become more transparent than most project authorities. Another generic reason is the Bank's relatively weak project supervision as well as infrequent evaluations of outcomes five to ten years after the end of each project cycle. And because the resettlement process continues after the end of Bank involvement in the large majority of its projects, the shortness (seldom over five years) of the Bank's project cycle is a constraint to ongoing monitoring and evaluation. It may also lead to erroneous conclusions about success, as happened in the Kariya and Pak Mun cases.

Although many of the Bank's operational directives relate to dams, efforts to compress and simplify them in a dam-specific policy directive have never succeeded. The same applies to an overall policy directive relating to social assessment as opposed to individual topics such as resettlement and indigenous people. And in those cases, I believe that the attention paid by the Bank is more a reactive response to NGO and other criticism than a proactive response based on realization of the adverse effect of the large majority of Bank financed dams on project-affected people.

Flawed Resettlement Guidelines

There is no doubt that the Bank's resettlement guidelines have had a major impact on minimizing the number requiring resettlement. They have also improved planning and implementation to the extent that the

majority of resettlers are made less poor than would have otherwise been the case. But, as the Bank is the first to admit, in the majority of cases their income-earning capacity and living standards have not been restored.

It is unacceptable for resettlers, who are a dam project's main risk-takers and who are predominately poor people (including a disproportionate percentage of indigenous people), not to become beneficiaries of projects funded by an institution that claims poverty alleviation as its main goal. It becomes even more unacceptable when one realizes that large Bank-financed dams are often the largest single development project in a borrower's portfolio.

While there is no question about resettlement being an incredibly complicated activity, I believe that a major reason why the Bank's record continues to be unsatisfactory is that from the very beginning the guidelines have been part of the problem. As ICOLD recognized in 1997, resettlers must become project beneficiaries. That requires resettlement with development as emphasized in the final report of the World Commission on Dams. While the World Bank's guidelines also state that resettlement projects should be development projects, that statement is immediately undercut by providing borrowers with the fallback option of merely restoring living standards.

Take, for example, the Bank's revised 1990 guidelines, which remain the strongest that the Bank has produced. Noting "the severe long-term hardship, impoverishment, and environmental damage" that may occur "unless appropriate measures are carefully planned and carried out," the guidelines then state that "Involuntary resettlement should be avoided or minimized where feasible." They go on to state that "where displacement is unavoidable ... all involuntary resettlement should be conceived and executed as development programs, with resettle-

menters provided sufficient investment resources and opportunities to share in project benefits." Then, however, that outstanding introduction is undercut by providing borrowers with the fallback option of merely restoring living standards.

Global research on dam displacement has shown that the "living standards restoration" option is almost guaranteed to leave a majority of the resettlers worse off. Yet, because it is less expensive in the short run, it is the option that project authorities have tended to take. That, in my opinion, is the major reason why the Bank's guidelines have played an impoverishing role in the past and why the Bank's recently weakened guidelines will continue to play such a role in the future.

Here I analyze five reasons why the Bank's guidelines cause impoverishment. The first relates to the nature of the lengthy planning process, a 10–20 year planning horizon not being exceptional. During this period, living standards for the majority can be expected to drop for a number of reasons. Governments, private sector entrepreneurs, NGOs and project-affected people themselves are much less likely to make investments within a future reservoir basin. Hence, by the time a decision is made to proceed with major feasibility studies, including "baseline studies" to determine pre-project living standards of future resettlers, those people's living standards will already be lower than those of neighbors outside the project area.

Once people realize that relocation may be forthcoming, housing improvements are less likely to be made and local entrepreneurs are less likely to invest in new enterprises. In the case of the Swaziland–South African Maguga Dam, local people who wanted to start business ventures over ten years before start of construction were told by authorities not to proceed. When removal is imminent, labor migrants often return home to help their families, with those families losing access to remittances. Because of uncertainty over removal dates, people may also be less likely to harvest good crops, having planted a smaller area or being told by the authorities not to plant at all because removal was imminent.

A second reason relates to what the World Bank refers to as pre-project base-line

continued opposite

studies. Current guidelines are based on the inaccurate assumption that such studies accurately reflect pre-project income and living standards and hence constitute a basis against which restoration can be measured. Yet even where pre-resettlement surveys are undertaken – and adequate ones are rare – there is a general tendency to underestimate people's incomes at that time so that restoration targets remain too low. Reasons include forgetfulness on the part of those providing data, failure to give value to soon-to-be-lost natural resources for food and other purposes, fear of being taxed and the illegal nature of some income-generating activities.

The World Bank's own evaluations refer to the inadequacy of such studies as a baseline against which to measure subsequent restoration. Thailand's Pak Mun Dam is a good example. In this case, there was no true baseline study, only preliminary surveys. Furthermore, the Pak Mun preliminary surveys considered only income, and that incompletely since income from the most important activity, fishing, was excluded. In addition, they dealt only with households requiring physical removal. Completed seven to eight years before construction began, results were considered so inadequate that a second survey was carried out. Although considered a baseline study by the project authorities, that survey was actually done four months after the dam had been completed and resettlers had moved. While it dealt with activities over the previous year, including eight months before reservoir inundation, surveys undertaken during the year of removal cannot be expected to provide a reliable record.

A third reason why the Bank's guidelines are part of the problem is that project authorities following the "restorations option" tend to emphasize compensation, as opposed to providing the sort of development opportunities that are necessary even to restore living standards, let alone improve them. The Bank's latest guidelines place disproportionate emphasis on compensation, mentioned 19 times, whereas development is mentioned only four times.

A fourth reason becomes salient immediately following removal, when adjusting to new habitats, hosts and government programs reduces time and energy for restoring living standards. During this period, which can be expected to last at least two years, living standards for the majority can be expected to drop. Policies based on restoration do not take into consideration the extent to which living standards have been adversely affected during those years. Nor do they consider situations where living standards have been rising outside the project area



A stark new life: Resettlement site for those displaced by Sengalor Dam, Malaysia.

Photo: IRN

because of non-project-related national development activities. In these situations the living standards of resettlers have worsened in comparison with neighbors unaffected by the project.

Also post removal, a fifth reason relates to the majority of cases where farmland and access to common property resources are lost or reduced. Following removal, household expenses are often greater than before. Increased costs are especially a problem for resettlers who have to purchase food supplies that previously they were able to produce, or where less fertile soils require the purchase of inputs such as improved seed and fertilizers, or where new production techniques require loans that lead to indebtedness. Another reason why loss of arable land to a project tends to leave households worse off is that such land, unlike cash compensation and jobs, is a resource that usually is inherited from one generation to the next.

Downgraded Guidelines

The Bank's 2001 guidelines cover only direct economic and social impacts. That is another major weakness. Excluded are a wide range of negative cultural effects reported in study after study that relate to loss of home, burial grounds, religious sites, and ideological and political control over a familiar habitat. Nor do they cover the public health implications of such psychological impacts as "grieving for a lost home" and "anxiety for the future," which are especially serious for indigenous people and for many ethnic minorities and peasant communities with

strong ties to the land and limited mobility. There is no way that the Bank's use of cost-benefit analysis can accurately reflect the hardships involved. Resettlement must be planned and implemented as a development project to offset such costs by helping resettlers become project beneficiaries.

Anthropologist Ted Downing's assessment of the revised and weakened World Bank 2001 guidelines is especially damning. After acknowledging impoverishment risks associated with resettlement, the Bank policy fails "to propose measures to address them. Instead, it falls back on the same flawed economic analysis and methodologies that have been responsible for decades of unacceptable performance." Emphasizing compensation as opposed to the necessary development, "the revisions sidestep the need for viable rehabilitation." Furthermore, the distinction between direct and indirect costs "leads to an understatement of total project costs" and "excludes the critical costs of reintegrating and restarting disrupted economies, social institutions and educational systems."

Downing also believes the 2001 policy "institutionalizes a negotiating system that potentially violates human rights." Why, for example, does it not address resettlers' "lack of information and legal representation" that "has consistently undermined the capacity of project-affected people to understand and negotiate for their economic reconstruction"? And why does the policy "permit the Bank to underwrite the borrower's cost of negotiating with the displaced, but not vice versa"?

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India Playing With Fire with Tipaimukh Dam

by Ramananda Wangkheirakpam

Thousands of people in Bangladesh took to the streets for two days in February in a *Pada Avi Yatra* (road march) to protest the Tipaimukh Dam proposed for the Barak River upstream in Manipur, India.

The dam is a cause of concern for people in India and Bangladesh because of its high cost, displacement of tribal peoples, environmental impacts, and lack of transparency. According to one version of official figures (which are much debated), the total area to be submerged is about 284 square kilometers, which includes 90 villages that are home to 1,310 tribal families; 27,242 hectares of forest and cultivatable land, and habitat for rare and endangered animals, including pythons, gibbons, leopards and deer. The region is rich in orchids, medicinal and herbal plants.

Not only were indigenous communities in Manipur and Mizoram sidelined while conceiving the dam, even the government of Bangladesh was not informed despite international norms requiring consultation with lower riparian countries.

According to the implementing agency, North Eastern Electric Power Corporation (NEEPCO), this 390-meter-long, 163-meter-high dam would have an installed capacity of 1,500 MW. As a multipurpose project, the dam also aims at flood moderation, improving navigation, irrigation and aquaculture in the region. Efforts were made in the past to get the World Bank or JBIC (a Japanese development bank) to back the project, but their involvement is still elusive. Over the years, the costs have mounted, particularly due to the high price of providing security to the dam builders (this region has a long history of armed struggles). The Home Ministry of the government of India recently agreed to bear the dam's security cost.

Manipur state shares about 350 kilometers of international border with Myanmar (Burma) and has two international river systems. The Imphal River drains into Myanmar while the Barak River flows into Assam state before it enters Bangladesh.

Representing the old thinking of flood control, the British and then free India aimed to build a dam on the Barak River to reduce flooding in downstream Assam. After abandoning three sites in Assam, a site at Tipaimukh village was decided upon. In 1999, the project was changed from a flood control dam to a multi-purpose dam with hydropower as its main benefit.

The Government of Manipur in 1995 and again in 1998 opposed the dam due to concerns about resettlement and rehabilitation, dam safety (the project area is in a major seismic zone) and environmental impacts. This same government authorized NEEPCO to prepare a "revised" project report, and in 2002 the Manipur State Cabinet Ministry gave a go-ahead to the project. Meanwhile, several organizations in Manipur began demanding detailed information on the dam, which was never provided. This led to the formation of Citizens Concern for Dams and Development (CCDD), a forum of about 45 organizations in Manipur. This forum has organized several rallies, seminars and representations in international forums to demand a people-centered development, and to stop the dam.

NEEPCO has since gotten the techno-economic clearance for the project, and is planning to get the mandatory environmental clearance, which entails holding public hearings in affected areas, which means hearings in the state of Mizoram (10% submergence area is in this state) and another in Manipur. Inexplicably, downstream impacts have not been included in this scheme's assessments, and hence no hearings are proposed in Assam or in Bangladesh. NEEPCO's first attempt to hold public hearing was jeopardized by citizens' groups after NEEPCO tried to bypass the Ministry of Environmental and Forest (MoEF), a critical agency for assessing environmental impacts. After some delays, a hearing took place in Mizoram on December 2, 2004.

The Hearing in Mizoram

Without getting into how poorly prepared the Environmental Impact Assessment and the Environmental Management Plan were, what emerged was an unmistakable message from the villagers of Mizoram state that these indigenous peoples will not sacrifice their land and water to an outside dam builder. One participant said, "Ours is not just any land; it is ancestral land," and stated that no land will be transferred to NEEPCO for any kind of development. In addition to conducting another hearing (this one was so flawed that even some local officials



A road march in Bangladesh to protest Tipaimukh Dam.

Photo courtesy of www.ittefaq.com

referred to it as a failure), villagers demanded that four conditions be met before they will consent to any further process. They asked for assurances that the imported workforce moves on after the project construction, so these newcomers do not overwhelm the local population culturally or by competing for jobs and resources in the region. Villagers also called for alternative livelihood arrangements to be put in place. Finally, they demanded that free power be given to all affected villages, and that a lump sum of 5 Lakh (less than US \$11,500) be provided to each affected family.

Questions were also raised in Manipur on why the hearing was held in Mizoram first and not in Manipur, where 90% of the submergence zone lies. It seems that NEEPCO was over-confident that people in Mizoram would happily give their consent, and that this will strengthen their case for building the dam. What NEEPCO missed in this calculation is that by playing such a game they are in fact jeopardizing relations between states as well as the highly sensitive ethnic relations in the region.

Lower Riparian Issue

Another issue that needs urgent attention is that, while India is keenly pursuing Bangladesh to agree to a gas pipeline running from Myanmar to northeast India, the government seems unable to think beyond its borders or take into account the views of downstream nations when planning river projects. Tipaimukh Dam has become another point of contention between India and Bangladesh, particularly because India has clearly not been transparent with Bangladesh about its intention to dam the Barak River.

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Iceland Heeds Environmentalists' Call for New National Park

by Arni Finnsson

On January 25, the Icelandic government announced it would create what could become Europe's largest national park, in the highlands of southeast Iceland.

Local environmentalists and their international supporters have been pressing for the conservation of Iceland's highlands for the past few years, as part of their campaign to stop construction of a major hydroelectric dam in this vast wilderness area. Despite widespread protest in Iceland over the project, the government two years ago approved a deal with US-based Alcoa Aluminum to build the dam to power Alcoa's new smelter in eastern Iceland. Construction is now underway on the north side of Europe's greatest glacier, Vatnajökull. Two rivers, the Jökulsá á Dal and Jökulsá á Fljótssdal, will be impacted by the 690-megawatt Karahnjúkar Dam, and part of one of Europe's most scenic wild canyons will be submerged by its reservoir.

The dam is being built by the Italian firm Impregilo, a company which has raised eyebrows for its role in a bribery scandal surrounding another large dam project, the huge Lesotho Highlands Water Project (Africa). There have been ongoing conflicts between Impregilo and Icelandic labor unions over wages, and the import of foreign labor.

The proposed national park will include the entire watershed of the remaining free-flowing river flowing from the Vatnajökull glacier, the Jökulsá a Fjöllum River, which includes Europe's most powerful waterfall, the 44-meter-high Dettifoss waterfall. National park status will protect this magnificent river and its tributaries from its source at the glacier to the northern coastline of Iceland, where it forms a rich delta teeming with shorebirds and other wildlife. The park will also include the glacier itself (3,000 sq. miles) and the Skaftafell National Park south of the glacier.

As recently as 1997 the Ministry of Industry listed Dettifoss as an alternative for

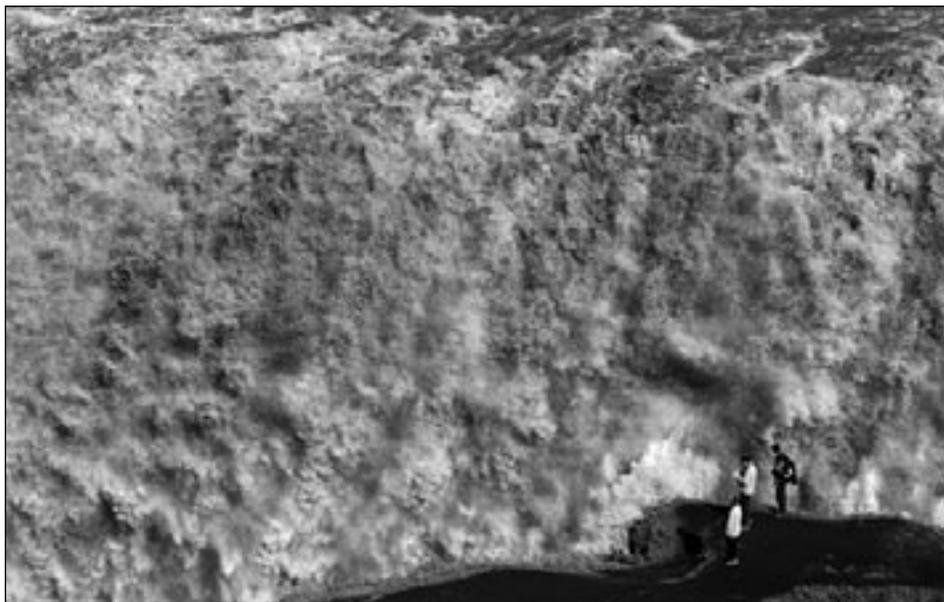


Photo: Gudmundur Páll Olafsson

A wall of water: Dettifoss waterfall dwarfs visitors. The falls is part of the new park.

hydropower development; the Energy Institute still entertains the idea.

Since 1997 the Icelandic government has been heavily criticized for its relentless policy of damming and diverting its rivers for hydropower development. Because the nation is geographically isolated in the North Atlantic, the only way it to export this energy is to sell it to aluminum companies such as Alcan and Alcoa. Today, there are very few large glacial rivers remaining in Iceland that are not either already developed or slated for development.

Yet on March 17, the Minister of Industry, Valgerdur Sverrisdóttir, emphasized the importance of moving away from a heavy-industrial development policy and instead developing information technology industries. The Minister indicated that the end of further development of energy-intensive industry is in sight.

Whereas Iceland's aluminum production now stands at 268 thousand tons per year, production will almost triple to 760 thou-

sand tons by 2007. Sverrisdóttir recently told a local newspaper that once the new Alcoa smelter has been built and existing smelters are enlarged, "production of aluminum will have become such a large proportion of Iceland's export income that it is enough. Economic diversity is what matters and we cannot have aluminum so important that we will become dependent on it," she said.

The aluminum smelter is being built by the US-based Bechtel Corporation. Although the main justification for the smelter was jobs for an economically depressed part of Iceland, in mid-February it was reported that Bechtel will hire up to 1,000 Polish workers to build the smelter (out of 1,500 employees needed for the construction project). According to Icelandic radio news, Alcoa stated that while it hopes to hire as many Icelanders as possible to run the smelter, the work force is too small. The same goes for construction activities at Karahnjúkar, where three-quarters of the workers are foreign laborers. ■

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The relation between the two countries has already soured over the issue of Farakka Barrage built on the river Ganga in 1974, and people in Bangladesh have made it clear that no dam can be raised in India without the consent of the downstream communities.

The era of top-down planning is increasingly being challenged, and civil society's demands for more democratic planning cannot be sidelined anymore. India has to stop

thinking in nationalistic terms when rivers are concerned, as a flowing river respects no nation-state boundaries.

The larger picture is not just about dealing with the impact of one or two dams, but the cumulative impacts of more than 100 dams planned in the eight states in Northeast India, which will forever annihilate more than 300 indigenous communities which form the intricately woven social fabric of this hilly region.

Citizens Concern for Dams and Development seeks help and support as we fight against this human and ecological genocide. ■

The author is from Manipur, and works with Intercultural Resources, Delhi. He is an active member of Citizens Concern for Dams and Development (for more information: <http://www.cddne.org/>). He can be reached at wramd@yahoo.com

Saving the Pacuare

by Monti Aguirre

Costa Rica's Pacuare River is a beautiful river that runs through deep gorges, pristine rainforests, and exuberant tropical ecosystems teeming with wildlife. Its great beauty and meandering descent to the Caribbean Sea make it one of the best whitewater rivers in Central America. Since 1997 it has been threatened by the construction of the 146-meter Pacuare Dam.

Local communities and activists who opposed this 160-megawatt hydroelectric project are celebrating now, as the project was recently shelved by the national environmental agency SETENA due to lack of compliance with environmental laws. The dam would have begun operations by 2010 if it had gone forward.

SETENA rejected the project because its environmental studies did not provide sufficient information on the impacts of the project on communities living near the Pacuare River, such as the towns of Turrialba, Siquirres and the indigenous community of Nimarí.

The project's environmental studies also lacked an evaluation of downstream impacts.

"Activists celebrate SETENA's decision because the project would have meant the death of the basin. The decision preserves the river's life, especially fish such as the Bobo and Tepemechín, a significant source of food for indigenous and peasant communities," said a spokesperson for the Costa Rican Federation for the Conservation of the Environment (FECON). The dam would also have impacted the Baula turtle along the coast due to changes in the sediments necessary for nesting.

The municipality of Turrialba expressed its opposition to the dam by hanging signs on walls and light posts in town, and holding numerous protests and community meetings. Local leaders were also preparing to take the construction of the dam to local voters with a ballot initiative in May.

This would not have been the first time that Costa Ricans used a plebiscite to stop a project. In 2000, the community of Sarapiquí

used a voter-approved plebiscite to declare the Sarapiquí Basin a Historic National Monument, at a time that it was facing the construction of six dam projects. The Community of Guácimo also used a plebiscite to vote against construction of the Hidroverde Dam, which would have impacted local aquifers. Both projects were voted out.

"Citizen participation has gained strength recently," said Luis Fernando Allen from Save the Pacuare River Foundation, an NGO based in Turrialba. "Political parties and citizens have embraced intense mobilizations and used popular consultation as a form of participation to record citizen's opinions about regional and national issues."

Currently, there are eight large dams operating in Costa Rica, and four more under construction. Proposed projects include the Boruca dam (830 MW), now at the pre-feasibility stage, and Toro 3 (50 MW). ■

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Brazil Dam Brings Plague of Health Problems

by Paulo Mauricio Serrano Neves

The Serra da Mesa hydroelectric dam, in the savanna region of Brazil's Goiás state, has an enormous reservoir – at 1,784 square kilometers, it is Latin America's third largest. The reservoir is in the upper stretch of the Tocantins River, the furthest upstream of the four large dams already in operation – Cana Brava, Lajeado, and Tucuruí are the others. In all, more than 40 large dams are planned in the Tocantins-Araguaia basin.

Serra da Mesa has become a sink for domestic sewage, urban runoff, and agricultural toxic residues, including methyl mercury, organophosphate, organochlorides, and pyrethroid pesticides. These last are traditionally present where sugar cane and soybean crops are grown. There is growing evidence that the incidence of diseases such as schistosomiasis, leishmaniasis, yellow fever, and malaria are increasing because of the dam. There is also an alarming growth in the incidence of rabies in humans and

domestic animals, spread by millions of bats dislodged from their caves by the flooding of the reservoir.

Submerged vegetation in Serra da Mesa is also rotting (similar to Tucuruí Dam, where rotting vegetation has made its reservoir a health and environmental hazard), which releases the greenhouse gas methane into the air. The reservoir also has algal blooms during low water times (the reservoir level was at about 40% in February), including some that are able to generate lethal toxins. Blue algae have already been detected at dangerous levels.

Federal judge Urbano Leal Berquó Neto in February agreed with the Brazil-based Sport Fishermen's Association and public interest prosecutors that immediate action should be taken to clean up Serra da Mesa reservoir. His order, directed at the Votorantim/Bradesco/CPFL consortium which owns the dam, requires the cleanup of mercury and toxic algae in the reservoir area, rigorous monitoring of pollutants, and measures to counter

the spread of diseases caused by the dam.

The dam began generating energy in 1998, but environmental studies were not carried out because they were not officially mandatory at the time construction began. A hastily called congressional session the night before the closing of Serra da Mesa's floodgates officially "authorized" the project without discussing the dam's impacts on the Avá-Canoero indigenous people, who lost a portion of their territory to the rising waters.

Judge Berquó Neto's decision, and the remedial work which results, could be an important precedent, since the degradation of Serra da Mesa reservoir may be indicative of what lies ahead for other parts of the basin, where dams are either already built or being planned. ■

The author is the Goiás State Criminal Prosecutor and head of the NGO Instituto Serrano Neves, which works to protect the region's rivers. For more information: www.serrano.neves.nom.br

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in the reservoir which segregates the deeper levels rich in methane from the surface layer. When the deep water is brought up by the turbines to the spillways, dissolved methane is liberated to the atmosphere. Carbon gas released from the decomposition of the flooded forests are another significant source of greenhouse gases in the initial years following the formation of reservoirs.

Fearnside's research on tropical reservoir emissions reveals the importance of calculating the greenhouse-gas emissions from hydroelectric dams in tropical regions as part of the decision-making process. As yet, no dam in the tropics has been subject to such studies as part of an impacts assessment.

Sorry Legacy

"Tenotã-Mô" traces Eletronorte's experience in handling social and environmental impacts of hydroelectric dams in the Amazon, dating from the period of Balbina and Tucuruí. Balbina flooded 2,160 sq. km. of rainforest, yet generates, even at full capacity, just 250 MW. Tucuruí displaced more than 30,000 people, and thousands more living downstream lost their livelihoods, which were based upon fishing and floodplain

farming. With an additional 4,000 MW of capacity currently being installed at Tucuruí (to reach 8,300 MW), the area flooded by the reservoir has increased by more than 400 sq. km. to 2,860 sq. km., affecting hundreds of additional families, in addition to the thousands still actively seeking compensation for damages suffered more than 20 years ago when the dam was built.

The World Commission on Dams verified that the principal purpose of building Tucuruí was to power two multinational primary aluminum smelters. "Tenotã-Mô" provides expert analysis regarding the expansion of the aluminum industry in the eastern Amazon as a likely consumer for the energy to be generated by the Xingu complex.

In 2003, Eletronorte began stating publicly that it was analyzing alternatives with only 10 turbines of 550 MW each in what it termed an "initial stage" of the project, for a total installed capacity of 5,500 MW, or another configuration with 14 turbines totaling 7,700 MW of installed capacity. The panel's analysis shows that, given the relatively small reservoir area of Belo Monte, environmental and social impacts of a "reduced" sized dam would be nearly

identical to those of the larger project.

All signs are that Eletronorte still plans to move ahead with Belo Monte and Babaquara. Brazil's Mines and Energy Ministry has worked to assemble what it calls the "Brazil Consortium," composed of state energy companies, equipment manufacturers, and construction conglomerates, in addition to aluminum and mining companies to come up with the US\$5.5-\$7.5 billion or more that will be needed to build Belo Monte, plus billions more for Babquara. "Tenotã-Mô" should make investors think twice before putting their money into this destructive project. ■

"Tenotã-Mô" (an Araweté indigenous word for an action that comes first, and initiates other actions) is a publication of a number of Brazil-based groups, including IRN, the Federation of Support Groups (FASE), the Sustainable and Democratic Brazil Program, the Socio-ambiental Institute, the Pro-Indian Commission of São Paulo, and the Movement for the Development of the Transamazon and Xingu (MDTX). For information on "Tenotã-Mô", please contact Glenn Switkes at IRN's Brazil office: glenns@superig.com.br

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Even within the Bank, some had begun to emphasize the need to move beyond the restoration option. In the Bank's Operations Evaluation Department's (OED) 1998 review of dam-induced resettlement, the authors stated that "The emphasis should shift from restoring income levels, which suggest stagnation at pre-dam lifestyles, to improving income levels, which brings the displaced into the development process along with the project's primary beneficiaries." An updated version published by the Bank as a book in 2001 was even more emphatic: "Above all, displaced must be beneficiaries of the project. Merely aiming to restore standards of living and lifestyles common to isolated river valleys can be a dead-end development strategy. The opportunity must be taken to establish new and dynamic sources of sustainable growth."

Given such opinions, why is it that the Bank's resettlement guidelines continue to accept the restoration option? The question is the more perplexing given the Bank's emphasis on "A World Free of Poverty." Resettlement experts within the World Bank's Social Development Department explain this paradox in terms of strong resistance within the World Bank and from Bank members to revising the guidelines to require improve-

ment. The main argument by opponents within the Bank against shifting from restoration to improvement relates to the failure of the existing guidelines to even achieve their goal of restoration. Why revise goals upward to require improvement, they argue, when "The Bank has acknowledged that the record on restoring – let alone improving – incomes has been unsatisfactory."

I reject that argument for two reasons. The first is that the emphasis throughout on compensation and restoration as opposed to development is a major reason for the failure of the Bank's guidelines to restore income and living standards. Because of that emphasis, potential development opportunities are not being sought during the planning process. Indeed, as the 1998 OED study notes, "the weakest part of planning is on economic rehabilitation."

The failure of the World Bank's current guidelines to recognize the further impoverishing impacts of mere restoration not only causes those guidelines to be inadequate, but also encourages borrower countries to emulate them. That is the case even in countries with improved national policies for resettlement. China is a case in point. The Chinese Government has a law that "advocates and supports

resettlement with development." Yet like the Bank's guidelines, it backtracks, stating that "all resettlers shall be assisted to improve or at least restore their former living standard in steps." In the case of Lesotho's Highlands Water Project, the binational policy-making commission has continued to reject development initiatives necessary even for living standard restoration by claiming that they go beyond the Bank's restoration requirement.

Epilogue

Scudder notes in his book that he has been a supporter of large dams for nearly 50 years. The book does reflect a shift in his thinking, however. "Adverse and irreversible environmental impacts continue to occur and improved policies have yet to yield improved outcomes for project-affected people. This conclusion applies to some of the largest dams recently completed or currently under construction. Unless dam builders can show they are willing and capable of implementing the WCD's core values and strategic priorities, they should not receive international finance and support." He continues to advise the World Bank on the Nam Theun 2 project in Laos, however, and remains convinced that the project will improve lives in that impoverished nation. ■

Another Large Hydro Fails to Get Carbon Credits

by Ben Pearson

The efforts of the World Bank to use the Kyoto Protocol's Clean Development Mechanism (CDM) to promote large hydro projects were dealt another blow in February when the baseline methodology for its Sibimbe hydropower project (Ecuador) was rejected by the CDM Executive Board, the oversight body which governs the CDM. Every CDM project must use an approved methodology which sets out how the greenhouse gas emission reductions are calculated and how the project is "additional" – i.e., proof that it would not have happened anyway without CDM credits. In rejecting Sibimbe, the CDM's Methodology Panel noted that the argument about why the plant needed carbon credits was unconvincing, given that the project was nearly complete when it sought approval.

Patrick McCully, Executive Director of IRN, welcomed the decision: "We're pleased

that the CDM rejected this project, which clearly did not deserve to gain financially from carbon credits. What is dismaying is that the World Bank keeps putting forward projects for the CDM that blatantly fail to comply with CDM criteria. Compounding this is the Bank's dissembling about what is a 'small' hydro project, and its refusal to use WCD principles for large hydros, which is required for these credits to enter the EU's trading system."

Numerous large hydro projects have been proposed for carbon credits, but thus far the success rate for large hydros in the carbon-credit market has been dismal. Of the eight large hydros (more than 10 MW) that have sought approval from the Panel, only one has been accepted, and four have been rejected. Three others were sent back to the developer to be modified. One of these – for the La Vuelta and La Herradura hydro projects in Colombia – has been seeking

approval for over a year and had numerous revisions, while inside sources say that the Dutch Government has now accepted that the expansion of the controversial 300 MW Bayano Dam in Panama by a subsidiary of the US power company AES will never be accepted as a CDM project.

Examples like Sibimbe, where project developers try to get carbon credits for completed or nearly completed large hydros, are unsuitable as CDM projects and would only further undermine Kyoto's already weak targets. The Bank's failure to get these projects approved reinforces that large hydro projects are not meeting the CDM's mandate of promoting sustainable development and are almost always non-additional, thus generating "fake" carbon credits. ■

The author is with the group CDM Watch, based in Australia. See <http://www.cdmwatch.org>

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