

# WORLD RIVERS REVIEW

## INSIDE

**Special focus on the legacy of large dams**

### Guatemala

Lessons from the Chixoy Dam case. Page 4-5

### Environmental Flows

A case study on improving water flows in dammed rivers. Page 6

### Interview from Zimbabwe

Helping the Tonga reconstruct their lives 50 years after Kariba Dam took everything away. Page 10

## Tribes Fight to Keep the Xingu Alive

By Glenn Switkes

For five days in May, hundreds of tribal people from the far reaches of the Amazon Basin came together to protest plans for large dams on the Xingu River, the largest tributary of the Amazon. Representatives from the Kayapó, Parakanã, Assurini and other indigenous groups came ceremonially adorned with *genipapo* (black) and *urucum* (red) bodypaint and feather adornments. Some travelled as far as 1,000 miles to attend the meeting, which they saw as a critical moment to present their position on the government's plans to flood their territories and to describe the importance of the Xingu River system to their ways of life.

The emotionally charged encounter was filled with many powerful moments. Every day, each indigenous group entered and left the meeting with a dance and

chant. Warriors armed with clubs and bows and arrows carried out rituals not usually seen outside their village ceremonies. A Kayapó chief told a federal public attorney, "We want you as an authority of the government to tell President Lula that there will be world war in the Amazon if they try to build these dams." There were more poignant moments, as well. A Kayapó chief took his young son in his arms and said, "This is why we want to protect the Xingu – it's not for me, it's for him."

The crystalline waters of the Xingu River flow from plateaus stripped for soy farms in Central Brazil, across native savannas, and finally reaching the majesty of still-pristine rainforests. The forest is standing because Indian warriors have repelled invaders for centuries.

The meeting drew more than 800 indigenous people

from 26 ethnic groups and representatives of social movements from throughout the basin. It was the largest indigenous gathering in the Amazon in nearly 20 years, echoing the determined opposition to dams voiced in a 1989 encounter in Altamira between the Kayapó and other indigenous groups, environmentalists, and the Brazilian government. After that heated encounter, the World Bank cancelled a loan to the Brazilian electric power sector, setting back government plans to dam the Amazon for more than a decade. Today, as Brazil is pushing ahead with a series of dams, including the huge Belo Monte Dam, which if built would be the world's third largest, indigenous people are once again sounding the alarm and forming a united front against dams on the Xingu.

Despite the government's attempts to portray Belo Monte as a "better" alternative than previous plans for a series of dams on the Xingu, the indigenous peoples made it clear that any intervention on the river will affect the fish stocks on which they depend for their survival. Belo Monte would dry out more than 100 km of the Xingu's "Big Bend," leaving indigenous people without fish, transportation, or a clean water supply, and providing a fertile breeding ground for insects which spread malaria,

*Continued on page 15*



Tribal leaders at the gathering. Photo: Sue Cunningham

## World Rivers Review

Volume 23, Number 2  
ISSN Number 0890 6211

Editor  
**Lori Pottinger**

Assistant Editor  
**Susanne Wong**

Design  
& Production  
**Jeanette Madden**

Printing  
**Inkworks**

## International Rivers

Executive Director  
**Patrick McCully**

Staff  
**Monti Aguirre, Karolo Aparicio, Peter Bosshard, Nicole Brewer, Elizabeth Brink, Colin Carpenter, Jamie Greenblatt, Terri Hathaway, Inanna Hazel, Aviva Imhof, Tim Kingston, Shannon Lawrence, Aaron Levy, Berklee Lowrey-Evans, Lia Metz, Carl Middleton, Lori Pottinger, Elizabeth Sabel, Aaron Sanger, Ann-Kathrin Schneider, Glenn Switkes**

Interns  
& Volunteers  
**Selma Barros de Oliveira, Wil Dvorak, Mike Learner, Feng Yun, Liam Zachary**

Board of Directors  
**Martha Belcher (Chair), André Carothers, Bob Hass, Marcia McNally, Carlos Meija, Milan Momirov, Deborah Moore, Cymie Payne, David Pellow, Lori Udall, Meeta Vyas**

Contact Us  
**1847 Berkeley Way  
Berkeley, CA 94703 USA  
Tel: (510) 848-1155  
Fax: (510) 848-1008**

 Printed on 100%  
post-consumer recycled  
waste paper  
Vegetable based inks

# Commentary

## ADDRESSING THE LEGACY

Our world is full of serious problems, from escalating violence and war to global food and water shortages to increasingly deadly natural disasters. With so many urgent issues, why should we care about the legacies of large-dam development?

The history of dam development is one of forced displacement, driving people from rural to urban settings, spurring the rise of slums and increasing poverty. At least 80 million people have been forced to make way for dams. Clearly, the world's 50,000 large dams have played a major role in fueling modern economies. Yet they have also flooded some of the most productive agricultural lands in the world. Changes in downstream water quality and quantity have decimated the fisheries, waterfowl and mammals of the world's deltas. For the tens of millions of people whose lives and livelihood were rooted in the banks and valleys of wild rivers, and for the hundreds of millions of people who struggle with the degenerative impacts of dead or dying fisheries, dam development has literally destroyed their health, economy, and culture. Recent assessments of the record of large dam development worldwide have produced dismal findings: not a single case can be found where displaced peoples now experience an equivalent, let alone improved, quality of life.

Who are these people? In India, 2% of the population has been forcibly displaced by dams, and at least 40% of Indians displaced since 1947 are categorized as "tribals" and ethnic minorities. The story is similar in most nations in large part because those who still live in the wild lands where rivers run free are typically those with little power: the ethnic minorities and indigenous groups who have managed, even in modern times, to eek out a traditional way of life. Dam development has meant loss of land with inadequate or nonexistent compensation, and loss of access to critical resources that support communities and the cultural traditions that sustain them. In case after case, the end result is best described as an ulcerating mess.

We are just beginning to understand the many and profound intergenerational consequences of completed dams. Some 80,000 Tongans, for example, forced from their homelands in 1952 for the Kariba Dam, now live in abject poverty. As displaced communities around the world attempt to document their plight and negotiate some form of remedy, responsible parties – governments and international financiers – have largely reacted in minimal ways on a case-specific basis.

Not only have we failed to learn from our mistakes, we are now setting out to repeat these mistakes in exponential ways. And this time, the stakes are even higher.

In the past few years, thousands of new large dam projects around the world are being planned. Hundreds of large dam projects have been announced in China. Every river on both sides of the Himalaya will be modified. Some 22 dams are planned or being built on 20 rivers in Turkey alone. This new boom in dam development is occurring at an unprecedented scale and rate, in many cases without the public financing that stipulates consideration for social and environmental concerns.

Consider these changes on a global scale. Map out where dams are planned or being built. Add an overlay of biodiversity hot spots. Add another overlay of cultural diversity, where the world's remaining indigenous groups and ethnic minorities reside. Then, add a final overlay of known and as yet undeveloped mineral and energy reserves. You will see a dismaying convergence. Many planned dams will generate hydroelectricity primarily to support the extraction and processing of gold, aluminum, copper, uranium, oil shale, and other resources. The new dam boom will most assuredly threaten, if not wipe out, a huge portion of the world's remaining diversity of life. Where will the next generation of dam-affected people go? How will they survive? And what consequences will we see in global rates of poverty, health, misery, and violence from their collective experiences with dam development and displacement?

We live in a time of immense crisis. The lessons we learn from examining the legacies of past dam development and addressing ulcerating conditions in meaningful ways – with political processes and actions that repair the damage and make amends – are lessons in creating security and peace. Dealing with dam legacy issues and rebuilding a sustainable way of life for affected communities requires governance and action that prioritizes human and environmental security over profit and power. It's a legacy we can't afford to ignore.

Barbara Rose Johnston

# MAKING WAVES



International Rivers staff participated in a rafting trip on the Yangtze organized by China Rivers Project to bring Chinese journalists and citizens to a stretch of the river threatened by new dams. Here the boats pass the Ahai Dam site, a controversial dam that is not yet permitted for construction but is clearly well under way. Photo: Colin Carpenter

## Laos: Repair the Damage First

International Rivers is working with European groups to derail plans for an expansion of the Theun-Hinboun Hydropower Project in Laos. The project involves a new 65-meter-high dam that will double diversions through an existing dam's powerhouse, increasing flooding in the Hai and Hinboun rivers. In April, an International Rivers review of the project's resettlement plan and EIA – written by Norwegian consultancy Norplan – found that the documents are of such a low professional standard that their proposed mitigation measures will not address the dam's impacts or restore villagers' livelihoods. As a result, the Theun-Hinboun Expansion Project is likely to plunge around 50,000 Laotians deeper into poverty, while ensuring bumper profits for the project's developers, including Norwegian state-owned utility Statkraft.

Our reviews were followed by a letter to six private western banks questioning their involvement in a project that clearly violates the Equator Principles, the voluntary social and environmental standards adopted by each of the financial institutions. International Rivers and the BankTrack Coalition are working to press these banks to refuse financing until the company has proven its ability to deal with the damage to livelihoods and the environment caused by the existing project, where 30,000 people are still waiting for compensation a decade after it began operating.

## Chilean Dam Stalled

Activists hailed as a victory AES Gener's decision to suspend its request for an environmental license for the Upper Maipo hydroelectric project in Chile. AES opted to put the \$600 million project on hold, pending a revision of the EIA, after numerous omissions and irregularities were identified, including lacking of water rights needed for the project. "We're extremely happy because this

shows that the project should not have been submitted for approval in the first place," said Edison Acuña of the Citizens' Coordination for the Rivers of the Maipo. The group says the project would demand more water than is available, and would endanger the major water source and an important recreation site for Santiago's six million residents.

## In the News

“As it stands, the [Grand Inga] project's electricity won't reach even a fraction of the continent's 500 million people not yet connected to the grid. Building a distribution network that would actually light up Africa would increase the project's cost exponentially. It would be very different if rural energy received the kind of commitment and attention now being lavished on Inga,” said Terri Hathaway of International Rivers. ”

From “Banks meet over £40bn plan to harness power of Congo river and double Africa's electricity,” the UK *Guardian*, April 21, 2008



These low-tech drawings are one of the latest high-tech tools to help indigenous hunter-gatherer tribes in the Congo River Basin protect their resources. For the past several years, Cameroon-based Center for Environment and Development and UK-based Forest Peoples Programme have been working jointly with Helveta, a UK based company, to develop this handheld GPS unit which allows non-literate Pygmy communities to map forest resources and to watchdog illegal logging at its source. Photo: Terri Hathaway

# On Trust, Justice and Restoring Dignity

## The Long Path for Reparations in Guatemala

by Monti Aguirre

**“History does not allow injustices to vanish just because we are unable to address them.”**

*Colombian author William Ospina*

The fight for justice made by the communities affected by the Chixoy Dam in Guatemala has been going on for more than two decades. Their story is stupefying. At the time the dam was being built, horrendous persecution and even massacres of people in the dam region took place at the hands of the dictatorship. The indigenous Maya-Achí communities that lived on lands adjacent to the Chixoy (Negro) River where the dam was being built did not escape the hatred of the brutal regime. People lost the river, their land, fruit trees, animals, sacred sites, their dignity and, too many, their lives. Close to 6,000 people suffered ill-effects from the dam, and at least 400 were murdered.

The survivors' resilience is admirable and humbling. For many years communities have organized, sought out national and international allies, protested, wrote letters, and met officials of the Guatemalan government, and project financiers at the World Bank and Inter-American Development Bank (IDB). Community leaders sought remedy for wrongs committed against their loved ones as the dam was being planned, built and put into operation.

For a long time those responsible for building the dam and committing the atrocities did nothing. On a few occasions the World Bank, which at first tried to avoid responsibility by stating that their loan obligations had already been fulfilled, made quiet yet bold moves to encourage small economic development projects and land acquisition. But unfortunately these could not begin to address the conditions of entrenched poverty in affected communities. So the affected people formed the Coordinating Committee of Communities Affected by the Chixoy Dam (COCAHICH) to take their efforts to seek reparations and development to the next step.

NGOs like Rights Actions accompanied communities and helped to build their strength, one day at a time. Carlos Chen, a quiet yet driven community leader, took the people's case to the World Commission on Dams' public hearing in Brazil. The international community responded in support by faxing and emailing thousands of letters to the banks and government demanding that the peoples' needs be addressed. A representative of one of the banks once said that their fax machine was damaged by the thousands of faxes sent to them in support of Chixoy communities.

When affected peoples held a massive protest at the dam site in September 2004, this pressure resulted in an unprecedented agreement signed by government officials and communities to initiate a process to review the case. Shortly afterward, a backlash hit

and criminal charges against eight leaders of the protest were filed. The agreement remained inactive for almost a year.

Meanwhile, in March 2005, a study on the legacy of the dam, which included a remarkable chronological account of facts and events going back as far as 1950, and an accounting of present community needs, was published and presented by COCAHICH to government officials in Guatemala, and the banks in Washington, DC. The government began to listen. That year, communities retained US law firm Holland & Knight, which had offered to provide pro-bono advice to COCAHICH. Communities now had counseling

help at the negotiating table, and were armed with a strong study documenting damages from construction of the dam.

Finally and slowly, the cumulative efforts of many parties working for many years began to bring results for communities affected by the dam. A new political agreement was signed on September 2006 with then Vice President Eduardo Stein. The agreement's objectives are to identify the communities that were affected, and how to repair the damages; review previously made agreements to determine if they were fulfilled; identify unforeseen damages to other communities that were not previously taken into account; and establish monitoring mechanisms for the fulfillment of the agreements.

“Having an impartial facilitator is essential in these kinds of negotiations,” said William Armstrong, who was an observer of the Chixoy process for the IDB until 2007. “Because even when they are guided by a document as clear as this political agreement, inevitably the negotiations get off track and the whole process is at risk of being derailed.” To ensure this wouldn't happen, the Organization of America States (OAS) was called to mediate the process. Other observers of the process besides the IDB included the General Attorney's Office, Human Rights Attorney's Office, the World Bank, and the Office of the High Commissioner of the United Nations for Human Rights. Having a facilitator was one reason the criminal charges against community leaders were eventually dropped.

“I am very pleased to see that the IDB and INDE, who did not want to listen to us for a long time, have now come forward and even contributed funds for the development plan,” said Carlos Chen as he awaited his turn to declare on the genocide case before the tribunals in Guatemala City.

It has taken a long time for the government and financial institutions to acknowledge that the building of Chixoy Dam had a legacy that needed to be addressed. It has taken the right people to be present at the right moment, political will, and a process agreed to by all parties. But most of all, it has taken trust in each other as people. The process is not over yet, but we continue to trust that those in power will do the right thing for these communities. ●



**Paulina Osorio was born in a village that was flooded by Chixoy Dam. The Guatemalan Army murdered over 400 villagers during the building of the dam, including Paulina's parents (shown in framed photos) when she was nine. She had to swim across the reservoir to hide in a cave; she had never swum before in her life. Photo: Erik Johnson**

# One Step at a Time: Learning from Chixoy

**Elizabeth Bevington, a member of a team of 20 pro-bono lawyers with Holland & Knight, LLP (H&K), which advises COCAHICH, talked to WRR about the broad lessons of the Chixoy negotiations.**

Involvement of a well-respected neutral facilitator is key. We began the process with a government agency in charge of human rights as the organizer and moderator of the meetings. That process did not work well, and we recommended involving a neutral party. After some due diligence, Roberto Menendez of the Organization of American States (OAS) was identified as a potential mediator and all parties accepted. This change marked the beginning of the real advances in the process.

Another critical component is empowerment of local leaders. The community leaders were already well-versed in the process of building consensus within their own communities, but were less experienced with external high-level political negotiations. While we were always present for actual meetings, the representatives themselves were in charge of speaking. We provided input during the meetings, never hesitating to call for a separate caucus when it seemed necessary. Importantly, we also provided feedback on what approaches we saw as constructive. It was not long before the representatives, already natural leaders, became more comfortable with the group and the process. The next step is encouraging the next generation of leaders. We have a wonderful young spokesperson, Juan de Dios Garcia, who is very involved with the communities, and brings other community representatives with him to meetings. But it would take training programs and more effort to keep the momentum going in developing young leaders.

The use of a political document to outline the government's commitment is another key lesson. The actual form that this takes will vary depending on the political structure of the country or organization at issue, but it is very helpful to have a governing document that outlines agreed-upon objectives for the negotiations. The process of negotiating the document itself is very important. It will highlight areas of agreement and disagreement, and provide an opportunity to narrow the areas of dispute. It is important to have it signed by a high-ranking person who can assert that he or she makes the commitment on behalf of the negotiating entity.

Another important aspect of success is knowing how to defuse tensions and suspicion. Arrange to "break bread" together as often as possible. Try to get one or more of the negotiating parties to take turns hosting the meetings, preferably with time set aside for socializing. Set aside volatile issues for another forum. This might not be as significant in other negotiations as it was with Chixoy, but if there are issues that are more volatile, such as massacres, try to determine if there is some way to defuse the issues by separating them out from the solutions to practical problems. In our Chixoy negotiations we were able to assure the negotiation table that we did not intend to make the massacres an issue, and

were looking only to resolve the tangible, practical, present-day problems of the communities, such as housing, economic development, cultural preservation, education, health.

Related to this, try to avoid assigning blame before reaching the means for remediation. You can begin this process with the negotiation of the political governing document, by stating that the objective is to determine what unresolved or remaining damages resulted from some event, such as the building of the dam, rather than what damages resulted from some blameworthy act, such as the government's failure to resettle or failure to keep promises.



**A farmer at a Chixoy resettlement community. The population there has grown considerably since it was first settled some 20 years ago but they have the same amount of land, and too little water. Photo: Erik Johnson**

Transparency in all the processes is very important. Make sure, for example, that if an expert is to be consulted, the entire group has the opportunity to comment on the selection and use of the expert. This process was used in the selection of the Organization of American States as the neutral, and it worked very well.

Whenever possible, encourage both sides to make the kind of concessions to generate good will so that the participants began to develop something of a sense of trust.

It is important to have observers at the table. The United Nations is a good choice, as are internal human rights agen-

cies. In addition, having the World Bank and the IDB as observers is very important, as they can suggest or directly provide funding sources for the process itself as well as the remediation.

Using a commercial law firm or other type of advisor can be viewed as bringing a practical and commercial approach to dispute resolution. We think that the involvement of H&K in the negotiations gave the government a sense that their dialogue with the communities would be grounded in commercial practicalities rather than ideologies.

## Stumbling blocks

The fact that criminal charges were pending against the leaders of the communities was an obvious obstacle in the process. One side of the table had the power to deprive the other side of the table of its leaders. Moreover, the situation created potential for conflict of interest, since the government had something very significant to offer the leaders individually. We all took an early and firm position that this impediment to free negotiation had to be removed. Ultimately this issue was resolved, and its resolution enhanced trust among the participants.

Delays have been a huge problem. These communities have been suffering the consequences of displacement since the 1980s, and have been involved in this negotiation process for three full years. Part of the delay is that with so many participants scheduling is difficult. In addition, any national emergency or big holiday brings all scheduling to a halt. Other than continuing to urge the table to set a firm schedule, and turning around requests for information and drafts as quickly as possible, we have no suggestions for improving on this problem. ●

# Let It Flow: Reducing the Environmental Legacy of Dams

by Cate Brown

**T**he majority of the world's major rivers have been dammed, leaving a legacy of environmental and social harms that has truly changed the planet. But managing dams in ways that mimic natural river flows can help offset some of the worst damages.

The Lesotho Highlands Water Project (LHWP), which transfers water from the mountain highlands of Lesotho to South Africa, is one of the world's largest water-resource developments. In addition to affecting tens of thousands of people living in the reservoir area, the project has, to one degree or another, impacted some 150,000 people living downstream of the dams.

It was only as the first dam, Katse, neared completion in 1997 that international pressure forced an assessment of the project's impacts to downstream ecosystems and communities. The result was a study that led to significant advancement of the use of "environmental flows" (EF) in water-resource decision-making.

The LHWP EF study analyzed how changes to the way water was released from the dams could reduce the impact on both downstream river ecosystems and on the livelihoods of people living alongside them. Two years of data collection was followed by a structured evaluation of the effects of different kinds of flow change. The team predicted social, health and economic outcomes that were linked with biophysical impacts, then devised scenarios that included consideration of an array of issues to make possible a decision on the future flow releases from the dams. Environmental issues included changes in river form and function, and losses or increases in the abundance of riverine animals and plants. Economic issues included loss of royalties from the sale of water to South Africa, and compensation to downstream communities for predicted losses of riverine resources.

The scenarios formed the basis for protracted negotiations between the Lesotho Highlands Development Authority, the World Bank, and the governments of Lesotho and South Africa, which led to agreements on the volume of water to be released from the dams, the timing of releases, and the compensation payments to be made to people living downstream. The resulting Instream Flow Requirement Policy also specified operating rules for the dams and a program to monitor compliance with the agreed releases. The operating rules provide for changes to releases depending on climatic conditions, so that some natural variation is maintained.

When implementation of the policy began in 2003, the focus switched to monitoring downstream rivers and administering compensation payments to local communities. Compensation included



**The Senqu River. The gravel bar mid-photo formed since the LHWP dams reduced regular floods. Such changes can block the river channel and cause a number of problems for river functioning over the long term. Photo: Cate Brown**

back payments to villagers in river reaches in close proximity to the dams – i.e., within 40 km – for losses from reduced flows. These payments totaled millions of US dollars.

The first three years of monitoring revealed some early problems with meeting prescribed flow regimes – chiefly that dam operators released enough water, but too regularly to mimic natural conditions. Most of the changes recorded in the downstream rivers were linked to this loss of regular flooding. Nonetheless, in 2006–07, nine years after the completion of Katse Dam and four years after the completion of Mohale Dam, the rivers downstream of the structures were either in their target ecological condition, or better than their target condition.

Initial results have also opened an opportunity to assess the accuracy of predictions made by the EF team. Although some changes are expected to take upward of 20 years, the monitoring results indicate that some aspects have not responded as predicted. Downstream of Mohale Dam, for instance, 64% of the biophysical indicators changed as predicted, whereas 25% showed no change and 10% changed in the opposite direction from predicted. For example, nearly all of the predicted changes to the physical shape of the riverbed occurred, whereas water quality was not as badly affected as predicted. Fisheries, on the other hand, showed some of the predicted impacts (such as reduction in the abundance of indigenous species), but others were the opposite from predicted (such as an increase in exotic species in some areas).

Significantly, one of the aspects where change was opposite from predicted was "woody vegetation," which was predicted to decline in downstream rivers under the agreed flow regimes. Wood is rare in the Lesotho Highlands but crucial for cooking and heat-

*Continued on page 11*

# Damming Nigeria's Wetlands People

by Dr. Muslim Idris

In Nigeria, floodplains and wetlands are rich sources of livelihood for millions of people. These wetlands communities have been losing ground for many years, however. Nigeria's most important wetlands, the Hadejia-Nguru Wetlands, have shrunk by as much as two-thirds in the past 30-40 years because of diversions from dams, irrigation developments and drought. Fisheries, farming and wildlife are all impacted by these hydrological changes.

The Hadejia-Jama'are-Komadugu-Yobe (HJKY) basin – home to an estimated 25 million people – is a semi-arid to arid sub-catchment of the larger Lake Chad Basin. It is the source of internationally shared waters whose management has an important bearing on diplomatic relationships between Nigeria and four other countries that share the Lake Chad Basin (Niger, Cameroon, Chad and Central African Republic). The basin also holds great potential for tourism, small- and medium-scale industries and habitat conservation. It supports around half of the estimated 30 million people residing in the Lake Chad Basin, even though its share of water resources is less than 10% of the total for the basin's catchment area. The problems in the HJKY basin are part of a broader regional problem with managing water resources; Lake Chad itself is in critical condition, and has shrunk to just a tiny fraction of its historical size.

## Life in the wetlands

The Hadejia-Nguru Wetlands is the premier Ramsar site in Nigeria and a place of enormous economic and ecological importance. The wetlands supports 10 million people engaged in extensive rice farming, grazing, fisheries, recession agriculture, pastoralism, forest regeneration and other economic activities.

The construction of the Tiga and Challawa dams on the Hadejia River and its tributaries greatly altered the river's natural flow pattern and has brought about changes to the environment and the livelihoods of the communities throughout the basin. One consequence to changes in the flow pattern of the river is increased siltation, particularly around the Hadejia-Nguru wetlands areas. Invasive Typha grass, which has flourished in the regulated river, has compounded the problem, leading to flooding of the major road linking the six states.

Fisheries have been harmed by dam-related changes to flooding. The impacts have been felt by fishermen, fish processors, fish wholesalers, fish retailers, fish gear dealers and boat builders. All of these changes have increased local poverty levels.



Flooding is a major issue for communities in the HJKY basin.

Perhaps the most catastrophic change in the basin is the increase in dangerous floods. In August 2001, 225 people were feared dead and more than 200,000 people displaced by the flood resulting from poor management of the Tiga and Challawa dams. Farmlands, livestock, crops and natural biodiversity were lost.

The physical problems caused by the dams are compounded by weak legal and policy frameworks, poor management and maintenance of the dams, inadequate stakeholder preparedness for effective participation, insufficient consultation by decision-makers of directly affected people, the absence of grassroots advocacy groups, and low levels of citizen participation at all levels.

Adding to the problems is the increase in population, which is putting more pressure on water resources. Over-fishing has resulted in the decline in fish stocks, especially of the most commercially attractive species, and has caused a consequent sharp decline in income among riverine communities.

## Livelihoods in the wetlands

The floodplains and wetlands support communities by providing them with sources of income and nutrition from agriculture, grazing lands, fishing, non-timber products, fuel wood, drought fall-back security and tourism potential. Ramsar estimated between US\$34-51 per hectare as the economic value of the wetlands. The total economic value of the Hadejia-Nguru wetlands has been estimated at \$15.9 million.

The largest irrigation scheme in the basin – Kano River Irrigation Project (KRIP) – is located upstream, and is fed by Tiga and Challawa Gorge dams. The irrigation project has not been a major economic success. According to the UN Food and Agriculture Organization, “The economic value of production from the wetlands is very large, many times greater than that of all the irrigation schemes for which the inflowing rivers are dammed, diverted and their waters used.”

The upstream communities whose access to water was boosted with the construction of the dams and development of public irrigation schemes now have higher per capita income and enjoy higher standards of living compared to communities downstream, which have lost natural resources from these developments. Communities downstream have complained seriously over their increasingly poor access to water.

The priority issue for wetlands communities is regulation of excessive and persistent floods, which have overtaken more than 70% of their farmlands. The priority issue for communities downstream is that of water recession and desertification, which affect their ecosystem and economic productivity.

## Moving toward solutions

For a number of years, communities were left to fend for themselves in face of floods, siltation, invasive weeds and other impacts from poor water management in the basin. Today, however, they have joined in partnership with other stakeholders and decision-makers to begin to reverse the basin's worst problems. The process to solve these many problems started with creating a knowledge base of information about the basin. Local academics and researchers have compiled socio-economic and environmental studies, and undertaken an audit of water resources in the basin. Next, a catchment Management Plan was developed for the entire basin. The various stakeholders were consulted to reaffirm their interests, hope and aspirations.

*Continued on page 15*

# Fighting for Justice: A Global Roundup of

*Out of the millions of people displaced by large dams have arisen many strong people's movements working to restore their lives and livelihoods and address the legacies of large dams in their communities. Here we feature just a few of their stories.*

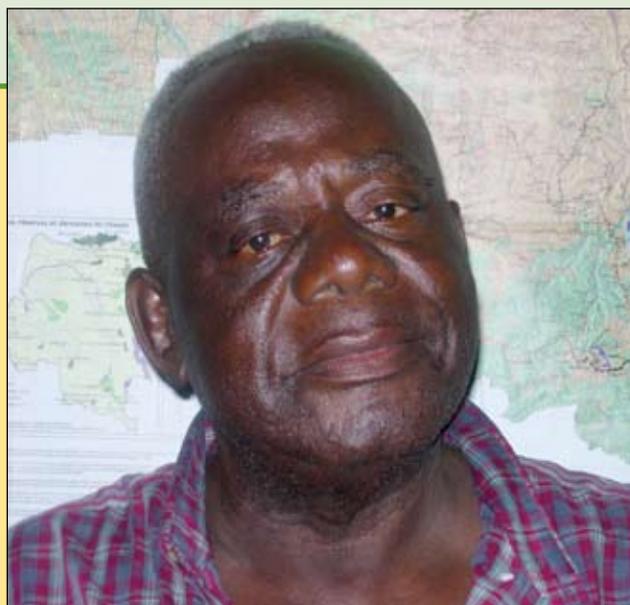
## A lifetime of struggling in Congo

by Terri Hathaway

For 40 years, Simon Malanda has fought for compensation for the six clans that made their ancestral homes along the banks of the Inga rapids. These communities were displaced by the Inga 1 and Inga 2 dams. In 1975, the communities took state utility SNEL to court for its negligence in paying compensation in a timely manner. SNEL persuaded the case to be dropped after promising to pay, but then reneged on payment.

In 2006, the communities again engaged a lawyer, who suggested forming a committee of community members and SNEL officials to settle the dispute. However, this did not happen.

Rather than give up the fight, Malanda next took the claim to the provincial governor and the national parliament. The communities are seeking compensation, ongoing royalty payments, connection to the electricity grid, and preferential hiring for jobs at the Inga site. A major rehabilitation of the two dams is now underway with financing



Simon Malanda. Photo: Terri Hathaway

from the World Bank and other partners. This, coupled with media attention about the proposed Inga 3 and Grand Inga schemes, has given communities a prime opportunity to resolve Inga's unpaid debt to families who once lived there.

## Restoring livelihoods in the Philippines

by Hozue Hatae

Gold-panning used to be a major source of income for people living along the Agno River. When the San Roque Dam was built in 1998, 2,500 families were forced to give up their farmlands and more than 3,000 gold-panners lost their livelihoods. That would be the end of the story if it weren't for the organizing efforts of local communities and organizations.

The Peasant Movement to Free the Agno River (TIMMAWA) has since 2001 continuously petitioned the National Power Corporation and the San Roque Power Corporation to fairly and immediately compensate gold panners. They demand monetary

compensation and alternative sustainable livelihood programs for their losses from gold panning, which was prohibited after the dam was built. They also demand that proper and immediate compensation for the lands, houses, crops and other properties should be provided.

After a series of protest actions and dialogues, project proponents agreed to provide a cattle-raising program for each household of the gold panners, starting in 2006. However, not every gold panner has benefited from the program.

Local activists continue their efforts amidst threats and intimidation. The chair-

person of TIMMAWA, Jose Doton, was murdered in May 2006. His death has caused much grief among local people.

Still, communities continue to fight for compensation and alternative livelihood programs. Local farmers are also mobilizing against the project's irrigation component, which would flood lands, destroy rice fields and impose a greater debt burden on the Philippine people. They argue that existing irrigation systems should be improved and smaller-scale irrigation projects should be given serious consideration to avoid a similar fate.

# f Legacy Campaigns

## A Wake-Up Call for China

by Nicole Brewer

The Three Gorges Dam and the millions of people it has displaced alerted the world to the magnitude of China's dam industry. But within China, the Manwan Dam has served as a wake-up call to regulators and developers on the challenge of dam-induced displacement.

The dam displaced 5,000 people, mostly farmers who used to grow subsistence crops along the fertile banks of the upper Mekong River. In 2004, Dr. Yu Xiaogang of the local NGO China Green Watershed conducted a social impact assessment and discovered that local communities had received less than 40% of the compensation they had been promised. Though new homes were built for the displaced villagers, many were located too close to the reservoir and collapsed as the water level rose. Villagers were given little or no land. To add insult to injury, many of the micro-hydro-power systems villagers had built were destroyed, and they were forced to purchase electricity from the local utility at unusually high rates. Many displaced villagers left to find work elsewhere, but others resorted to picking through garbage around the dam site to make ends meet.

Upon further investigation, Dr. Yu found that much of the money meant for resettlement and compensation had gone missing. "The local government officials used this money to build new homes for themselves – very nice homes."

Following his assessment, China Green Watershed led a study tour of the Manwan Dam site for residents of the neighboring Nu River valley, an area also slated for large hydropower develop-



Manwan dam migrants scavenge at a garbage dumpsite for survival.

ment. The media coverage of this study tour and the problems participants encountered at Manwan contributed to a government crackdown on China Green Watershed's activities. But Dr. Yu's work also prompted the provincial government to launch its own investigation of Manwan. The investigation team confirmed Dr. Yu's assessment. The province issued a new US\$10 million package for compensation and improvement to resettlement communities, and punished county officials responsible for mismanaging the original resettlement funding.

The story of the problems at Manwan Dam spread through media activists, and became a symbol of the need for better compensation for those displaced by dams in China. As more and more projects are built in communities already marginalized by poverty, ethnicity, and lack of education, the work of groups like China Green Watershed is critical to ensuring promises are kept.

## Going to Court to Save the Macal

by Candy Gonzalez

Since Chalillo Dam in Belize went online in 2005, we, the people living downstream of the dam, have tried to ensure that the terms of the Environmental Compliance Plan (ECP) for the dam were

being fulfilled. The ECP is a binding agreement between the government of Belize and the owners of the dam to address its impacts. Though a number of sections were not followed, we focused on four: testing the levels of mercury in the fish, testing water quality, putting in place an emergency dam-break plan, and public information programs.

Once dam construction began, "unauthorized" persons were not allowed into the area; we tried to get information on what was happening, especially pertaining to things that affect our health

and safety. We sent letters, petitions, telephoned, appeared in person at government offices, and called the media to find out what was happening to our river. We were promised answers but never received any.

When news came out that a third dam was being built on our river, we filed a claim in the Supreme Court of Belize asking it to order the Department of Environment to enforce the law. Our request for an injunction to stop plans to build the dam until the terms of the Chalillo Dam were met was denied, but the Court agreed to hear our arguments for a court order.

We presented evidence that the Canadian-owned company has not developed an emergency dam break plan; has not properly tested for mercury levels in fish; has not properly tested the water quality, and has failed to inform the people or answer any of our concerns.

Though we have some good laws, they are worthless unless they are enforced. Regardless of the eventual court decision, our struggle does not end until we are assured that the health and safety issues are put in place and the people have the information that is rightfully ours. Legal action is only one of many strategies to ensure that developers are held accountable for their actions, especially when they affect our well-being and our environment.



# Interview

## Basilwizi Trust, Zimbabwe

*Fifty years ago, Tonga communities were forced to give up their traditional homeland during construction of Kariba Dam, and their lives were turned upside-down in a woefully inadequate resettlement. Unforgiving terrain combined with the country's devolving political and economic situation have left the Zimbabwean Tonga facing greater challenges than their Zambian relatives. Starting in 2000, the Tonga-led Basilwizi Trust in Zimbabwe began helping rewrite the future of its people. International Rivers' Africa campaigner Terri Hathaway caught up with Boniface Mutale, Director of Basilwizi Trust. Born shortly after his family's resettlement, Mutale is leading one of the strongest efforts to combat the effects of displacement which continue to batter new generations of Tonga.*

### **WRR: How did Basilwizi Trust begin?**

**Mutale:** We were looking at how we could help the Tonga communities in the Zambezi Valley who were affected by construction of Kariba and the flooding of their lands. So we came together because there was no meaningful organization in the Zambezi Valley championing these communities' issues. We decided to form an organization that actually identifies with the people, that understands the issues affecting the communities, and will continue to work with the communities until a lasting solution is found. "Basilwizi" is Tonga for "people of the great river." It well describes the life people lived along the banks of the Zambezi, and their attachment to the river that was a source of their livelihoods for years.

### **WRR: How would you describe the effect of the displacement on the Tonga communities?**

**Mutale:** The effect of the relocation has been grave. When the people were relocated, they were promised that water would follow them, meaning that the government was going to construct small dams in the new resettlement areas and pipelines from the Kariba reservoir to the new areas. They were also going to construct schools, clinics and roads, but very little of that was actually followed up by the then [colonial] government. A few boreholes were constructed, yes, but these broke down after some time and there was no follow up to make sure they continued supplying water. Most of these boreholes produced salty water which was not very good for domestic use. No dams were built for the communities. So, since that time, people have been experiencing acute water shortages in these new areas, something that they never experienced when they lived along the banks of the Zambezi River.

People have also been experiencing acute food shortages. They tell us that they used to have adequate food for their families all year because they were able to grow enough food on the alluvial soils on which they lived on the banks of the Zambezi.

When it comes to infrastructure like clinics and schools, the situation is appalling. Up to independence, there was no secondary school in Binga, and those who got secondary education had to move out of the district. In these other areas like Nyaminyami, there was no secondary school, Gokwe is the same, Hwange is the same. So you can see the amount of suffering that people have been going through. After independence, the new government built some secondary schools in these areas, but still they are not enough. Today, some children must walk up to 20 kilometers to a secondary school, the same for clinics. People still walk around 10 kilometers or so to get water.

The relocation also did a lot of harm to the people's culture. After the relocation the Tonga communities, which were previously quite isolated, were open to outside influences. Over the years, the Tonga culture has slowly been eroded. They are losing their



Some of the Basilwizi staff (Mutale is in the middle). Photo: Karin Retief

language. They are losing their identity as a people which is dangerous because then they will not know who they are. Then they are not in a position to fight for their rights because they would not be comfortable identifying themselves as part of the group that has been dominated. How do we get back to our ways? That has been something that the elder people in the Zambezi Valley have been very worried about. Even survival tactics they had during years of difficult times and through years of starvation, they are losing all those tools of survival. Yes, as a people, we know that culture is dynamic but I don't think it should go to the extent of wiping out what actually makes people survive, and what makes people become what they want.

### **WRR: What changes have you seen in the communities?**

**Mutale:** It's a challenge. When you are doing advocacy empowerment of communities it's not something that you realize benefits from overnight. But I must say that ever since we started we've been able to bring together the affected communities from the four districts in which we are working: Hwange, Binga, Nyaminyami, and Gokwe. At least these communities are now able to meet through their representatives to discuss the problems that they have, and at least now they know that they are experiencing common problems, and they are ready to speak with one voice. Before Basilwizi, there were individual voices of people who were trying to make the problems of the communities heard, but there was no concerted effort, no common issues to bring the people together. Now we are able to bring together representatives from different districts, to face the local authorities to say: "These are the issues affecting our communities. How best can they be resolved?"

*Continued opposite*

ing houses, thus compensation for the expected loss of this vital resource makes up more than half of the total compensation payments. Yet the initial EF monitoring showed that woody vegetation had increased, which understandably led to serious questioning of the EF's recommendations. The situation is, however, not straightforward. The new trees have colonized newly formed in-channel islands. This process was predicted in the EF study, and floods were included in the recommendations partly to flush these mini-islands and the vegetation that colonizes them. Blocking the river channel with sediments and vegetation causes a number of problems for river functioning over the long term, and eventually leads to a severe decline in river condition and loss of valued species. Furthermore, in-channel trees are at risk of being uprooted during big floods. Indeed, in 2006 a large flood overtopped Katse Dam and removed almost all of the in-channel trees and much of the fine sediment from the reach downstream of the dam. The flood also eroded cultivated fields, and flood debris was linked to the destruction of a bridge downstream. Each subsequent large flood will remove progressively more sediment from the system, and progressively fewer seeds and cuttings will reach the site (because they will be blocked by the dam). It is thus likely that, with time, woody vegetation will decline, as predicted.

### On the cutting edge

The LHWP environmental flows process represents one of the first sets of activities for developments of its kind. It resulted in the mitigation of downstream environmental and social losses associated with reduced flows being accepted as legitimate project costs, changes to the dam outlet valves and operating rules, and a 300-400% increase in the downstream releases specified before the process. A key aspect of the approach was the development of the IFR Policy. The first IFR audit, completed in 2007, found that implementation had been 60% compliant with the IFR Policy and identified issues likely to affect the sustainability of the process,

### Interview *continued*

We have also been working with communities to build leadership skills, communication skills and advocacy skills so that they are in a better position to engage the authorities at the local levels. The results of that work are already showing. Some communities we have been working with have been able to meaningfully engage with authorities at the local level.

I'm also proud to say we've been able to achieve some mileage on the culture. The Tonga language is not used in schools after the first few years, and that is a disadvantage to the education of our children. We worked with the communities to lobby the Ministry of Education, which has now put in place a policy that allows the Tonga language to be taught up to grade seven. It is not effectively happening yet in the communities but what remains to be done is make sure that the resources are in place so that the Tonga language can effectively be taught. A syllabus in Tonga is now with the Ministry for final approval. Once that is through it will be distributed for use by primary schools. So that's an achievement.

In 2005, we also carried out a baseline survey to capture the people's problems, aspirations, how they think the issues in the Zambezi basin can be resolved. That exercise has actually generated rallying points for the communities and that has helped in generating the momentum that you need for people to move forward.

which LHDA has committed to addressing. Notably, the World Bank showed that the costs of the EFs (including compensation) amounted to only about 0.5% of project costs and that EFs did not significantly affect the project's Economic Rate of Return. The Lesotho EF process has also provided some important lessons for future projects, only a few of which can be addressed here. First among these is that EF work should be undertaken very early in a project to inform engineering design and financial modeling, and allow for baseline data collection to support later monitoring and improve EF assessments.

Secondly, large dams will have impacts on the rivers and other ecosystems downstream of them, only some of which can be mitigated through the provision of environmental flows. Furthermore, there is no such thing as a "minimum flow" – the greater the divergence from the natural flow regime, the greater the impact on the downstream environment. In the case of Lesotho, the "target ecological condition" for the rivers immediately downstream of the dams is lower than their pre-dam condition. Also, despite a commitment to compensation, not all of the losses incurred could be costed or even compensated for.

Finally, incorporating the requirements of downstream reaches requires commitment to a complex management process for the life of the dam and beyond. Mitigating the impacts of dams on the living ecosystems downstream is not simple, and requires genuine commitment to environmental flows and adaptive management, sufficient funds and appropriately skilled personnel. Such a commitment is more likely if supported by legislation and guided by a structured decision-making process. ●

---

*The author is an environmental flow specialist from South Africa, and has worked in Africa, Europe and Southeast Asia. She was the coordinator for the first Lesotho study, and an advisor to LHDA from 2002-07.*

### WRR: What are concrete things people need in order to feel that the community has been rehabilitated after resettlement?

**Mutale:** The Tonga people face chronic food shortages, acute water shortages and poor infrastructure in the communities. We want to see small dams that could support irrigation schemes and supply drinking water to the communities. Clinics are needed because you have high cases of malaria especially during the summer season and people have nowhere to go when they are attacked by malaria. They also want to see benefits emanating from their abundant resources in the valley – wildlife and fisheries, for example. They want to see more communities getting involved in these activities which can in the end improve the lives of the people.

### WRR: Basilwizi faces an uphill battle. How do you find the strength to continue doing the work you do?

**Mutale:** I think we have the right to live like everyone else in the world. We didn't commit any sin, why should we continue to live the way we live because of someone else's creation? We are also motivated by the memories of the injustices that are still fresh. The Tonga are willing to take it upon themselves to change their situation. The communities continue to drive the organization and to seek solutions. We find our strength in that. ●

# News Briefs



Women at work in a Grameen Shakti technology training center. Photo: Grameen Shakti

## Women empowered by the sun in Bangladesh

Mossamat Sahenoor is a young woman from a rural village in Bangladesh. Like many other young women in thousands of rural villages in Bangladesh, she was born into poverty with few opportunities to earn an income and contribute to society.

Grameen Shakti has changed all that. It has set up 20 technology centers in rural areas to train local women how to install, repair and maintain solar home systems and improved cook stoves. These technology centers are helping transform rural women into agents of social change to bring light, energy and income to their communities.

“Now I can solve my own problems and help others to solve theirs,” says Sahenoor.

More than 1,000 rural women have been trained like Sahenoor – many of them are fabricating accessories at the local technology centers and others are marketing, installing and repairing solar home systems and improved cook stoves. Many of them will soon set up businesses to promote renewable energy technologies in their own communities.

Now, Sahenoor is a confident and efficient solar technicians who is helping her neighbors solve their solar home system problems. She is also promoting improved cook stoves. She has constructed an improved stove in her home and she has also constructed these stoves in several neighboring houses.

The Grameen technology centers are also reaching out to children. Over 5,000 rural children have participated in the center’s renewable energy awareness programs. These programs are empowering rural women to take care of their systems and at the same time building awareness in rural families, including the next generation.

Overall, Grameen Shakti has installed more than 130,000 solar home systems, with around 5,000 systems installed per month. Grameen Shakti plans to install one million systems by 2015. Women technicians-cum-entrepreneurs mentored by Grameen technology centers will play a crucial role in this effort. ([www.gshakti.org](http://www.gshakti.org))

by Absar Kamal of Grameen Shakti  
(Reprinted from *Sustainable Energy News*)

## Ilisu on the Rocks

The viability of Turkey’s Ilisu Dam is in question after the German development ministry threatened in March to withdraw \$155 million in export guarantees. The dam, planned for the Tigris River, would displace over 50,000 Kurdish people, inundate the 10,000-year-old city of Hasankeyf and degrade the region’s environment.

Last year, the Swiss, Austrian and German governments approved export guarantees for the project, provided that the Turkish government comply with 150 conditions on social and environmental concerns.

In early 2008, just before the planned start of construction, a team of experts published a devastating review, which concluded that Turkish authorities ignored most of the project’s environmental and social conditions. In March, Federal minister Heidemarie Wiecezorek-Zeul said that Germany will “withdraw export guarantees if the agreed-to measures are not applied.”

The expert committee found that the majority of conditions related to resettlement had not been implemented and that critical biodiversity studies had not been initiated. They suggested that construction be postponed. Sources suggest that the Turkish government signed onto the conditions without planning to implement them.

## Ethiopia’s hydro follies

Neither drought nor collapsing mountains have dissuaded Ethiopia from wanting to build more dams – and nothing but dams, it seems. In early April, Mihret Debebe, general manager of the Ethiopian Electric Power Corporation, announced that the country was facing a critical power shortage due

to the prolonged absence of seasonal rain.

The statement followed power interruptions in Addis Ababa and 1,800 cities across the country. The shortage is one of many that have occurred during the past decade due to variable rains, which have dried up the country’s reservoirs. While a number of neighboring countries have begun diversifying their energy sources away from hydro, Ethiopia has instead decided to double its hydro capacity to deal with energy outputs that are cut in half during drought years. At least 10 hydropower plants are planned for construction in the next 25 years. The nation’s rich geothermal, solar and wind reserves lay mostly untapped.

As Ethiopia’s booming industrial sector sags under the power crisis, hopes are pinned on the late-2008 commissioning of the 300-MW Tekeze Dam. However, massive landslides occurred near the dam site in April. This will cause delays as project developers were forced to spend an additional \$42 million on a retaining wall to prevent future landslides.

## Using water wisely

Scientists at UNESCO are busy calculating a water footprint, or the amount of water needed to produce goods and services. They hope that a water footprint will have the same impact as the global warming footprint, encouraging governments, businesses and individuals to change their practices and use natural resources more wisely.

Researchers at UNESCO-IHE, The Institute for Water Education (Netherlands), have already uncovered that 70 to 400 times as much water is used to create energy from biofuels as from fossil fuels.

UNESCO is running pilot projects in a dozen cities to improve water-use practices. These range from rainwater harvesting, recharging underground reservoirs with treated wastewater and changing from flush toilets to dry ones.

## Climate change choking Indus

With glaciers fast receding in the Tibetan plateau, the Indus River and the vibrant communities it supports are in jeopardy. Freshwater availability in Pakistan has fallen from 5,200 cubic meters per capita in 1947 to 1,000 cubic meters today, reports the Pakistan newspaper *The News*. This signals a crisis for Pakistan, which relies on the Indus to supply water to its major cities and for irrigation.

Dams and diversions have already choked off the once surging river's flows. "Before dams and barrages were built in the Indus Valley, the delta area was criss-crossed by the tributaries of the Indus. The discharge from the river was large enough to affect the ocean currents over a hundred miles from the shore," said architect Arif Hasan. Due to "an enormous quantity of freshwater and silt the river brought with it, the delta lands became the richest in Pakistan."

Now, seawater has permeated the delta and intruded up to 36 miles upstream. "Nearly 1.6 million acres of agricultural land has been destroyed by sea

intrusion," said Mohammad Ali Shah, Chairman, Pakistan Fish-erfolk Forum (PFF). Tens of thousands of delta inhabitants have been forced to leave the delta to forge new livelihoods.

Lack of adequate freshwater has also destroyed mangrove forests, which are breeding grounds for shrimp and fish. This has impacted Pakistan's \$200 million export fishing industry.

## Brazil floods continue

The Brazilian government was forced to declare a state of emergency in April as floods displaced 17,000 people in the country's northeast region. Heavy rainfall led to the collapse of nearly 300 dams, 10 bridges and 6 roads. The rainfall was the heaviest in 30 years in the region, known for its arid climate. At least 26 people were killed.

## Halted Amazon Dams

Judges in two Amazon states have halted plans to dam the Xingu and Juruena Rivers, for now. Federal justice Carlos Almeida Campelo ruled that it was illegal for state holding company Eletrobrás to reward Brazil's three largest civil construction companies with a contract to carry out environmental studies for the 11,181 MW Belo Monte Dam in Pará state.

In his ruling, Judge Campelo found that confidentiality clauses limiting access to information from the studies could make it difficult for other investors to compete when and if the project were auctioned, and ordered all studies for the dam suspended.

A judge in Mato Grosso state suspended construction licenses for five smaller dams on the Juruena River. The dams, including projects owned by state governor Blairo Maggi, had been licensed by the state environmental protection agency without adequate studies of the potential impacts on indigenous people and natural resources. Studies for the Juruena Dam will now be placed under the jurisdiction of federal licensing authorities, who will likely require analysis of the cumulative impacts of at least 10 dams planned in the basin.

## Alstom investigated for corruption

French engineering company Alstom is under investigation for corruption and money laundering in connection with gaining engineering and equipment contracts in Brazil, Venezuela, Singapore, and Indonesia between 1995 and 2003.

News sources said Swiss police investigations showed Alstom set up a parallel account in Uruguay to channel bribes to Brazilian politicians. The company allegedly budgeted

US\$200 million to pay bribes to win a turbine contract for Itá Dam in Santa Catarina State, a project financed by the World Bank. Brazilian police have reportedly found evidence that the company also bribed government officials to obtain payment for turbines manufactured for the Tucuruí Dam that were found to be defective. No charges have yet been filed.

The payment of "commissions" to secure construction and equipment contracts was a practice permitted in France until a law prohibiting bribing of foreign officials was enacted in 2000. Until then, such payments were considered legitimate corporate tax deductions. Alstom says that about one-quarter of the world's hydroelectric plants use the company's technology, including Three Gorges, Merowe, Bujagali and Itaipu dams.

## US wind power could reach 20% by 2030

A report released by the US Department of Energy and the American Wind Energy Association shows that wind power could provide 20% of US energy needs by 2030. (Currently, only 1% of US electricity is wind-generated.) Achieving this admittedly ambitious goal would reduce CO<sub>2</sub> emissions by 25%, reduce natural gas use by 11%, reduce water consumption by four trillion gallons, increase annual revenues to local communities by over \$1.5 billion and support 500,000 jobs, says the association.

This scenario "would only cost 2% more than the cost of the baseline scenario without wind," said Suedeen Kelly, Federal Energy Regulatory Commissioner. "At 50 cents per month for the average ratepayer, that is a small price to pay for the climate, water, natural gas, and energy security benefits it would buy – and it does not even count the stability provided to consumers by eliminating fuel price risk."



These photos were taken in the same place on Laos' Xe Kaman River four years apart. The photo on the right was taken in 2008, after construction began on the Xe Kaman 3 Dam, which will export power to Vietnam. One of the dam's more visible impacts is heavy siltation, which has made the river a muddy mess.

Photos: Marcus Rhinelander

# In Print

## A Community Guide to Environmental Health

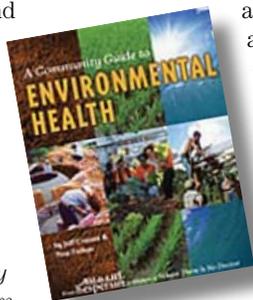
by Jeff Conant and Pam Fadem. Published by Hesperian Foundation, June 2008. Paperback, 600 pages. US\$28. ([www.hesperian.org](http://www.hesperian.org))

*A Community Guide to Environmental Health* has been 10 years in the making, but it was well worth the wait. It is the first comprehensive guide designed to help communities around the world understand virtually every aspect of the environmental health issues they face in today's increasingly toxic world. The guide is clearly written and abundantly illustrated for an intended audience of urban and rural health promoters, development workers, environmental activists, and community leaders. Its messages are easily accessible through real-life stories and activities intended to foster community dialogue and participation.

Hesperian has an "open-copyright" policy to encourage other organizations to translate, adapt, and distribute their publications on community-based health care. They offer heavily discounted prices to people in developing countries, and distribute thousands of free books every year.

The guide features key vocabulary highlighted and explained throughout each chapter, with a glossary at the end for easy reference. A resource guide lists organizations, websites and publications by topic.

The book covers obvious health issues, such as sanitation and building toilets, health effects from industrial developments, and how to safely use insecticides to prevent diseases.



es. But it also covers broader health-related topics such as protecting watersheds and forests, genetically engineered foods, and clean energy for rural development (even explaining how to create an energy source from a bicycle). It also describes how to use laws to fight for environmental rights.

This guide is another invaluable tool from Hesperian, and will help communities around the world take an active role in their health.

**Berklee Lowrey-Evans**

## China's Water Warriors: Citizen Action and Policy Change

by Andrew Mertha. Published by Cornell, 2008. Hardcover, 168 pages, \$30.

This new book provides an insightful and useful tour of contemporary dams in China. "Authoritarian China" is dismantled as Mertha shows how dam decision making has become increasingly messy and diffuse. Mertha focuses on the greater ability of NGOs and media activists to impact projects (as in the suspended Nu River dams) and on the efforts of local communities to oppose dams (as in the Pubugou Dam). And Mertha's unprecedented access to local officials involved in the defeat of the Dujiangyan Dam reveals that in China's fragmented political structure, local bureaucrats can fight the interests of China's massive and well-connected dam industry.

Readers interested in the changing politics of dam building in China, or the country's development path more broadly, will find Mertha's book fascinating. Mertha's title reflects his infectious interest in political change in China.

But it is difficult to ignore the fact that overall, China's dam building industry continues to win the day on rivers across the country. As Mertha describes, protest on the part of hundreds of thousands of villagers could not stop Pubugou Dam. And though the Nu River has become a *cause célèbre* in China, its fate too appears to be in the hands of industrial interests. Hundreds more dams are being built in China where the environmental and cultural issues at stake are just as high as in these three cases. If only one or two dams can be defeated, one wonders whether the question is not why are "China's Water Warriors" having occasional impact, but rather, why has China's dam industry remained the champion?

**Nicole Brewer**

## Muddy Waters: Potential Impacts of the Damming of the Amazon's Principal Tributary,

edited by Patricia Bonilha. Published by International Rivers, June 2008.

Paperback, 240 pages. In Portuguese.

International Rivers has launched the most comprehensive study yet on the plans

to dam the Madeira River in the Brazilian Amazon, within the context of South America's regional infrastructure integration plans. *Muddy Waters* includes a history of the project by Glenn Switkes, and a series of studies by experts including Jorge Molina Carpio (hydrology and sediments), Geraldo Mendes and Erin Barnes (fisheries), Zuleica Castilhos (mercury), and a team from the University of Amazonas on socio-economic issues. A full-



color map of the region shows where the dams are planned, with details on protected areas and indigenous reserves that would be impacted. The book includes in addition to diverse independent opinions from specialists on the probable impacts of the projects, and documentation on the activist mobilizations against the dams. 2,000 copies of the book, which was produced in collaboration with Bank Information Center's Biceca Program, will be distributed free to activists and the public in Brazil.

## New Financiers and the Environment: Ten Perspectives on How Financial Institutions Can Protect the Environment,

edited by Peter Bosshard. Published by International Rivers, May 2008. 44 pages. In English and Chinese at [internationalrivers.org/en/node/2776](http://internationalrivers.org/en/node/2776).

Financial institutions from countries such as China, Brazil, India and Thailand are playing an increasingly active role in financing infrastructure and mining projects around the world. With new loan approvals of \$36 billion, China Exim Bank for example became the world's largest export credit agency in 2007. Although they invest in environmentally sensitive sectors, many emerging financiers do not yet apply internationally accepted standards on their projects. This report discusses the experience with environmental standards and how it can be useful for new financiers. The report contains ten papers written by experts from civil society, financial institutions and academia. The authors present case studies of overseas projects funded by Chinese, Indian and Thai financiers, and analyze the experience with environmental standards that could be applied by these financiers.

Top government functionaries and politicians were brought to the region to enlighten them on the need for action and canvas their support for improvements. The governors of the six riparian states and the federal government called a summit of local leaders to map the way forward. One of the declarations of the summit was the urgent need to develop a water charter for the sustainable and equitable management of basin resources as well as the formation of a Trust Fund in the basin. The Trust Fund was formed with the sole aim of coordinating and sharing available water and land resources in the basin in an equitable, efficient and sustainable way among all stakeholders. It also links up with community organizations in the basin, such as the Wetland Development Initiative, which has about 400 NGOs to carry out its project activities from inception through construction and maintenance.

The traditional authorities, user groups and community-based organizations are involved at the grassroots level with conflict management. They also participate in decision-making on project conception, execution, operation and maintenance, policy formulation, sensitization and advocacy issues. For example, upstream and downstream communities that were previously competing for water have agreed to and signed a memorandum of understanding to share water on rotational bases, one community skipping one or two days for each other to ensure equitable share of the flow along the river, thereby improving their livelihoods.

By addressing the same problem at different levels, the various stakeholders have provided the basin with a practical demonstration of how an "integrated water resources management" (IWRM) approach can lead to more equitable and sustainable use of water resources in a basin. This has triggered a number of related developments, including the reform of flawed existing institutional arrangements in the basin, and policy changes and budget allocations to strengthen and sustain the new IWRM-related structures and processes. Civil society groups, water committees, donor partners and the technical team for the Trust Fund discuss projects to be executed and how to carry them out. There is better coordination, cooperation and understanding within the basin as no government or individual carries out any major project or activity without the consent of the Trust Fund, state water committees and the communities. The process is providing a model for basins across the country.

In June 2006, a Summit of Governors of the riparian states of the HJKY Basin was attended by the President of the Federal Government of Nigeria and the Minister for Water Resources. It took nearly three years from the time the plan was first hatched to bring these key high-level stakeholders together to bring resources at their disposal to address the basin's problems.

### Xingu *continued*

yellow fever, and other diseases. Given the Xingu's low flow rate during the dry season, Belo Monte's viability is questionable without the construction of additional dams upstream to store water and release it to the Belo Monte powerhouse during low-water periods. Upstream dams being studied could flood thousands of square kilometers of the rainforest, including indigenous territories.

In the meeting's most dramatic and frightening moment, the Kayapó became incensed at a state electric company official's arrogant defense of dams on the Xingu, and his glib statements that the affected people's needs will be met by the National Indian Foundation, an agency that has done little to solve problems caused by past development projects and is now mired in corruption. His speech prompted an angry response from a Kayapó woman leader, followed by a dramatic incident in which a group of Kayapó men wrestled the official to the ground, tearing his shirt

Today, a workplan of proposed activities to resolve the ongoing problems in the area is starting to be implemented. The plan includes the following elements:

- Install hydro-meteorological instrumentation to provide quality data for better water management planning.
- Install warning systems on all dams to alert downstream dwellers in case of dam break.
- Coordinate water management activities in the two basins
- Hold workshops on managing and operating the dams to improve equitable sharing of their benefits and reduce risks downstream dwellers.
- Carry out pilot projects to remove silt and typha plants along the river course to improve inflow to Lake Chad, reduce flooding and increase agricultural productivity.
- Provide micro-credit loans to community groups in the basin.
- Formulate a Water Charter that will assist in effective implementation of the plans and activities in the basin.
- Hold a stakeholders meeting twice a year to account for stewardship of the Trust Fund.

Lessons learned from our work in the basin include:

- Public participation generates tangible benefits, by fostering cooperation in developing and implementing strategic actions.
- Normalization of flows and fostering efficiency and multiple use of water can be managed without huge impacts on dam operators and upstream users, while greatly improving lives downstream.
- Improving accountability and service delivery is critical. All project execution in the basin follows due processes and with effective monitoring strategies and benchmarks for improvement.
- Conservation of water, soil and biodiversity is everyone's responsibility. Sustainable use and regulation of groundwater must be a top priority for any water-management plan to succeed.
- Good political will is imperative to back up sustainable development in the basin.

Today, communities and traditional authorities in the basin have renewed hope that they will one day see reduced conflicts over water resources. They dream of the day when river flows will be restored to their pre-dam construction era when the various user groups were living in harmony with each other because the resources were quite abundant for all to reap. ●

---

*The author chairs the Joint States Integrated Water Resources Management Committee in the Komadugu Yobe Basin. He was born in the basin and has worked there for over 30 years as a hydrogeologist.*

and wounding him on his arm with a machete. Images of the bloodied official were widely picked up by the Brazilian media.

The final meeting declaration, called the "Xingu Forever Alive letter," sounded a united voice against all dams, large and small, on the Xingu and its tributaries. "Our culture, our spirituality, and our survival are deeply rooted in the Xingu, and we depend on it for our existence... We who have protected our Xingu River demand respect."

This remarkable meeting revealed the strength of the indigenous peoples' commitment to protect the Xingu. The power of the human spirit unleashed at this gathering was not dimmed by the violence, or the media backlash orchestrated by the government. Hope is alive along the raging rapids along the Xingu, and the spirit of the rainforest is reflected in the eyes of the people whose lives depend on its bountiful waters. ●

# Day of Action for Rivers a Big Success

by Hanna Jacobsen

The 11th annual International Day of Action Against Dams and for Rivers, Water and Life on March 14, 2008 was a day of anger and hope: anger toward companies and projects that damage the world's natural resources and communities, but also hope that valiant efforts can ultimately save our rivers from industrialization. More than 100 actions took place in 36 countries.

## Demonstrate...

In Brazil, the birthplace of the Day of Action Against Dams, the Movimento dos Atingidos das Barragens (MAB) organized thousands of dam-affected people and captured widespread media coverage in a series of events across the country.

In Chile, more than 500 demonstrators gathered at La Moneda in Santiago to alert President Bachelet to protest dam development and particularly the HidroAysén proposal to dam rivers in Patagonia.

In India, hundreds of protestors from dam-affected villages staged a blockade along the main thoroughfare of Roing, blocking access to a public hearing for a proposed hydroelectric project. Vehicles carrying officials were trapped inside a swarm of passionate local protestors. In Bangladesh, human chains to protest dam development filled the roads by the banks of the Surma and Moyur rivers.

Iceland took action for rivers on March 14 for the first time. In solidarity with farmers in Pjorsa, Saving Iceland built a small "dam" obstructing the entrance to the national energy company in symbolic resistance to plans for three new dams for aluminum smelters. Elsewhere in Europe, activists used both demonstra-

tions and petitions to protest construction of the Ilisu Dam in Turkey.

## Educate...

In Lesotho, a group discussion of water politics focused on water as a human right, while in South Africa, demonstrators gathered to discuss mining companies' contamination of rivers and dams and proposed solutions. Elsewhere in South Africa, people affected by Inanda Dam formed a group to address the decades-old legacy of their resettlement.

In Portugal, high school students in a Renewable Energy course co-hosted a colloquium titled, "Microgeneration of Energy = Macrogeneration of Jobs." The session was followed by a kayak demonstration at the city center, as well as a trip up the Tua River and meetings organized with dam-affected people.

## Celebrate!

Amidst the protests and conferences, there was also room for celebration of our rivers. Sabor Livre of Portugal hosted a weekend of elaborate events on the Sabor – one of Europe's last wild rivers, now slated for damming. Kite flying in Bangladesh, tree-planting in the Philippines and a bike relay in Zambia engaged youth and highlighted the beauty and fragility of our natural resources.

In California, the Klamath Riverkeeper joined native tribes in hosting a fundraising dinner to bring down the Klamath dams. International Rivers hosted a Berkeley event aimed at saving the wild rivers of Patagonia. ●



1847 Berkeley Way  
Berkeley, CA 94703 USA

[internationalrivers.org](http://internationalrivers.org)



**Day of Action:** In Burma, at least 250 villagers from more than 18 villages of Karen people staged a mass rally, then gathered along the Salween River to pray to the river spirits for protection from planned construction of the Hut Gyi Dam, which threatens to devastate the area's fragile ecosystem and their way of life.