

INSIDE

Southern Africa: An energy expert explains how tapping local green power could light up Mozambique and spare the Zambezi from another destructive large dam. Page 4

Ethiopia: The African Development Bank to investigate problems on Gibe 3 Dam. Page 7

Yangtze Memories: A photo scrapbook of a boat journey to the Three Gorges Dam. Page 8

A Bad Precedent for Water Quality

Mine Gets OK to Turn Alaska Lake into Waste Dump

by Lori Pottinger

Recent federal rulings permitting a gold mining company to dump toxic waste into a pristine mountain lake in Alaska could have widespread ramifications for rivers, streams and lakes in the US.

In June, the US Supreme Court ruled that the pro-

posed permit for the mine did not entail a violation of the nation's preeminent water pollution law, the Clean Water Act. Then in August, the US Army Corps of Engineers (which oversees much of the nation's dam- and canal-building) gave the mine's owners the needed permit to begin.

The permit authorizes the Idaho-based Coeur D'Alene Mines Corporation to discharge 200,000 gallons per day of toxic wastewater from its gold-ore processing mill into Lower Slate Lake, in the Tongass National Forest north of Juneau. The company will triple the lake size by damming it, to accommodate the huge amount of discharge (expected to be about 4.5 million tons of solids over the ten-year life of the mine).

The result is expected to devastate the lake's aquatic life. Should the dam fail (and tailings dams such as this one are more apt to fail than other kind of dams), its toxic waters would flow down to the pristine waters of Berners Bay, a wildlife-rich inlet with very productive fisheries.

"If the Clean Water Act allows significant pollution of Lower Slate Lake, it can allow the same thing for water bodies elsewhere in the United States too," says Tom Waldo, a lawyer with EarthJustice. Waldo argued the case for environmental groups before the Supreme Court.

The precedent-setting case began with changes to environmental protection laws set in place by George W. Bush's administration. In 2002, the administration expanded the definition of "fill material," which is regulated by a less strict provision in



The US Government recently gave a mining company permission to fill Lower Slate Lake with chemically processed tailings from the mine. This photo shows the lake after work on the mine began. Photo: Pat Costello, courtesy of Lighthawk

Continued on page 15

World Rivers Review

Volume 24, Number 3
ISSN Number 0890 6211

Editors

Lori Pottinger
Susanne Wong

Design and Production

Jeanette Madden

Printing

Inkworks

International Rivers

Executive Director

Patrick McCully

Staff

Monti Aguirre, Karolo Aparicio, Peter Bosshard, Nicole Brewer, Elizabeth Brink, Ian Elwood, Jamie Greenblatt, Terri Hathaway, Inanna Hazel, Gary Hughes, Aviva Imhof, Shannon Lawrence, Aaron Levy, Berklee Lowrey-Evans, Ikuko Matsumoto, Lia Metz, Carl Middleton, Payal Parekh, Lori Pottinger, Elizabeth Sabel, Glenn Switkes, Susanne Wong, Katy Yan

Interns & Volunteers

Selma Barros de Oliveira, Jocelyn Bartlett, Sinan Chu, Will Dvorak, Mike Fung, Sohail Khanifar, Catherine Ngo, Brooke Peterson, Feng Yan

Board of Directors

Marcia McNally (Co-Chair), Deborah Moore (Co-Chair), Martha Belcher, Brent Blackwelder, André Carothers, Robert Hass (Honorary), Carlos Mejia, Sarah Minick, Milan Momirov, Cymie Payne, David N. Pellow, Meeta Vyas

Contact Us

2150 Allston Way, Suite 300
Berkeley, CA 94704-1378 USA
Tel: (510) 848 1155
Fax: (510) 848 1008



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

Commentary

THE UNITED STATES' CLIMATE BILL: INCREASING EMISSIONS, SUPPORTING DAMS

The good news: the US government is finally poised to mandate limits on greenhouse gases. The bad news: the bill put forth by the House of Representatives has a gaping loophole that could allow large dams to receive credits, and actually result in an increase in emissions in the short term.

The fatal flaw causing these problems is the use of "offsets" – a policy that allows polluting industries to reduce their emissions by purchasing carbon credits rather than reducing emissions at their own facilities. The credits ("offsets") are given for supporting projects in developing countries. One would expect such a system to support the development of true renewables in developing countries, but sadly, this is not the case. The most prevalent project type in the world's largest offsets market is hydropower, which means that large, destructive dams are receiving credits. Not only are offsets supporting projects that have adverse environmental and social impacts, but most of these offsets probably do not even represent real emissions reductions.

For dam developers, offsets represent a new source of income at the expense of the climate, rivers and communities that depend on them. For the planet, it's a step backward. Laws that sacrifice rivers for the sake of the atmosphere will make it harder to adapt to a changing climate. The Allain Duhangan Dam in the Indian Himalayas is a good example of how offset projects trample on the rights and livelihoods of local communities, and damage the environment. The Ombudsperson of the World Bank found that the project developer had not ensured enough irrigation and drinking water for affected villagers. The project was also temporarily halted and fined for blatant violations of Indian forest conservation law due to illegal felling of trees, dumping of waste and road construction. This project is not unique – many of the hydro dams benefitting from offsets have major social and environmental problems.

Despite reports critical of offsets by the federal government's own General Accounting Office, the House climate and energy bill allows for two billion offsets yearly – the equivalent of 30% of United States emissions in 2005. If polluters indeed use the maximum allowable number of offset credits, domestic emissions in 2012 would increase by 38% rather than decrease by 3%, the reduction set by the bill. Emissions would not dip below 2005 levels until 2030, 18 years from today. That's a generation too late.

Offsets slow the transition to a new green economy. The longer action is delayed, the more difficult and expensive it will be to make reductions in the future. And by then it may be too late. The most recent science suggests that developed countries must decrease their emissions by at least 40% relative to 1990 by 2020. Scientists are worried that if emissions don't come down quickly, the earth may reach the "tipping point," which will result in abrupt climate change that is irreversible. Given these grave risks, we can't afford to have offsets further water down these weak targets.

Offsets also allow corrupt gaming of the system, to the point that many do not even represent actual emission reductions. We know that cutting-edge technologies are not initially as competitive as long-established (and already subsidized) technologies – think solar vs. coal. Any money raised from offsets should be used to help bridge this gap for new clean technologies, so that a solar project, for example, can be competitive. Unfortunately, projects that can't move forward without additional funding are not the primary beneficiaries of offsets. Most of the money is going to projects that would have been built anyway (or in some cases are already built!).

As I write this, the US Senate has not yet passed its version of the bill, so there is still time to influence it. Grassroots pressure is integral to ensuring that we get a strong climate bill. International Rivers is working hard to inform Senators about the dangers of offsets, and encouraging them to exclude offsets from their version of the bill. We will be calling on our US supporters soon to contact your Senators about this issue. They need to know that the American public will not stand for half-baked solutions to climate change.

Payal Parekh

MAKING WAVES

In the News

“The government’s decision to build 100 new dams in the Amazon over the next 20 years is a perfect recipe for a new cycle of devastation in the region... The new dams are not only devastating, but expensive. An example is the proposed Belo Monte Dam. Its cost estimate has quadrupled, casting its very economic viability in doubt.”

From an article by International Rivers’ Amazon campaigner Glenn Switkes, in “Sustainable Brazil,” Sept. 2009

“Other experts argue large dams may exacerbate water-sharing problems along the Nile - and point out that many are being built independently of the Nile Basin Initiative (NBI). “All these competing projects combined with a dose of climate change could send the region’s already over-tapped water resources to the brink of disaster,” says Lori Pottinger from International Rivers. “It’s kind of like the Wild West in this watershed and I’m not at all sure that the NBI will be an effective sheriff.”

From “A growing thirst for the Nile,” BBC News, August 7, 2009



Belize’s Dirty Dam

When polluted water started pouring out of Chalillo Dam on the Macal River in Belize – the water source for a third of the nation’s population – Candy Gonzalez, who heads the Belize Institute of Environmental Law and Policy, went into action. On her behalf, International Rivers contacted water-quality expert Guy Lanza (Univ. of Massachusetts) for comment. After Gonzalez sent his analysis to the media, Lanza was interviewed on national TV, where he warned about the danger of drinking and difficulty in treating such heavily polluted water. The government was forced to declare the water unsafe, and now the dam’s owners have some explaining to do. Read our blog on the topic: www.internationalrivers.org/en/node/457



Yu Xiaogang is one of two Chinese river protectors recently awarded the Ramon Magsaysay prize. Here Dr. Yu stands at Tiger Leaping Gorge overlooking the Yangtze River. Photo: Tom Dusenbery

Chinese River Protectors Win Prestigious Award

Ma Jun and Yu Xiaogang, two of the main players in the struggle to protect China’s rivers from huge dams (and close colleagues of International Rivers), were awarded the 2009 Ramon Magsaysay award, considered by many to be Asia’s Nobel Prize. Journalist Ma Jun was recognized for his seminal book on the country’s water crisis (the English version of which we published in 2004), and for his creation of public databases which “name and shame” polluters of China’s air and water, which have encouraged companies to clean up their act. Yu Xiaogang, the director of the NGO Green Watershed, was awarded the prize for his efforts to secure reparations for people affected by the Manwan Dam and for his role in the successful campaign to stop the construction of 13 dams on the Nu River.

Nepal Dam Hits Roadblock

The 750 MW West Seti Project is Nepal’s largest hydropower project, and one of the largest private dam projects in South Asia. The social and environmental costs will mainly be borne by Nepal, while the electricity will be exported to India. After ten years of negotiations and discussions with an Australian investor, the Asian Development Bank and China Exim Bank, the project has now hit a new roadblock. A committee of Nepal’s parliament found in August that the project agreement unduly favors India, and has ordered the government not to sign it. Affected communities complain that they have never been properly consulted, and NGOs such as WAFED have criticized the inappropriate assessment of environmental impacts. The political impasse will buy some time for the civil society campaign to stop the funding of West Seti.

Tapping Local Green Power Could Light Up Mozambique

New Plan Shares the Wealth, Spares the Zambezi

Mozambique is painting itself into a corner. Already extremely hydropower-dependent, the poor Southern African nation's next priority energy project is yet another large, costly dam on the Zambezi, at a time when climate change threatens to make the river's flow more erratic and hydropower more risky. The Mphanda Nkuwa Dam's power will primarily be for export to South Africa, since Mozambique's people are too poor, and its national grid too small, to make the dam economically viable for domestic use. Local NGO Justiça Ambiental contracted energy expert Mark Hankins to analyze what it would take for the nation to embrace market-ready renewable energy solutions. This excerpt from his new report discusses changes needed to reach this green future. (Look for the full report on our website.)

Mozambique is three countries.

The “first country” is a power house for the Southern Africa region. Based on low-priced electricity from Cahora Bassa Dam, it is able to pump hundreds of millions of dollars worth of power into South Africa and to attract investors that set up energy-intensive megaprojects such as smelting plants and refineries. Electricidade de Mozambique (EdM), the national power company, is a leader in the region, with an electrification program that is expanding at the rate of 100,000 new connections per year. This “country” is negotiating with international investors to build the multi-billion-dollar Mphanda Nkuwa Dam, and inject still more power into the Southern African Power Pool (SAPP) grid.

The “second country” is predominately off-grid, poorly served by electricity infrastructure, and – at less than 50 kWh/capita/annum – has among the lowest per capita use of electricity in the world. This second country is unable to extend or build power stations in remote regions, and its planned transmission infrastructure forces most of the power it produces to be exported to South Africa, before re-importing it at higher cost. It relies on international donors to fund over 75% of its slow-moving rural electrification programs. Its rural areas have poor access to communications, roads and income generation, in large part because there is little economic activity or ability to process agricultural products.

The “third country” is energy-rich with a vast potential for decentralized clean electricity and fuel production. It has virtually unlimited solar power across the entire country and large biomass resources that could be used for electrical production in strategic areas. It has over 1,000 MW of mini-hydro potential, much of it in areas that are currently electricity-starved. It has the second largest coastline in Africa, with unexplored wind resources that could contribute to the national grid.

Mozambique's future development will largely be determined by whether it utilizes the ample energy resources of the “third country” to bring power to the “second country.” However, at a time when many countries in the world are actively implementing

renewable energy programs, Mozambique still does not have such a program and is primarily focused on the “first country's” mega-power needs.

Mozambique's huge untapped potential of renewable energy technologies is well-suited for both urban and rural energy development. But its electricity sector has a short-sighted and risky reliance on electricity from large dams, which is primarily driven by a need to sell low-cost power to South Africa and industry. Because of this focus on power prices and large projects (and, typically, an avoidance of addressing environmental and social costs in pricing these projects), Mozambique is missing out on critical global developments in new clean sources of energy that could benefit its population, create new industry, jobs and capacities, and bring ample, high-quality power to its own population.

Moreover, a lack of leadership, implementation capacity, policy and incentives is causing Mozambique to miss out on viable renewable opportunities that would benefit the country for the long term. The lack of government-designed incentives constrains renewables development and lowers investment appetite for rural electrification.

Mozambique's close integration with South Africa impacts immensely on the way energy projects are developed. Like many African countries, Mozambique has followed a centralized approach to electricity supply, selecting power sources according to criteria that are largely determined by cost – and ease of financing. Its current supply focus on large-scale energy projects is directed primarily at electricity for industry and for export to the Southern African Power Pool – which has rapidly increasing demands for power.

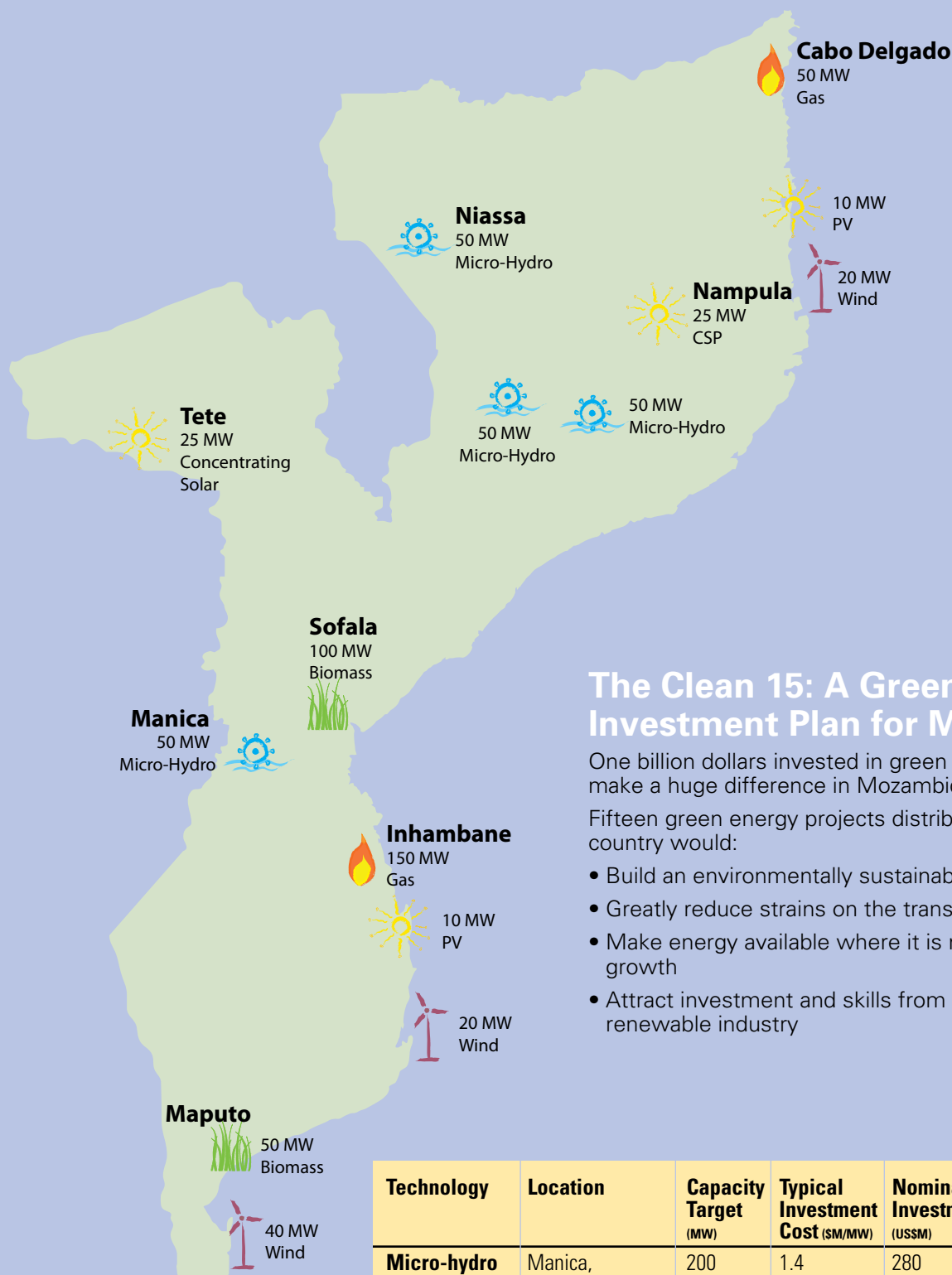
In fact, through use of energy efficiency programs, South Africa has the potential to quickly reduce its own electricity consumption by an amount equivalent to 3 to 5 times Mozambique's entire consumption!

As long as Mozambique's power planners focus on the huge consumer next door, they will never adequately meet the needs of their own country, which remains largely off-grid and unconnected.

Mozambique is now in the awkward position of having to export electricity from Cahora Bassa Dam via South Africa's transmission system, and re-import it for use in the capital city of Maputo. The transport of electricity via this system encourages a relatively high waste of electricity, as large amounts of power are lost in these transactions.

Mozambique has a wealth of unexploited biomass, solar and wind resources. And unlike Cahora Bassa and Mphanda Nkuwa, which focus narrowly on the Zambezi corridor, Mozambique's renewable energy resources are widely distributed throughout the country and can be rapidly deployed both off-grid and on-grid. Mini-hydro schemes can supply firm power to remote parts of the country in both mini-grids and to support weak end-of-line transmission within the grid network. Wind can feed into grid lines in the south and east of the country. Solar PV is suited for both off-grid and on-grid applications. Biomass resources could be tapped immediately from the sugar industry to feed into the central part of the grid. (See map opposite.)

Article continues on page 6



The Clean 15: A Green Energy Investment Plan for Mozambique

One billion dollars invested in green energy sources could make a huge difference in Mozambique's energy future.

Fifteen green energy projects distributed throughout the country would:

- Build an environmentally sustainable energy base
- Greatly reduce strains on the transmission systems
- Make energy available where it is needed and stimulate growth
- Attract investment and skills from the booming worldwide renewable industry

Technology	Location	Capacity Target (MW)	Typical Investment Cost (\$M/MW)	Nominal Investment (US\$M)	Capacity Factor	Electricity Cost (US\$/MWh)
Micro-hydro	Manica, Niassa Zambezia	200	1.4	280	45%	60
Wind	Cabo Delgado Maputo Nampula	80	1.7	136	30%	60
Cogen	Sofala, Gaza	150	1.2	180	80%	45
Solar PV	Maputo Inhambane	20	7	140	20%	180
Concentrating Solar	Nampula Gaza, Tete	50	5	250	30%	100
Gas	Cabo Delgada	200	0.8	160	90%	55
Totals		700MW		US\$M1146		

Despite the ample resource and large number of potential sites (as well as the positive government policy towards small- and micro-hydro), the overall development focus has been on mega-projects such as Mphanda Nkuwa. Only a handful of small and micro-hydro projects have been completed over the past five years. This is largely due to the lack of capacity to implement small-scale microhydro projects, lack of clear process and lack of focus on the sector.

What's the Problem?

The following summarizes the key obstacles to developing Mozambique's ample renewable potential.

A Lack of Leadership, Capacity, Policy and Incentives

Renewable energies are constrained less by cost and technical feasibility than by a lack of leadership and political will to utilize existing resources.

As is the case in many African countries, the development of large-scale renewable energy projects in Mozambique is still in its infancy. Because of climate change and the need for diversified power sources, Germany, Spain, Japan, China, India and the US (and, soon – with its new feed-in tariffs – even South Africa) are rapidly recognizing the need to make systematic shifts away from large hydro and coal-fired power. They have developed strong policy drivers, such as feed-in tariffs, renewable targets, and special-purpose incentives to rapidly build up their renewable energy industries.

Mozambique's power sector is only beginning to consider such moves, and on a relatively small scale. Senior players in the government and energy sector have not demonstrated knowledge of or interest in the rapid policy changes being made in other countries, or of the need for leadership and strong incentives in the development of renewable energy markets.

The government-led approach to renewable projects has prevented the growth of the private sector in PV, wind, cogen and small-scale hydro.

Given the relatively large private sector investment flows into other sectors (i.e., tourism, agriculture), it is surprising that there is little encouragement of the private sector to enter power generation in areas where EdM cannot reach. Worldwide, virtually all successful on- and off-grid PV sector developments have been private-sector based, not based on government procurements.

Thus far, Mozambique's isolated renewable energy generation for mini-grids and remote stand-alone power is dominated by government. Although the World Bank attempted to stimulate private sector initiatives, this was abandoned by the government and to date the sector remains government controlled.

Private and community-led development – with incentives – of solar, wind, small-scale hydro and biomass resources is much more efficient than government-led initiatives. For example, in Germany and California, incentives offered for renewable energy production caused rapid development of capacity as consumers took up the incentives and as companies rushed to take advantage of new markets. GEF-supported incentives have resulted in installation of hundreds of thousands of solar home systems in Bangladesh, China, Sri Lanka and Uganda. Private sector led installation of microhydro systems in Rwanda is also increasingly successful. In these situations, the government does not procure – instead, it provides resources and actively facilitates the installation of systems to private consumers. Companies are able to use these incentives to sustainably build their markets.

Action Priorities

The suggested actions presented below would allow Mozambique to aggressively implement a clean energy plan. Such actions will encourage the development of locally available energy solutions that can be used to meet the needs of the vast majority of the presently unserved population. As well, the actions will promote local opportunities for investment while limiting harm to water resources and reducing vulnerability to climate change.

1. Develop a renewable energy policy that sets aggressive targets for priority renewable energy technologies. The policy should contain specific and separate guidelines for the development of renewable energies on-grid and off-grid. There should be some type of equity between rural and urban projects to ensure that a fair allocation is made to areas that have, to date, received little focus from planners.

2. Remove all duties and tariffs on renewable energy technologies. This will ensure costs are further reduced for consumers and help ensure that renewable energy technologies can compete on a level playing ground with traditional technologies. This should be done before any incentive or subsidy program is introduced.

3. Actively encourage private-sector investment in renewable projects in Mozambique. Create clear incentives for investors, manufacturers and developers to utilize and promote renewable energies when making investments in the country. Renewable energy support should not be targeted exclusively to off-grid initiatives and poverty alleviation; renewables should be encouraged in economically active sectors including tourism, telecommunications and commercial, as well as among middle- and high-income households.

4. Create feed-in tariffs and standard agreements for grid-connected mini-hydro, solar, wind and biomass cogeneration projects. Such tariffs can be based upon similar programs in South Africa or other neighboring countries. Actively seek revenue through energy export taxes and donors to support feed-in tariffs and off-grid renewable energy projects.

5. Expand subsidy funds for off-grid renewable energy projects that support PV, wind, microhydro and biomass projects in isolated and mini-grids. Open this fund up to community groups, the private sector investors and/or EdM.

6. While stimulating the growth of a local renewable energy sector, increase programs for training qualified personnel in engineering, installation and maintenance of renewable systems. Such training would require a balanced mix of university-level engineering training, community-level instruction to decentralize maintenance and service, as well as support for private sector training initiatives. These efforts would necessarily require government certification to fit within existing policy.

7. Actively encourage energy efficiency in Mozambique through policies and programs. First steps would be appliance and building standards, and working with the largest industries to reduce energy use. A program to retrofit public buildings would also send a strong message.

8. Seek to harmonize SAPP efforts to introduce decentralized energy technologies, energy efficiency standards, demand management and feed-in tariffs for renewables.

Seek support for region-wide funds to develop renewable energy projects that benefit the SAPP. SAPP needs to adopt policies that prepare for climate change – in whatever form it takes – by quickly shifting its focus from mega-coal and dam projects to smaller, environmentally friendly solutions. ●

African Bank to Investigate Ethiopian Dam Concerns

by Lori Pottinger

Ethiopia's Gibe 3 Dam, which at 240 meters high would be Africa's tallest, is in the spotlight with two new investigations into its many controversies.

The dam, now under construction on the Omo River, poses great risks for up to half a million extremely poor people living downstream in Ethiopia and Kenya, and will bring irreversible impacts to two World Heritage sites – Lake Turkana, and the Lower Omo Valley.

Although the dam poses massive social, environmental and economic risks that have yet to be addressed, the African Development Bank is considering US\$250 million in project financing. Construction on the project began in 2006 without proper studies of its impacts, and with virtually no consultation of project-affected people.

The African Development Bank's independent investigative unit (known as the CRMU) has now registered two requests to investigate claims that the dam that would violate Bank policy. The first, filed in March by Kenya-based Friends of Lake Turkana, raises concerns about the dam's impacts to the people and ecosystems of Lake Turkana, downstream of the project. The second, submitted in July by five international organizations (including International Rivers), focuses on problems that will primarily affect Ethiopia.

This second claim was accepted despite Bank rules that requesters must be directly affected. Ethiopian civil society groups and communities directly in the path of the dams have been unable to voice their concerns due to fear of retaliation from the government. By accepting the international complaint, the CRMU has implicitly acknowledged that affected people don't have the possibility to raise concerns about the project, which makes any consultation exercise meaningless.

The African Development Bank has until August 27 to respond to the CRMU, at which time the CRMU is expected to begin a full investigation of the Bank's involvement in the controversial project.

Disrupting the Flow

The international groups' claim cites numerous flaws with project studies, including inadequate geological studies (particularly irresponsible given current geological complications of nearby hydro dams in the same watershed); and very poor analysis of hydrological changes that could leave hundreds of thousands at people downstream at risk of diminished quality of life and livelihoods.

The natural flood cycle of the Omo River, which is central to the downstream region's economy and food security, would be fundamentally disrupted by the dam. Filling the reservoir would dramatically reduce water levels in Kenya's Lake Turkana, the world's largest desert lake, stressing its fragile ecosystem to the brink of



Farmer in his fields, Lower Omo Valley. Some 200,000 pastoralists who call the Lower Omo home could be harmed by changes to the river from Gibe 3 Dam. © Alison M. Jones www.nowater-nolife.org

collapse and bringing risk of starvation for local people. Many predict that these effects could destabilize the region, particularly the disputed national borders between Ethiopia, Kenya, and Sudan.

In their request to the Bank, Friends of Lake Turkana states: "A study by the Africa Resources Working Group indicates that the completion of Gibe 3 could mean a drop in Lake Turkana's depth of between seven and ten meters. Resulting changes in the lake's chemical balance threaten the fish as well as other species (Nile crocodiles, hippopotamus, etc) that make Lake Turkana a valuable source of biodiversity. The economic devastation that would accompany such impacts would almost certainly mean a significant upswing in the violent conflicts that have often engulfed the region's peoples."

The international groups' request notes that the project proposes to mitigate the reduction to the river's flow with an intense annual "controlled flood" lasting about 10 days (compared to the months' long period of slowly receding floods that the local people now rely on to grow food). The request states: "The artificial flood is based on inadequate assumptions, insufficient methodology and analysis...The determination of the environmental flow is based on unsound methodology which does not reflect current best practice of the discipline and could further harm the downstream ecosystem rather than protect it."

The international requesters also note the following concerns:

- Project consultation has been a farce. Most affected communities downstream of the dam belong to indigenous groups that are physically and linguistically isolated, and politically and economically marginalized. Only 93 people from the downstream affected communities were officially consulted.
- The Bank has ignored serious violations of Ethiopian law in order to advance Gibe 3 construction.

Continued on page 11

At night, the sky over Chongqing is lit up by a dance of powerful strobe lights.

The fast-growing metropolis of six million people never sleeps; it is one of the hubs of China's economic miracle. The electricity used to brighten the night sky is provided courtesy of the Three Gorges Project.

The reservoir of the Three Gorges Dam will reach its final height in a few weeks. Is the light show over Chongqing a symbol of how the dam has transformed China's society? Or is it the gloss that covers a social and environmental disaster? My wife, an environmental journalist, and I have monitored the project for almost 15 years. This summer we traveled down the 400-mile-long Three Gorges reservoir for an eyewitness tour. Here are some impressions from our trip.



Photos



Early in the trip, we met a group of farmers on a ferry on their way home from the market. Like many of the 1.3 million people displaced for the dam, they live on a different planet than the middle-class consumers in Chongqing. The farmers told us that the compensation they received was not sufficient to pay for their new houses, and that their new lands are so poor that they can't rebuild their lives.

In Yunyang, most of the big factories have not survived the shock of removal and have closed. The new town looks desperate and poor a few years after it has been built.

Photo: Nick Austin



New Fengdu is a rebuilt town with rich tourism and mineral revenues. Most people here have overcome the trauma of displacement, and in the evening we found them dancing by the reservoir.



Travel Diary: Voyage to Three Gorges

Photos and text by Peter Bosshard



Erosion has turned out to be even more serious than expected. The reservoir's fluctuating water levels are destabilizing the slopes along much of the reservoir, and have triggered major landslides. Bringing erosion under control will require several hundred thousand more people to be displaced.

After six days on the road and the river, we finally stood at the Three Gorges Dam. We were impressed and worried at the same time. Chinese dam builders are trying to replicate the project across the country and all over the world. Concerned government officials, scientists and NGO activists are trying to strengthen environmental safeguards and stop destructive projects from going forward. The last chapter of the Three Gorges saga has not yet been written.



Closer to the dam, the once proud Yangtze has been turned into a floating garbage dump. Garbage collectors in boats are paid to fish the debris off the surface, but the periodic algae blooms in the reservoir and downstream of the dam are proving more difficult to fight.



ON THE WEB

International Rivers has updated our Three Gorges Fact Sheet. See www.internationalrivers.org/en/node/3440

Our China campaigns assistant Katy Yan has written an excellent piece on the proposal to build a dozen dirty dams on the Jinsha River and three more on the Yangtze above Three Gorges. Read her blog here:

www.internationalrivers.org/en/node/4517

Mekong Mainstream Dam Threatens Food Security of Millions

by Aviva Imhof

A growing body of evidence reveals that the first dam planned for the lower Mekong Mainstream, the Don Sahong Dam in Southern Laos, could affect the Mekong River's rich and productive fisheries. A new report reveals just how extensive that damage could be.

The Khone Falls area in southern Laos is a breathtaking ecological wonder. At the height of the wet season, torrents of water cascade down spectacular rapids and waterfalls stretching for over ten kilometers. Local fishermen perform death-defying circus acts, walking along wires strung above the thundering river to get to their fish traps, which provide a bountiful catch. Even in the dry season, when the Mekong's flow is considerably lower, the falls remain a spectacular sight: swathes of eerie river-smoothed bedrock are revealed, while water continues to pour through the area's major channels.

A dam across just one of the many channels that weave their way through the Khone Falls area may not seem like such a terrible proposition. But scientists point out that this one channel, called the Hou Sahong Channel, is the only one in the area without waterfalls, and thus the only channel passable year-round by fish. The World Fish Centre has described this channel as a "crucial passageway" and "the only major channel of fish migration between Cambodia and Laos."

A report published this month reveals that the Don Sahong Dam could affect the food security of millions of people in Laos, Cambodia, Thailand and Vietnam. The report was written by Dr. Ian Baird, an affiliate of the Polis Project on Global Governance at the University of Victoria, Canada, and the leading expert on fisheries in the Khone Falls area of Southern Laos.

According to Dr. Baird, the Don Sahong Dam would block the migration of many important fish species that move up and down the Mekong River throughout the year, and that must pass through the Khone Falls area to make their incredible journeys. The Hou Sahong Channel is especially important for dry season fish migrations. As a result, the dam could seriously impact fisheries as far upstream as northern Laos and northern Thailand. Because these fish would be unable to complete their lifecycles upstream of the Khone Falls, Baird points out that their populations downstream from the dam would also be threatened, including important fisheries in the Tonle Sap in Cambodia and the Mekong Delta in Vietnam. The Tonle Sap River and Great Lake support by far the most important fisheries in Cambodia, while the Mekong Delta in Vietnam also supports large fisheries that are especially important to subsistence fishing families.

The report concludes that "fisheries losses in the Mekong region from the Don Sahong Dam could negatively impact the nutritional status of hundreds of thousands or even millions of people dependent on these fisheries, thus decreasing the health of a large human population, especially in parts of Laos, Cambodia and Thailand where nutritional standards are already low."

The Don Sahong Dam, a hydropower project whose electricity would primarily be for export, is being developed by Malaysian company Mega First Corporation Berhad. The project was expected to give notification to the Mekong River Commission earlier this year, signaling the Lao government's intention to move forward with the dam, but has been delayed due to a lack of a market for its



A daring fisherman crosses Khone Falls. Photo: Suthep Kritsanavarin

power. Laos already has several dams at an advanced stage of planning vying for contracts to sell power to Thailand.

Baird's new report adds to a growing body of evidence about the importance of Mekong River fish for food security in the region. According to the Mekong River Commission, the river supports the world's largest inland fishery, worth at least US\$2 billion at first-sale value. Taking into account secondary industries such as fish processing and marketing, the total economic value for the Mekong's fisheries is somewhere between US\$5.6 and US\$9.4 billion per year, contributing significantly to the region's economy. Between half and four-fifths of the animal protein consumed by the 60 million people in the lower Mekong basin come from the river's fisheries. As fish protein is central to human nutrition in the Mekong region, the reduction of fish catch will increase the incidence of malnutrition that is already a serious problem in some areas, especially for the region's most vulnerable people.

According to Baird's paper, the mitigation measures proposed in the project's draft environmental impact assessment are unlikely to be effective. There is no known fish pass that could cope with the unique biological requirements of all the fish species that migrate past the Khone Falls each year. The proposal to widen an adjacent channel is also likely to be ineffective because it would require major engineering works that would be extremely costly.

The report was sent to the Lao and Cambodian governments. In addition, an open letter endorsed by 44 leading fisheries scientists, nutritionists and development workers from the region and around the world was distributed. The letter urges the Lao government and other concerned parties to "prioritize alternative options for meeting Laos' development needs, options that would protect natural resources while supporting people's food security and decreasing poverty."

Keo Boonavat, a fisherman living along the Hou Sahong Channel, agrees. "The Mekong and its fish – this is our life," he says. "We love our Mekong. Can the government feed us if this dam takes away all our fish?" ●

Korea's Grand Plan: Dams and Canals to Restore Ecosystems

by Marcia McNally

In June, the South Korean government released the final plan for its 4-River Restoration Project. According to the government, the plan will secure a reliable water supply, solve flooding problems, and repair the country's ecosystem by improving water quality.

Many people have their doubts about this grand plan. In May, the Professors' Organization for Movement Against Grand Korean Canal (Professors' Organization) held a one-day symposium in Seoul to discuss effective river restoration, and if the 4-River plan is on the right track. Experts from Japan, Germany, the UK, and the US presented river restoration principles, methods, and case studies from abroad. The academic organizers provided a critical assessment of the 4-Rivers Project.

Concerns over the 4-Rivers plan range from the cost, which increases with every governmental release; to its extensive dam-building component (20 at last count), to the planned dredging, that is expected to wreak havoc on the riverine ecosystems. According to

recent polls, 70% of the Korean public is against this project, which is seen as a thinly veiled reconstitution of President Lee Myung-bak's "Grand Korea Canal Project," a plan that was abandoned in 2008 under considerable public pressure (see *WRR*, March 2008). For example, one proposal under the plan is to raise the water level of the Nakong River by six meters to allow navigation by huge cargo ships; this was also the goal of the Grand Canal project.

I was one of the speakers at the symposium, and am worried about the likely environmental consequences of 4-Rivers if it is built. Very little objective information on the project is getting out; the Korean government has held engineering details close to the vest. President Lee and his various ministries have done a fabulous job with greenwashing, which managed to convince the United Nations Environmental Program, among others, that 4-Rivers is exemplary. Further, the South Korean government has been effective in silencing the local environmental community. One of the first actions of Lee's administration was to arrest leaders of high-profile advocacy organizations with charges of financial impropriety (which ultimately were dropped).

The 2,500-member Professors' Organization, an all-volunteer, self-financed group, has pieced together enough of the project's details to call into question the underlying engineering assumptions and the disregard of public due process procedures. But they need help as time is running out and the bulldozers are at the ready. The organization believes that with support from outside Korea they have a chance. They may be right. Since the May conference, a union of Japanese academics organized a campaign and an international network of river restoration experts (called the Hydromorphology Workshop), and set up a website to call 4-Rivers into question. A letter released by International Rivers in August was big enough news that the local advocates were able to hold a press conference to draw attention to growing international concern – the first time the Professors' Organization has been able to attract substantive interest from the media. Look for action alerts and updates in the months to come. ●

The author is co-chair of International Rivers' Board of Directors, and Associate Professor of Landscape Architecture and Environmental Planning at the University of California, Berkeley.



The Yeongsan River is one of the four rivers that would be dammed under a government "river restoration" plan. Photo courtesy the Professors' Organization.

Ethiopia *continued from page 7*

- An assessment of the dam's environmental and social impacts was poorly prepared, grossly inadequate, and approved long after project construction began.
- The project's massive cost and improper contract procurement raise numerous concerns about the financial and economic risks the project poses to Ethiopia. An assessment of the project's costs and predicted revenues has still not been completed. The project's closed-door, no-bid contract is contrary to African Development Bank procurement policies (and international best-practice).

Caterina Amicucci, of the Rome-based Campaign to Reform the World Bank, said: "Ethiopia's limited freedom of expression has silenced the hundreds of thousands of Ethiopians whose livelihoods will be destroyed by the dam. Our request is raising the concerns they can't voice themselves. We hope the investigation will uncover and remedy any and all violations related to the Bank's involvement in this project." ●

More Information

International Rivers' website has extensive documentation on the Gibe 3 Dam. For a summary of the project, download our new 8-page fact sheet, "Ethiopia's Gibe 3 Dam: Sowing Hunger and Conflict," which summarizes the rationale for the project, the major issues facing it, key players involved in it, and ways forward to improve the situation. Also online: both of the requests for investigations on the project sent to the African Development Bank; the project's official EIA (and an independent critique of it), and more.

Visit www.internationalrivers.org/en/node/3773



News Briefs



Local people call this the “monkey of the deep forest.” Biologists call it rare, and threatened by a planned dam boom in the Himalayas and other serious threats. Photo: M.D. Madhusudan

New species bonanza in eastern Himalayas

A stocky brown monkey, a sticky-bellied catfish and a “flying frog” are just a few of the more than 350 species discovered in the Eastern Himalayas during the past 10 years, according to a new report released by conservation group WWF. The report, entitled “The Eastern Himalayas: Where Worlds Collide,” celebrates the species discoveries and highlights the threats the region faces from unsustainable development.

Located at the nexus of two continental plates, the Eastern Himalayas is one of the biologically richest areas on Earth, says WWF. Stretching across Bhutan, northeast India, northern Burma, Nepal and southern Tibet, the region is home to an estimated 10,000 plant species, 300 mammal species, 977 bird species, 176 reptiles, 105 amphibians and 269 freshwater fish.

The new species of animals and plants were discovered from 1998-2008. However, because this region is remote and difficult to travel across, WWF says there are undoubtedly many more species waiting to be uncovered.

The region’s animals and plants face a number of serious threats, many stemming from population growth and growing demand for commodities. Habitats have been disrupted and destroyed by illegal logging, water diversion, shifting cultivation, overgrazing, poaching, tourism and poorly planned infrastructure such as dams and roads.

These actions have taken a toll. Only a quarter of original habitat in the region remains intact. The Eastern Himalayas is home to 163 species considered globally threatened; 14 are considered critically endangered by IUCN. The impacts on natural resources threaten the livelihoods and well-being of people living in the region, and threaten to increase poverty.

According to WWF, unless development and environmental protection are mutually supportive, little will change. The report calls for local stewardship of natural resources; regional mechanisms to respond to climate change; and for environmental impacts to be considered in developing energy and tourism projects. WWF says it is working with the governments of Bhutan, India and Nepal to develop a shared vision for the region and a unified conservation and sustainable development plan.

Bujagali Dam power delayed; costs escalate

Two years into construction, the beautiful Bujagali Falls has been dynamited to make way for the dam that was to double Uganda’s power output by the end of next year. But a series of setbacks has delayed the start of electricity production by at least six months, and added to the project’s already high cost.

In August, Reuters reported that power output at the 250 megawatt Bujagali Dam on the Nile has been postponed to at least mid-2011 due to “changes in project design.”

James Baanabe, of Uganda’s Ministry of Energy, said, “We are hoping to have the first turbine up and running by 2011... we still hope for the middle of 2011, but all depends on when the government will approve the changes in design.”

The discovery of softer than anticipated rock requires an additional layer of concrete, a change that could raise the cost of the project to close to \$900 million, Baanabe told Reuters. This is up from US\$860 million, and does not include the \$74.7 million needed to build the project’s transmission lines. Uganda already has some of the highest electricity tariffs in Africa.

Another setback for the project was news that the cargo ship transporting the project’s five generators was attacked by Somali pirates. This was expected to delay the project by some months, according to *African Energy Intelligence*.

Africa’s winds of change

Kenya is moving ahead with plans to install 365 giant wind turbines along the shores of Lake Turkana, the world’s largest permanent desert lake. The 300 MW project would create Africa’s largest wind farm, and supply a quarter of Kenya’s current installed power.

The project is one of a growing number of renewable energy projects going forward in sub-Saharan Africa. Ethiopia commissioned a 120-MW wind farm in the Tigray region and plans to build several more. Tanzania announced plans to build two projects in the central Singida region that will supply over 10% of the country’s electricity. The South African government recently launched feed-in tariffs for wind power and other renewables. Egypt recently launched it is making 6,500 square kilometres of government-owned land available for wind farms.

Kenya’s move to install the new wind farm comes none too soon. The country’s energy supply relies heavily on hydropower projects, which have suffered from declining rainfall levels. Water levels at the Masinga Dam, the country’s largest hydropower dam, are currently at the lowest recorded since 1949, forcing the Kenyan Electricity Generating Company to shut down the project. In early August, the government announced that it would have to ration power. The drought is also resulting in a rise in hunger, and a drop in production of tea and other goods.

Kenya is currently relying on imported fossil fuels as a stop-gap measure, but hopes to reduce its reliance on hydropower within the next five years by adding 500MW of geothermal power and 800MW of wind energy to the grid.

"Kenya's natural fuel should come from the wind, hot underground rock and the sun, whose potential has barely even been considered," said Nick Nuttall, spokesman for the United Nations Environment Program. "After the initial capital costs this energy is free."

Bakun fires choke Malaysia with haze



Bakun reservoir clearing added smoke pollution to this year's "brown cloud" over Asia.
Photo: NASA

Developers of Malaysia's Bakun Dam have begun burning forest and debris to clear the proposed reservoir area, according to the Sarawak Conservation Action Network (SCANE). The actions come at a time when the country's atmosphere is

already choked with smoke due to fires in Indonesia.

Each year, Malaysia and other countries in Southeast Asia are plagued by a yellowish, acrid haze due to the illegal burning of forests in Indonesia (known as the "Asian brown cloud." The polluted cloud, which can be seen from space, causes respiratory illnesses and has at times shut down airports due to decreased visibility.

To combat the haze, Malaysia issued a ban on the open burning of plant and animal waste in 2005, and said that violators would face stiff penalties and possible incarceration, according to the Associated Press. In May, the Sarawak state government enforced a ban on all domestic, industrial and agricultural burning in populated districts, reported *The Star* (Malaysia).

Over the past few months, large tracts of forest have been cleared within the reservoir area. Despite the ban, SCANE reports that several fires have been started in the area with no penalty by the Malaysian government.

SCANE was told that the reservoir forest burning was ordered by the developer, Sarawak Hidro, which is fully owned by Malaysia's Ministry of Finance. SCANE was told that contractors were required to burn cleared and felled forest as a condition of their contract. It is not clear whether workers who set the fires had permits for open burning. In a written statement, Raymond Abin, national coordinator of SCANE, demanded that the burning be halted and that stringent action be taken against the developer.

Watering the Turkmenistan desert

In a remarkable act of hubris, the country of Turkmenistan is proceeding with efforts to create a vast inland sea. President Kurbanguly Berdimukhamedov recently wielded a shovel, and began releasing water from the first tributary to fill a natural depression in the Karakum Desert, which covers more than 80% of the country.

"Our initiatives to provide water and environmental security... demonstrate that Turkmenistan is making huge efforts to contribute to common work on preserving the nature and improving the environment," said the president.

The \$20 billion project involves the creation of two canals which will route drainage water from Turkmenistan's cotton fields to the 2000 square kilometer "Golden Age Lake." While the president purports that the project will improve the environment, critics say the water will be poisoned by fertilizers and insecticides.

The project was started in 2000. In addition to the two larger canals, thousands of smaller channels carry water from the cotton fields to the new lake. The water is supposedly to be treated before being released into the lake.

Environmental critics say that much of the water will disappear into the desert's permeable soil. What is left will evapo-

rate in the high temperatures of the desert, concentrating salt in the soil and water left behind. The BBC reports that other analysts fear that Turkmenistan might fill the lake with fresh water from the Amu Darya, a river shared with Uzbekistan, which may trigger new conflict.

While water is a scarce commodity in the region, drought and overuse have exacerbated the fragile water situation. The nearby Aral Sea shrunk by 90% during the last few decades due to mismanagement.

Some say that money for the lake would be better spent relining the Karakum Canal, used for irrigating the country's small arable region. They say that half the water carried by the canal leaks into the desert.

Restoring watersheds in southern California

For decades, dam builders have said that water should not be allowed to run "wasted" to the sea. In a new twist on the discounted mantra, some southern California water officials are finding that by not allowing wastewater to run to the sea, they can recharge ailing aquifers with storm water runoff and reduce overall water use.

Instead of channeling storm runoff to the sea, the Inland Empire Utilities Agency, a local utility, is capturing the water, channeling it to a 25-foot-deep catchment and allowing it to seep back into the ground. The water is then treated to remove salts and contaminants left by intensive farming practices. The treated water is used by nearby towns for domestic use.

The water district has the natural advantage of being situated atop one of the region's largest groundwater basins. The innovative water-recycling program offers the potential to meet much of the parched region's water needs at a time when the longterm delivery of water from northern California rivers is under scrutiny.

SHORTS

■ **At least 70 workers were killed in August when pipes burst at Sayano-Shushenskaya, Russia's largest hydroelectric plant. The 30-year-old plant, which provides 10% of Siberia's energy needs, was in desperate need of rehabilitation.**

■ **The world's highest ski run disappeared when Bolivia's Chacaltaya glacier vanished earlier this year. The loss of the 18,000-year-old glacier threatens water supplies for two million people living around La Paz.**

■ **Save that orange peel. A California utility is asking consumers to set aside their food waste to help save energy and reduce global warming. The utility captures methane generated during decomposition of the food waste and uses it to power its energy-hungry pumps.**

■ **The Nepali government should guarantee the rights of its citizens who depend on the Koshi and Gandak rivers, say members of the Nepal River and Dams Victims Association. They called for the government to stand up against India's aggressive dam-building program.**

■ **Flushing your toilet one less time per day could save up to 1,100 gallons of water per household per year, says Brazilian group SOS Mata Atlantica. The organization has launched an entertaining ad campaign encouraging Brazilians to pee in the shower to avoid one flush.**

Communities Say No to India's Tipaimukh High Dam

by Dr. R.K. Ranjan Singh

The proposed Tipaimukh High Dam would dam the Barak River 500 meters downstream from the confluence of its tributary the Tuivai River in Manipur State. More than half of the 900-kilometre-long Barak falls within India; its lower half drains Bangladesh. The Barak system is the second largest drainage system in Northeast India. The entire riverine ecosystem of the Barak River Basin supports an endemic agrarian civilization thriving on biodiversity-based agro-ecological systems that have profound local and global significance.

The 163-meter-high Tipaimukh Dam will permanently submerge more than 275 sq. km. of land. The project is expected to have firm power generation of 412 MW. Almost none of its power will be sent to the state where the dam will be built.

There is no complete study that focuses on geo-tectonic problems or biodiversity and environment, health, socio-economic and hydrological impacts of the project. The absence of meaningful consultation with the indigenous peoples contradicts the keystone strategic priority developed by the World Commission on Dams, that no dam should be built without the demonstrable acceptance of the affected people, and without the free, prior, informed consent.

History of Resistance

Communities from Manipur have resisted Tipaimukh High Dam for more than 15 years. Resistance began because the people of Manipur had seen the devastating impact of Loktak Hydroelectric Project. This project has been the single biggest reason why local people question the new project. Any person who is aware of Loktak will tell you how it has submerged large tracts of agricultural lands; ousted large number of farmers from their livelihood without compensation, thus reducing self-sufficiency in rice production, and devastated a fragile wetland ecosystem. This has further made Manipur more economically dependent on mainland India, which is just the opposite of the promises made when the project was conceived. The people of Manipur are now fully aware that Manipur gets little electricity from the project.

The struggle against Tipaimukh is not restricted to Manipur state, but is also in Bangladesh too, where the immediate impact of the dam will be felt. The dam could also impact watersheds and ecosystems in northern Burma.

In addition, we are now waking up to the fact that two other dams in the area, Mapithel and Khuga dams, also deceived the people with promises that have not yielded any result. Now we see how wrong decisions made in the past can create havoc for our future.

Tipaimukh was not conceived and designed for the people of Manipur, or for that matter for the people of India's northeast region. It was initially designed to control floods in lower Assam, and then to generate electricity for the Indian state-owned utility NEEPCO for sale outside the region. For all these years the dam builders have not informed or consulted the people, especially those who will be directly impacted. The dam is not based on local requirements, but is imposed from above, to serve unknown economic interests. An issue of consent is a must when they want to bring in a project of such magnitude that will submerge villages, fertile agricultural land, forests, and not even meet local needs. Local organizations have also proposed alternatives, including smaller, less destructive dams.



The dam site

Flawed Resettlement Plan

If constructed, the dam will have negative impacts on 9,126 square km. in the state of Manipur alone. A large number of indigenous communities, mostly belonging to the Zeliangrong and Hmar peoples, will be permanently displaced and deprived of their livelihood. One should be aware that these affected areas are almost half of the present size of Manipur. A small state like Manipur cannot afford to bargain away an area of this size for a tiny bit of electricity. We must look for alternative source of energy where it has least impact on land. We have already had 60,000 hectares of agricultural land submerged due to Ithai Dam alone. For our food security we cannot afford to lose any more land.

If one looks closely at the project's proposed resettlement and rehabilitation plan, it is clear that they have not taken into account intergenerational concerns. For example, rice fields cannot be compensated at today's market price only, as it is done by NEEPCO. For we all know that a plot of land has benefited both the generation in the past and will serve our future and cannot be assessed for the present market value only. Such shortsighted compensation will only create impoverishment and hardship for those displaced. A more important issue is the close link of indigenous peoples to their land, water, forest and their culture. Any sizeable loss of land is loss of the community itself.

As known elsewhere, dams have created or accentuated ethnic conflict. Here, too, there are already divisions along ethnic lines that can have longterm implications for all peoples. In an already fractured place such as this, it is imperative that the state does not

Continued opposite

allow projects that widen the ethnic divide. In addition, conflict with other states and also with Bangladesh as a result of the dam cannot be ruled out and will need to be addressed before agreeing to the project.

We are also aware that the construction of large dams brings in laborers from outside the region. We are witness to that the fact that outsiders have come to work for Loktak hydro project and other dams, and that these workers have stayed after the work is done, putting pressure on local communities and natural resources. A massive project like Tipaimukh will bring in more than 30,000 workers from outside and it is certain that these outsiders will cause issues for local people.

The site selected for Tipaimukh project is one of the most seismically active in the entire world, recording at least two major earthquakes of 8+ on the Richter scale during the past 50 years. The proposed dam site falls on an active fault line. Several large earthquakes have been recorded near the Tipaimukh site.

The people who have fought the dam have used all democratic means possible to seek the government of India to stop the dam. Memorandums and letters by the score, rallies, sit-in protests, blockades, strikes, press releases, meetings, leaflets, and email campaigns have all been used. Five

public hearings conducted by the government have been boycotted. But these all went into the dustbin of the government. One wonders what it would take for the government to listen to the people, and stop the dam. We must insist that Tipaimukh is not an answer to the energy crisis that we presently face. If the government is sincere enough to solve this crisis then it must right away say no to this destructive project, and initiate a people-inclusive dialogue on energy. ●

The author is chairman of Citizens Concerned for Dams and Development, in Manipur, India.



Villagers protest Tipaimukh Dam in 2008. Photo: ACATP

Alaska continued from page 1

the Clean Water Act, to include toxic, industrial wastewater slurries. Previously, fill material was understood to be sand or gravel that might be deposited in water to build levees, bridges and the like. This is the first test case of the looser definition.

There are alternatives to dumping waste into the lake. According to the website nodirtygold.org, "In 1997 [the company] received permits for a proposed mine design that used a land-based waste disposal facility. That plan relied on the established and legal dry stack method of tailings disposal. Coeur's critics say that rather than risking clean water – the most precious of all resources – Coeur should act responsibly and use an alternative method to store its waste."

The Seattle office of the Environmental Protection Agency (EPA) has also raised questions about the project, and has legal authority to revoke the mine's permit. Issues raised by the EPA include questions about the mine's potential for "acid rock drainage" (already happening at the site, according to news reports), and

the fact that the project's environmental studies were based on a smaller mine with less waste.

The company says the land-based tailings option would be more expensive than dumping the waste in the lake. The Kensington mine holds an estimated 1.5 million ounces of gold. Coeur has reportedly invested more than \$300 million to develop the mine, now expected to begin production in 2010. The price of gold has been climbing, and could top \$1,000 an ounce in the next five years, according to Credit Suisse.

This is Coeur's third new mine in as many years. It also owns the San Bartolome silver mine in Bolivia, and the Palmarejo silver and gold operation in Mexico.

There is still a chance the decision will be overruled. "We hope that the Obama administration will act promptly to reverse the Bush administration policies that allowed lakes and rivers and streams to be used to dump toxic wastes," said Waldo. ●

Visit Patagonia to Protect its Rivers

Our friends at Vaya Adventures (vayaadventures.com) are organizing a trip to Chilean Patagonia (Feb. 26-Mar. 12, 2010) as a fundraiser to support our work to protect Patagonia's rivers – and you're invited!

Your participation in this exciting trip will help protect the rivers of Patagonia for future generations by raising crucial funds for our campaign.

Visit www.internationalrivers.org/en/node/4471 for more information.



Africa's Dams Fail to Drought-Proof Farmers

by Lori Pottinger

At a time when climate change is bringing further stresses to Africa's water resources, new research reveals that the continent's existing dams have actually resulted in a decrease in overall crop productivity.

Using satellite images to compare cropland around existing dams with that in nearby downstream areas, two European researchers found that the dams caused an average 1% drop in annual yields over a 20-year period. The authors, Eric Strobl of the École Polytechnique in Paris and his brother, Robert Strobl of the European Commission in Brussels, looked at more than 1,000 African dams for their research.

The researchers found that dam construction creates "clear winners and clear losers." The losers are those farming near the reservoir area; their agricultural productivity drops sharply during drought. Winners are those in relatively close downstream areas, who stand to gain from more regular water supply (though they, too, have a drop in productivity during drought). Further afield are more losers: those whose water supply has dwindled from the storage of water and upstream offtakes on their rivers.

A 1% drop may not sound large, "but if a country is already in poverty it could mean a lot," Eric Strobl told *New Scientist* magazine.

As *New Scientist* explains, "In dry years, the reservoir behind a dam can only be maintained if local farmers are prevented from

extracting too much water from the rivers that flow into it. That leads to less irrigation and lower yields around the dams, which more than cancels out the downstream benefits."

The Strobls' calculations are likely optimistic, since they did not include the loss of agricultural productivity from the dams' destruction of arable land (through reservoir flooding and increased salination and waterlogging), nor from reduced and unpredictable flows that render downstream floodplain farming impractical.

Rohini Pande (Harvard University) and Esther Duflo (MIT) produced similar results in their 2005 report on the productivity of dams in India, the world's third most-dammed nation (after China and the US). Irrigation dams make up over 90% of India's large dams. These authors found "that dams significantly increase rural poverty in districts where they are located." They also noted that the reduction in poverty in downstream districts was small, especially compared to the size of the investments.

Pande and Duflo note that with relatively clear winners and losers, as in the case of most dams, it should be relatively easy to compensate losers; yet the worldwide record shows this is not the case. "The inadequacy of compensation in such a comparatively simple case would suggest that the distributional consequences of public policies are, perhaps, harder to remedy than is typically assumed." ●