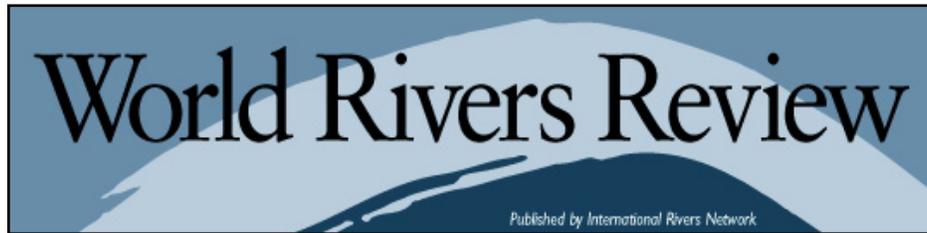


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*International Rivers Network*

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Volume 9, Number 4 / Fourth Quarter 1994

## *Special Mekong Issue:*

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# World Rivers Review

Published by International Rivers Network

*Volume 9, Number 4 / Fourth Quarter 1994*

## **New Agreement On Mekong Could Hasten Damming**

*by Gráinne Ryder*

Two years of closed-door negotiations have culminated in the signing of a draft agreement on the "Cooperation for Sustainable Development of the Mekong River." The agreement, signed in Hanoi, Vietnam on November 28, 1994 by the four Mekong nations of Cambodia, Laos, Thailand and Vietnam, opens the doors once again for negotiations that could lead to approval for damming the Mekong mainstream.

Each government is expected to ratify the agreement early this year. It will replace two existing lower Mekong agreements: the 1957 statute, which founded the Mekong Committee and the 1975 joint Declaration of Principles for Utilization of the Water of the Lower Mekong Basin. The new agreement also provides for the future entry of the two upper Mekong countries, China and Burma.

Under the new arrangement, what will now be called the Mekong River Commission will have three permanent bodies: a ministerial-level council for making policies and decisions and settling disputes; a joint committee to implement policies, and a secretariat to provide technical and administrative support.

The governments of Vietnam and Cambodia have both offered to house the new secretariat. "Signing the agreement was a good political decision," said Cambodia's Mareth, who believes that his country's location in the middle of the lower Mekong Basin qualifies Cambodia as the most appropriate site for the Mekong Commission Secretariat.

With the signing, donors such as the Swedish International Development Agency (SIDA) are expected to renew their financial support for the new Mekong River Commission in 1995. Similarly, the UNDP, which has contributed more than US\$50 million to the Mekong Committee over the last four decades, will continue to play a key role.

According to one of the Thai negotiators, Prathes Sutabutr of the Ministry of Science, Technology and Environment, Thai and Vietnamese representatives finally reached a compromise in early November on the use of the dry season use of the Mekong. Though all four signatories have agreed to inform the others of plans to divert water from the mainstream during the dry season, they are not required to obtain a consensus, as was advocated by downstream Vietnam.

With this agreement, says Dr. Prathes Sutabutr of Thailand, "Each country will have the right to do what they think is justified in their own territory." It is this view -- which prevails in Thailand and violates the fundamental principles of water and environmental law -- that justifies the reservations about the agreement held by Thailand's less powerful downstream neighbors.

Still, Mr. Roy Morey, UNDP representative in Hanoi, thinks the new agreement is an improvement over the old ones. "For the first time the members have an avenue for appeal. Any arguments not resolved in the joint working committee can be sent to a council for resolution."

Environmentalists fear that the agreement equates "development" of the Mekong and its tributaries with dam building and elimination of natural flooding patterns, as do most international river treaties. The UNDP appears to have confirmed those fears, describing the Mekong waters as of Mekong waters as "having a powerful and destructive force in the highest of its peak flows and inadequate to meet the needs of users in the lowest of its base flows...."

Signed by Dr. Mok Mareth, Environment Minister of Cambodia, Khammoune Phoneko, Vice-Minister of Industry and Handicraft of Laos, Asda Jayanana of Thailand's Foreign Ministry, Phan Si Ky, Vice-Minister of Water Resources in Vietnam, and Ny Htan, Regional Director for Asia-Pacific, United Nations Development Program (UNDP), the agreement is, according to UNDP, "a new era of Mekong cooperation." Signatories have agreed to protect the Mekong River's ecological balance to ensure long-term sustainable development, UNDP says.



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# World Rivers Review

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## Choking the Life Out of the Nine-tailed Dragon

by Nantiya Tangwisutijit

The Mekong River is the heart and soul of Southeast Asia. From its beginnings as a small stream in the snowy Tibetan Himalayas, to its split into nine water channels in the delta in Vietnam where it is known as the Nine-tailed Dragon, the mighty Mekong has nourished millions of lives in the region from time immemorial.

Despite differences in ethnicity, beliefs, and cultures, nomadic tribal people in southern China, hilltribe villagers in Burma, farmers and fisherfolks in Thailand, Laos, Cambodia and Vietnam have at least one thing in common; they depend on the resources of the Mekong to sustain their lives. Generation after generation has handed down the local wisdom of living along with the rhythm of the river.

But this life-giving capacity of the Mekong and its tributaries is being taken away by dams built to divert and reroute the waters. Decisions to do so are made by highly centralized governments and unaccountable technocrats who "lean their backs" on the advice and business interests of international aid agencies, multilateral banks and transnational dam industries. To them, the Mekong is merely a commodity which would "flow wastefully into the sea" unless it is trapped.

Hydropower is seen by the technocrats as a key element in the reconstruction of the war-torn region. Laos, which shares the largest catchment area of the Mekong, is the focal point of development at the moment, and the focal point of this issue of *World Rivers Review*. Laos is renting its rivers to be dammed by private investors in a new approach called [Build-Operate-Transfer \(BOT\) schemes](#). A total of 58 hydro-dam sites have been targeted as potential dam sites on Laotian rivers. Last year alone 23 Memoranda of Understanding (MoU) were signed between the Laotian government and private dam building contractors, signaling clear intentions to carry out the plans.

The resuscitation of the thought-to-be-dead Mekong Committee with a new draft agreement between the four lower riparian states in November has revived plans to construct cascades of dams on the mainstream Mekong. Shelved since the 1960s because of political conflicts in the region, these dams have undergone a metamorphosis, emerging as newly designed "Run of River" projects, touted by engineers as capable of minimizing social and environmental impacts.

The excitement over the re-opening of the Mekong region for investment opportunities has spread to many corners of the world. The World Bank and [the Asian Development Bank](#) rushed in with technical advice and loan offers. Engineering consultants and construction firms from the United States, France, Norway, Sweden, Australia, and Korea have been granted BOT contracts to build dams in Laos, Cambodia and Vietnam. The Japanese government is also busy preparing a forum to be held in Tokyo this February at which commercial banks, aid agencies, and private investors will learn more about business potential in Indochina.

Without a doubt, all of these events carry on with little, if any, knowledge of the local communities and ethnic tribes whose homes, farmlands, forests and fishing grounds will be taken away. For all of the countries of the region except Thailand, lack of press freedom contributes to this lack of public knowledge. The door for public consultation and participation is completely closed by the present political systems. It is hard to imagine the Military Junta of Burma or the Communist Party of China embracing the concept of "people's participation". These are the governments, after all, who in 1988 and 1989, respectively, ordered the killing of pro-democracy supporters in Rangoon and Tienanmen Square.

Yet lessons of how people and the environment will suffer can be learned from not so far away. The newly completed World Bank-funded [Pak Mun Dam in Thailand provides a classic case study](#) of what may happen throughout the Mekong region in the near future. Despite repeated warnings from Thai and international academics and environmental groups, and protests of the Mun River villagers about the devastating impacts of the dam on fisheries and the local people, the so-called democratic Thai government insisted that the 136 megawatts of electricity to be generated by the dam was worthwhile. [Today, what villagers had feared has come to pass](#). More than 2,000 families have been evicted, and thousands of others have all but completely lost their food source and income from fisheries. The blasting of river rapids has destroyed endemic fish habitats. The concrete dam has blocked migratory fish from the Mekong from entering their feeding and spawning grounds in the Mun River.

A few questions immediately emerge: For whose benefit is this rush to develop the region's rivers, when we are only beginning to understand the extent of biodiversity that they support? Are the region's governments really selling their rivers to feed their people? Or are they sacrificing the rivers and the people living along them to sustain the wealth and employment of northern dam building industries, and to shore up their own unaccountable and ultimate authority in the new global free market?



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**E**merging from French and English colonization, Laos, Cambodia, Vietnam and Burma moved into the mid-century with the glory and pain of new-found independence. Then the region erupted into conflict and the former colonies, along with neighboring Thailand, became better known as the theater for war, and U.S. and Soviet hegemony.

*During the conflict, development plans remained dormant. But along with peace agreements, renewed access to international capital, a regional drive toward economic prosperity, and what seems an insatiable thirst for energy, dams and water diversions are once again on the minds of the powers that are planning Southeast Asia's future.*

*It has been 50 years since members of the U.S. Army Corps of Engineers and the U.S. Bureau of Reclamation envisioned a series of giant dams and reservoirs to transform southeast Asia into a world food basket second only to the great plains of the U.S. In that time, the economic, environmental, and social costs of large dams have discouraged public and private investment, generated public and political turmoil, and in some places, such as the U.S., ended the large dam building era entirely.*

*Gráinne Ryder, a member of the Bangkok-based group TERRA - Towards Ecological Recovery and Regional Alliance -- reports on why the dream of multi-billion dollar hydroelectric development on the Mekong and its tributaries is for some people looking more like a nightmare.*

**T**he 4200-kilometer Mekong is the tenth largest river in the world, carrying 475,000 million cubic meters of water to the sea annually. The lower 2400-kilometer stretch of the river flows from the Tibetan Himalayas southward through China and passes north of Burma, its watershed encompassing nearly all of Laos, northeast Thailand, most of Cambodia, and the delta of south Vietnam.

Fed by melting snow in Tibet and two monsoons, the most spectacular feature of the Mekong is its annual flooding, which supports one of the most biologically diverse river systems in the world, surpassed only by the Amazon and possibly the Nile. In the heart of Cambodia, where the river is joined by the Tonle Sap or Great Lake River, it rises from one or two meters above sea level in May to eight or ten meters above sea level in August.

The flow of the Tonle Sap River reverses during the flood, spreading the Great Lake over 10,000 square kilometers, three times its size during the dry season. The flooded forests and plain provide habitat for a

multitude of fish searching for food and spawning grounds. Teeming with aquatic life and decomposing organic matter, the Great Lake has been described as "a veritable vegetable and animal broth."

By October, water levels in the Mekong drop, and the major tributaries, including the Tonle Sap, begin to flow back to the Mekong as the Great Lake recedes. Some fish move with the floodwaters back into the rivers and mainstream, others move back to the estuary. The fish of the flooded forests, (called "white fish"), including species such as carp, herring and threadfin, live in the open waters and migrate long distances to spawn in more sheltered inland spots. The "black fish" group, which includes catfish, murrels and snakehead species, stays in the shallow, muddy waters, some of them so well adapted that they have breathing organs and are able to survive in small mudholes through the dry season.

Most of the 8 million Cambodians fish year round. In the Great Lake and surrounding areas, the commercial harvest is permitted only in October and February. Should plans to dam and divert the Mekong and its tributaries be realized, the fisheries will be severely affected. Normal migration paths will be blocked resulting in a steep decline in the harvest of fish available to local fishermen.

### **Visions of Modern Agriculture**

Perhaps the single most influential man in the development of the early Mekong plans was Raymond Wheeler, a retired General of the United States Army Corps of Engineers. Like most water engineers, Wheeler thought that a major obstacle to economic development in the Mekong River Basin was annual flooding. He believed that the rivers should be dammed, and with them the flood dependent agriculture replaced with modern irrigated cash crops.

It was on Wheeler's recommendations for damming the Mekong that the United Nations set up the Mekong Committee in 1957 to "promote, coordinate, supervise and control the planning and investigation of water resources development projects in the Lower Mekong Basin."

American engineers designed seven dams for the Mekong mainstream with a total capacity of 23,300 MW and reservoirs capable of storing more than one-third of the river's annual flow. The scale of the projects was impressive: the first dam in the cascade, the High Pa Mong, would have required the resettlement of 250,000 people, flooded 3,700 square kilometers of land and cost US\$10 billion. Though the Mekong Committee spent at least U.S.\$70 million on Pa Mong, the project never got past the preliminary planning stages.

By the 1960s, however, several "multi-purpose" dams were completed on Mekong tributaries in Northeast Thailand, flooding thousands of square kilometers of forest land and displacing thousands of villages. In 1968, the 150 MW Nam Ngum Dam was completed in Laos, making it the country's largest hydro project. Completed with World Bank financing, Nam Ngum generated power for export to the Electricity Generating Authority of Thailand (EGAT), an arrangement which would prove popular among dam building proponents.

Throughout the 1970s, the war in Indochina stymied all progress for Mekong planners. Cambodia, Laos and Vietnam dropped out of the Mekong Committee and UN funding for the Committee's work dried

up. It was not until 1978 that an interim committee was established. Cambodia, which was sealed off from the world by the Khmer Rouge, was not a member.

Writes the Mekong Secretariat in retrospect, "The Committee by force of circumstance was obliged to concentrate only on national-level and tributary development and even that in only some of the riparian states. The much more important and ambitious mainstream development projects had to be postponed to when all four countries could again sit at the same table."

### **Investing in Peak Power**

By the late 1980s, when peace in Cambodia and a lifting of the U.S.-led embargo on aid and investment in Indochina appeared on the horizon, Western countries began renewing their support for the Mekong Committee. By this time the Mekong Secretariat had identified more than 200 possible dam sites, most of them on tributaries flowing from the highlands of Laos, Cambodia, and Vietnam.

Between 1986 and 1990, Australia, the Netherlands, and Sweden, as top donors to the Committee, were effectively running it as a conduit for aid to consultants and companies from their own countries gearing up for work in a peaceful Indochina. The planners threw out the original vision of multi-purpose dams for hydropower and irrigation schemes (primarily because multi-purpose dams had proven uneconomic), in favor of Mekong dams that would serve peak demand for power in rapidly-industrializing Thailand.

Approaches differed, too, for the manner in which projects should be owned and financed. Already deeply in debt, governments of the region were attracted to the the recommendations of Swedpower, the Swedish dam consultants, that the planned dams be built on a build-operate-transfer (BOT) basis. The arrangement called for foreign contractors or groups of investors to capitalize, build, and operate projects for twenty or thirty years until accruing a predetermined profit, after which the government would take over. ([see related story](#)).

Hampered by domestic opposition to dams, Thailand had, since the 1980s, been looking beyond its borders, to the unharnessed rivers of Laos for potential dam sites. When Prime Minister Chatichai Choonhavan announced his new "battlefield to marketplace" policy in 1989, which emphasized a new era of cordial relations and trade and investment in Indochina, joint development of hydropower in Laos was top on the agenda.

With an estimated 18,000 MW worth of hydropower potential on the Mekong and its tributaries waiting to be tapped within their borders, Laos government leaders looked for economic deliverance after years of isolation and economic stagnation. ([see related story](#))

Meanwhile, driven more by international dam building interests than by homegrown political momentum, plans for dams on the Mekong mainstream quietly continued at the Mekong Secretariat. Based on EGAT's forecasted tripling of energy demand in Thailand by the year 2005, Canadian dam building consultants, Acres International, recommended a scaled-down, "run-of-river" Pa Mong Dam which would require the resettlement of 60,000 people (compared to the original plans that called for resettlement of 250,000 people.)

Despite its efforts, Acres International made little progress, faced with early objections from Cambodian officials. "They shouldn't continue with these mainstream plans [Pa Mong] without Cambodia [on the Committee]," said Mr. Sin Niny, Vice Director of the Ministry of Agriculture and Director of Cambodia's national Mekong committee.

The Cambodians weren't the only ones unhappy with the plan. The criticisms raised by Laotian government officials would signal a conflict that would plague progress on dams planned for the border-forming river. The study, they said, lacked attention to environmental concerns, and emphasized only the benefits to Thailand.

Even within the Mekong Secretariat, the Pa Mong Dam plans did not receive unanimous support. The chief of the environmental unit, Erik Skoglund of Sweden, resigned. Speaking to *The Far Eastern Economic Review* just before leaving Thailand, he said, "The resettlement business is a major problem. No donor in the world will allocate funds for Pa Mong with this problem."

### **Mekong Committee Disintegrates**

Despite the strengthening of political and diplomatic relations between the Mekong countries, the Mekong Committee began to fall apart in 1991. With the reinstatement of Cambodia to the Mekong Committee under discussion, the Thai national committee recognized that the Committee would return to its original rules under which it operated when all four nations had participated. Chief among these was that downstream countries would again have the power to veto projects such as KCM ([see below](#)) which affect the mainstream. In a maneuver to avoid the situation, the Thai Foreign Affairs Ministry threatened to pull out of the Committee. The conference scheduled for early 1992 at which Cambodia was to be reinstated was abruptly cancelled and the controversial UN-appointed Committee Chief, Chuck Lankester, was told to leave Thailand immediately.

Acrimonious bickering between the members of the newly-defunct Mekong Committee continued. The Thai government defended its actions, claiming they were a response to "interference" with its sovereign right to use its share of the Mekong. Thai authorities called for a completely new Mekong Committee framework which, they argued, would respect Thai sovereignty and better reflect new "economic and political realities" in the region. Vietnam promptly accused Thailand of imposing conditions for the return of Cambodia to the Committee, and insisted that Cambodia be allowed to rejoin before revamping the rules.

For two years Thailand and Vietnam feuded, stopped only by UN intervention. After several rounds of closed-door negotiations sponsored by the UN, the four Mekong countries agreed to work out a new framework of cooperation which would leave room for the future participation of the upper Mekong states, Burma and China [see story p. xxx], and effectively diminish the relative power of the downstream countries.

### **Popular Support Erodes**

Outside the meeting rooms filled with national and international officials, public support for dam

projects, if there ever was much, was eroding. In Thailand, where opponents could raise their voices more safely than elsewhere, prolonged protests against the Pak Mun Dam made it an issue of national importance. Sited on the largest Mekong tributary which flows through Northeast Thailand, the Pak Mun Dam was first studied by American engineers and completed in 1993 with financing from the World Bank. The dam has blocked fish migrations from the Mekong and destroyed fishing grounds in the river, prompting thousands of people to demand compensation for the loss of their Mun fisheries-dependent livelihoods ([see related story](#)).

Looking to Pak Mun, community leaders around Thailand who could be affected by further dam construction were already considering the question of fair compensation, or opposing plans outright. As a result, EGAT dropped several dam projects from its plans, including Kaeng Krung, and Mae Ngao.

To date the Mekong debate has centered mainly in Thailand where three decades of rapacious logging, dam building, and rapid industrialization has given rise to a popular environmental movement. This broadbased movement is challenging the status quo of state monopolization and appropriation of forest and water resources.

According to the Bangkok-based Project for Ecological Recovery (PER), the environmental legacy of big dams is a clear warning that the price of massive hydroelectric expansion elsewhere in the region will be, for the majority of people, an intolerable burden.

Thai environmentalists also criticize plans to import water and power as a short-sighted attempt by Thai politicians and bureaucrats to avoid tackling the forest and water crisis at home -- in part caused by 30 years of big dams and mismanagement.

Dr. Chirapol Sintunawa of Mahidol University in Bangkok argues that much of the electricity from planned dams could be provided more cheaply and quickly by energy efficiency measures. In the case of the Pak Mun Dam, for example, studies show that energy efficiency could have provided an equivalent amount of electricity for one-fourth the cost.

The public outcry over Pak Mun, and the sustained international criticism of other World Bank projects has the institution "moving very cautiously" on potential financing for other Mekong dams, according to Arnaud Guinard, the Bank's chief of missions for Thailand, Laos, Cambodia and Burma. Currently the Bank is the largest multilateral financier of power projects in Asia, but that may change, at least where dams are concerned. "We don't want another Pak Mun on the front page every morning," says Guinard.

Public debate, particularly in Laos and Vietnam, has been slow to generate due to political restrictions and lack of local press freedom. The relative inaccessibility of information about new dams and the secretive nature of the dam building industry within the region has left people unformed and unprepared.

Though some public skepticism has started to surface, Thai authorities remain committed to expanding energy supply, preferably in a way that will shift social and environmental costs onto neighboring governments and isolated communities. Reporting on EGAT this year, *Business Asia* writes, "Beset with

environmental opposition to power development plans and an inability to promote itself effectively, the Electricity Generating Authority of Thailand was recently forced to drop six plants from its long term energy development plan. To fill the gap, the government will now rely on private-sector developers in Thailand and neighboring countries."

While the Mekong countries themselves have yet to finalize terms of regional cooperation, the Asian Development Bank (ADB) is forging ahead with preparation of rules for international joint ventures in Mekong hydrodams. Regional forums hosted by the ADB in 1994 were little more than chances to test the popularity of a list of projects prepared by dam consultants.

The regional emphasis has allowed the ADB to promote its agenda while avoiding the question of political legitimacy of governments within each Mekong country, and their capacity to handle large-scale, capital-intensive projects. And with the Mekong Committee in a state of collapse, the ADB has taken center stage to coordinate private sector participation in regional energy and infrastructure development.

According to Anil Malhotra, energy advisor to the World Bank, power sector development is the "largest most important investment opportunity" for the private sector." The cautious approach of private investors has meant that only a few dam projects in Laos have progressed beyond the stage of formal agreements, but the dam-building industry is doing its best to encourage the ADB approach. Drawing on earlier Mekong Committee Secretariat studies, Nordic dam building consultants Norconsult, completed a list of priority projects for the ADB in 1994, describing damming the Mekong as "one of the greatest resource development challenges in the region."

Even if Mekong countries reach individual agreements on rules of investment in hydro projects, (be it public, private, or the more likely combination of the two), the potential for conflict in the region over water use remains real. Academics such Dr. Vo Tong Xuan, Vice Rector of Can Tho in ??? University believe that building big dams and reservoirs upstream will exacerbate conflicts and competition for water supply, particularly in low-water years.

In 1990, Xuan flew over the Mekong where it borders northeast Thailand and Laos in August, two months into the rainy season when it normally should have been swollen."...I saw with my own eyes that the Mekong was so low you could walk over to the other side. Maybe fields in Thailand could be irrigated from the Pa Mong reservoir, but I don't think there will be enough water for the delta," he said.

"The question we should pose is how to use the Mekong water wisely, how to increase the farmer's income while keeping the delta green. We must explain to dogmatic people that large water works are not the answer to every problems."

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Plans for the Pa Mong Dam, sited on the mainstream of the Mekong where it forms a border between Thailand and Laos have varied over time, as has the extent and source of support for the project. Because the Mekong mainstream does not actually flow through Thailand, damming it has always been

less of a priority for EGAT than damming within Thai borders. In Thailand, support remains strongest in the deceptively obscure Department of Energy Development and Promotion (DEDP) under the Ministry of Science, Technology and Environment.

DEDP projects are numerous, but smaller in scale, rarely receiving the scrutiny afforded larger projects. Though small, DEDP projects can and do make up constituent parts of much larger projects that have significant cumulative impacts. Such is the case for DEDP's controversial scheme to divert water from the Mekong into Northeast Thailand. Known as the Khong-Chi-Mun (KCM) project, it was originally part of the High Pa Mong project.

To solve water shortages in northeast Thailand, says Dr. Prathes Sutabutr, former chief of DEPD, "We have gone ahead with Khong-Chi-Mun project because we cannot waste time waiting for the [indefinitely-unscheduled] mainstream project." KCM's first phase - without Pa Mong - has been approved despite criticisms about its \$720 million price tag (18,000 million baht) and an inadequate environmental impact assessment.

Dr. Prakob Wirojanagud, Dean of Khon Khaen University's Faculty of Engineering, questions the need for the project. As no water demand study was ever been conducted for KCM, Dr. Prakob concludes that "the demand is among politicians and technocrats."

Phase II of KCM, in which water will be pumped from the Mekong into Thailand, has not yet been approved by the Thai Cabinet and is a major source of contention between Thailand and Vietnam because Thai authorities have long refused to put the project under the framework of the various Mekong agreements.

Downstream countries are worried that KCM could cause severe reductions in Mekong flow during the dry season, seriously impeding navigation and causing saline intrusion in Vietnam's rice-growing delta. In Cambodia, officials worry that pumping Mekong water into Thailand will lower water levels in the Tonle Sap or Great Lake thereby damaging productive fisheries in the lake and surrounding areas.



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# World Rivers Review

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## Thirsty for the Rivers of Laos

by Gráinne Ryder

On the advice of the World Bank, the Laos PDR Ministry of Industry hopes to raise U.S.\$25 billion in foreign capital, twice the national GDP, for investment in up to 58 big dams over the next 15 years. With its own list of 50 potential sites, the Laos government has set a goal to complete 23 dams by 2010. The dams will reroute Laos' rivers through tunnels and turbines in order to drive industrial growth in Thailand. Lost forever will be the forested river valleys where dozens of distinct ethnic communities now live.

As part of a new agreement for Laos to provide 1500 MW to Thailand ([see cover story](#)), plans call for three projects on the Nam Theun River, the Mekong's fourth largest tributary: Nam Theun 1, Nam Theun II, and Nam Theun-Hinboun. (*Nam* means *river*.) Combined, the projects will significantly alter the river and the Theun valley, which is home to 70,000 people. Included among these ethnic groups are the Tai Men, Tai Meuy, Tai Pao, Tai Yuang, Tai Senkap, Tai Oh, Tai Khang, and Lao Kaleung.

The river and its surrounding forests are the area's most important assets for its largely self-sufficient people who depend on fish as a major source of food, and even as a form of currency. Where upland fields do not yield rice throughout the year, or in years of poor rice harvests, fish is sold or bartered for rice. Villagers catch up to three kilograms of fish each day during the rainy season.

Approximately 130 species of fish have been identified in Nam Hinboun and Nam Theun rivers. Productive fisheries such as at Ban Kangvit, just upstream of the Nam Theun-Hinboun Dam site, provide several tons of fish each year for direct consumption and for local fish traders.

Of the three proposed Nam Theun projects, the 400 MW Nam Theun I remains the furthest from realization. Though no formal design or construction contracts have been signed, an initial agreement (called a Memorandum of Understanding, (MOU)) between Laos and the SUSCO Group of Thailand for a Build, Own, Transfer (BOT) lease has been signed. Nam Theun II and Nam Theun-Hinboun are further along. If both Nam Theun II and Nam Theun-Hinboun projects are completed, the year-round flow in Nam Theun would be reduced by about 50 percent.

Though financing is not yet secured, contracts have been signed for the 600 MW Nam Theun II Dam,

which will flood about one-fourth of the 1600-square kilometer Nakai Plateau, an area designated by the Lao government as a national biodiversity conservation area. The Plateau is unique for its mosaic of pine forests, grasslands and swamps which serve as important grazing areas for livestock and breeding ground for fowl. With its large, shallow reservoir, Nam Theun II will reduce the flow of the river year round, and cut it off completely during the dry season.

This year, the International Union for the Conservation of Nature recommended to the Lao government that projects which "clearly and severely" affect declared protected areas "should be abandoned." Nearly 70 percent of the Theun River basin consists of primary forest, a habitat of 17 internationally threatened species such as the black gibbon, sun bear, clouded leopard, tiger, elephant, gaur, and the Vu Quang ox, a species newly identified by scientists in 1992.

Despite decreeing two areas of the Theun River Basin as national biodiversity conservation areas in 1993, government-sanctioned logging and preparation for dam sites continues wherever MOUs have been signed. Downstream of the protected areas lies one such project, the Nam Theun-Hinboun dam, which is a joint venture primarily between the Lao government and the Norwegian firm Norpower.

At the Nam Theun-Hinboun site, project roads have already brought in loggers, poachers, and migrant settlers. Logs from the site are bound for sawmills across the Mekong in Thailand and then on to Japan, Taiwan and Singapore.

The Nam Theun-Hinboun Dam will flood a 24 and 14-kilometer stretch of the Nam Theun and Nam Gnouang Rivers. Riverside land, which is used by the villagers in the dry season, will become permanently submerged, yet the government has no plans to resettle villages along the river. Releases from the power plant into Nam Hinboun will prolong flooding of low-lying farmland, thus adversely affecting rice production in the area.

Nam Theun-Hinboun Dam has been hotly debated in Norway over the past few years. Environmentalists want NORAD, the Norwegian governmental aid agency, to stop subsidizing the dam industry. Several government agencies, including the Directorate for Nature Management and the State Pollution Control Board, have condemned Norpower's environmental assessment of Nam Theun-Hinboun as biased and inadequate, pointing out that the dam will destroy fisheries both up and downstream of the site, and will cut off flow in the Nam Theun for at least 3 to 4 months of the year. In response, NORAD has directed additional aid to the dam consortium for supplemental environmental studies .

But NGO's and academics in Thailand and Laos believe that Lao decision makers are ill-informed by dam industry consultants who have a vested interest in promoting dam projects and downplaying environmental costs. Some of the most vital information to consider, they say, isn't even reproduced in local languages. The feasibility studies produced for the Nam Theun-Hinboun Dam, for instance, were produced in English to attract financiers, rather than inform the Lao decision-making process.

"I am scared we are building new power plants [in Laos] for the inefficient [energy] user in Thailand. The power from such plants is unnaturally cheap because the environmental costs are not included," warns Chirapol Sintunawa, an advisor to the Thai Parliament on energy conservation.

To raise the level of both government and public understanding of the projects in Laos, the Lao Women's Union last year called on concerned citizens in the Nordic countries to set up a committee of government officials, non-government organizations, academics, and journalists "to monitor and review all large projects before they are approved." In the case of the Nam Theun-Hinboun Dam, which has already been approved by the Laotian government, the Women's Union suggests that the committee carry out a site investigation to identify and document problems associated with the project.

But just who will be accountable for the social and environmental impacts of schemes built in the BOT model isn't clear, nor is there an adequate definition of the rights and responsibilities of proponents vs. existing resource users. Already nervous investors are likely to distance themselves from social and environmental costs as much as possible, while at the same time ensuring themselves against anything going wrong by demanding financial guarantees from the government.

As Director-General of NORAD, Per Grimstad, (formerly of Norconsult) would have it, the recipient government, not outside investors, is responsible "for making sure that all economic, social, and environmental aspects of a project are taken into consideration before a decision on a potential hydropower project is made."

So far, the Electricity Generating Authority of Thailand (EGAT) has agreed to a price for electricity for the Nam Theun-Hinboun project only. The Nam Theun-Hinboun power company will sell to EGAT for 4.3 US cents per kilowatt-hour [Bt1.25], a price that World Bank advisors in Vientiane privately admit is too low. Referring to the inevitable mark-up in price that will be charged to electricity consumers in Thailand by EGAT, Viraphone Viravong, project department chief of Electricite de Laos (EdL) told the Thai newspaper, *The Nation*, "Thailand [EGAT] can make six times more profits from the price of electricity bought from Laos. This is not a fair deal."

Long a major source of foreign exchange for the Laos government, hydropower generated more than U.S.\$17 million in 1994. But sources in Laos believe that the operating costs of the 150 MW Nam Ngum Dam -- the oldest and largest power plant built to date -- exceed its electricity revenues. Thailand's electricity-generating authority recently cut the buying price for Nam Ngum electricity because drought and siltation at Nam Ngum Dam have made it less reliable. Nam Ngum's operation and maintenance costs are heavily subsidized by the Japanese government, and western governments are subsidizing the social assistance programs being carried out in communities adversely affected by the project.

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## **NAM THEUN II DAM**

A 600 MW dam on the upper Theun near the Laos-Vietnam border to be built by a consortium including Australia's construction giant, Transfield, Electricité de France, and two Thai companies, Jasmine International and Italian-Thai Development. The newly-formed Export/Import Bank of Thailand has agreed to put up a 5 percent stake and the World Bank is also a potential financier. Sources in Laos report that the Japanese government has not made commitments to the Nam Theun II because of the

project's environmental and financial risks.

## **NAM THEUN-HINBOUN HYDROPOWER PROJECT**

A 210 MW scheme on Nam Theun in Khammoune province to be built jointly by Electricité du Laos, Thailand's MDX, and Norpower, a dam building consortium formed by Vattenfall of Sweden and Statkraft of Norway. MDX and Norpower will finance 20 percent of the project each. The Asian Development Bank is expected to lend the balance of the estimated U.S.\$280 million necessary for the project. The Norwegian government is financing project feasibility studies conducted by Nordic consulting companies. Construction was scheduled to start by the end of 1994. The Nam Theun-Hinboun Power Company and EGAT have agreed on a power sale contract for a 25-year period, even though many costs have not yet been assessed.



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# World Rivers Review

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## **Rent-a-River, Build a Dam**

*by Gráinne Ryder and Steve Rothert*

The river auction has commenced. The Lao government has taken its first steps down a seductive but treacherous path to prosperity and development: renting its rivers for hydroelectric dams. Laos has signed dozens of agreements to lease sites on every major river in the country to foreign companies for hydropower that will in turn be exported to Thailand. As it embraces a private investment approach for what have long been publicly-funded projects, the country hopes to free itself from a future of crippling foreign debt.

Traditionally, financing hydropower projects required cash-starved countries such as Laos to take out large loans from multilateral lending institutions such as the World Bank. Though the old strategy allowed the government the benefit of retaining control of its land and natural resources, traditional debt financing could crush Laos' fledgling economy if the hydropower program is to be carried out as aggressively as some officials hope.

The vision of harnessing the power of Lao rivers began in earnest in the 1970s, when the Lao government, the Mekong Committee (see story, p.xx), and foreign consultants surveyed the entire country in search of suitable dam sites. The country's tropical, mountainous terrain was rife with good locations, many of them making it onto a list of more than 50 approved sites.

Money was what Laos need to exploit the sites -- and lots of it. Developers devised a complex funding mechanism whereby Laos would share the financial burden and potential profit with foreign developers.

But even the relatively small financial commitments from the Lao government proved an obstacle to achieving the government's stated goal of 23 dams by 2010. Consequently, the cost-sharing concept was taken one step further, by reducing Laos' financial involvement in some projects to a minor share, or possibly, *to the provision of the site itself*.

The projects were initially known as BOOT dams, that is, "Build, Own, Operate, and Transfer", a term later simplified to BOT, "Build, Operate, Transfer". Under a BOT scheme, the Lao government first offers up the country's suitable dam sites for bidding by foreign engineering firms. Contract-winning companies would raise the vast majority of capital for construction, and the firms would build, own, and

operate the facilities for a set period ranging from 20 to 30 years until they reached an agreed upon profit target. At the end of the contract period, ownership of the projects would be transferred to Laos, theoretically "free of charge."

Industry professionals warn, however, that in practice the transfer of ownership will not be free, or even certain. There is little financial incentive on the part of the original owners to build projects to standards that will assure their smooth operation beyond the time when the transfer takes place. After operating the dams for maximum profits for decades, the facilities are likely need extensive work to rectify exhausted turbines, degraded civil works and silted reservoirs. The cost of such repairs could erode the projects' profitability to the extent that the Lao government cannot actually afford to assume ownership.

The Swedish International Development Agency (SIDA), a long-time Mekong Committee donor, is highly critical of the BOT approach in Laos, warning that it poses "an imminent danger of the country losing control over the exploitation of one of its major natural resources." Instead of a "rent-a-river" approach, SIDA recommends strengthening the state utility, Electricite du Laos (EdL), in order "to safeguard national control over hydropower resources and to avoid fragmentation of the electricity sector."

EdL Project Department Chief Viraphone Viravong seems to agree. He would prefer to have kept the traditional development approach because it "would have given our government full ownership and authority over the project. We realize that the private sector will only want to maximize their own profits."

Yet, the World Bank and the Asian Development Bank have been promoting the BOT model of investment as a way to raise the capital necessary for infrastructure projects in the Mekong region. The promotion seems to be working. There are already 13 formal contracts signed and 17 informal agreements between Laos and companies in South Korea, Australia, the United States, Norway, Canada, France, Thailand, and Sweden.

Despite the early interest shown by foreign investors in BOT schemes, even BOT's vociferous supporters recognize that all is not as bright as it should be for the projects to move ahead. Bank analysts concede that without huge subsidies and guarantee from donor governments, private investors are reluctant to invest in big dam projects. Construction period and cost overruns, poor performance, and the rising costs of resettlement and rehabilitation programs all contribute to the growing insecurity of private sector financiers.

There are practical problems, too. So far, commercial banks have been unwilling to offer hydro-loan payback periods that are long enough to allow BOT investors to reach their profit targets. Thailand's leading English-language daily, *The Nation*, reported in November 1994 that the maximum payment period offered by commercial banks was 15 years, while investors insisted that periods of at least 20 years were necessary to reach profits before transferring the projects to government ownership. Moreover, dam industry specialists

In countries where public opposition turns large dam projects into political liabilities, private investment

will be most difficult to secure. But in Laos, where environmental laws and citizens' rights over resources are still ambiguous, the "rent-a-river" strategy has so far convinced the important powers to maintain the Rivers For Rent course. If the ambitious program moves ahead, it is difficult to predict who, if anyone, will be held accountable for the loss of hundreds of square kilometers of forest and agricultural land, the displacement of communities, and the fragmentation of a biologically rich ecosystem.



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# World Rivers Review

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## **Reclaiming Respect for Rivers: A Conversation with Dan Beard**

**The U.S. Bureau of Reclamation is one of the largest and most powerful water agencies in the world, the largest wholesale water supplier in the U.S., and the country's sixth largest electric power generator. As the builder of Hoover, Grand Coulee, and Glen Canyon Dams, "BUREC" functioned under a firm ideology of taming wild rivers, and successfully promoted large scale river development projects around the world. Now, all that is changing. In April, BUREC Commissioner Daniel P. Beard announced that the days of dam-building in the U.S. -- and of promoting and participating in dam building around the world -- had come to an end. Nantiya Tangwisutijit talks to him about changes in the U.S., and what they mean for dam building around the world.**

NT: In Thailand and Indochina, policy makers and bureaucrats still see the hydropower regimes on the Columbia and Colorado Rivers as models for Mekong River Development. BUREC itself helped design Bhumibhol Dam, and has worked on the feasibility studies of the Pa Mong project on the mainstream Mekong River. Will changes in the views of the U.S. Bureau of Reclamation affect the many countries whose water resource management decisions have been so strongly influenced by the Bureau?

DB: I think it is a serious mistake for any region in the world to use what we did on the Colorado and the Columbia Rivers as examples to be duplicated. We did that in a different era, during a different period of time. Most of the facilities or projects on those rivers were built 50 years ago and they did have substantial benefits. But they also made a substantial negative contribution.

I'd like to encourage other countries to take a more contemporary approach to water management. Every country has to choose its own approach and the Bureau of Reclamation's role is to assist other countries to make intelligent decisions based on their own culture, economy, and political system.

The Bureau of Reclamation is not going to be in the dam construction business. When we operate internationally now, we are trying to move toward a more comprehensive approach to solving water resource problems. We are no longer interested in operating a construction agency in foreign countries.

**NT. So the U.S. Bureau of Reclamation will not participate in plans to dam the Mekong?**

DB: The U.S. Bureau of Reclamation first received a proposal to work on the Pa Mong Dam in the

1950s, but we're no longer involved in the project at all. The Vietnam war really brought much of our work there to an end, but I would say today that there is very little possibility the we would be involved in these projects again. The Mekong River has been the heart and soul of South East Asia for centuries. There are millions of people who rely on the Mekong not only for food and transport, but also as a spiritual source. The construction of large facilities on the river would have very substantial impacts, and would be extremely expensive. I would say that if other U.S. agencies are thinking of involving themselves in plans to dam the mainstream Mekong, the U.S. Bureau of Reclamation would want to discuss that involvement.

**NT: You have announced significant changes in the policies and practices of the Bureau of Reclamation, among them, making the organization more open by making more information and data available to the public. Why do you view this as so important?**

DB: The times are changing, public attitudes and opinions are changing. In the United States, the public is much more environmentally sensitive and cost conscious. They want to be involved in decision making. As a federal agency, we have to respond to the public's attitude and opinion. We are changing because the people we serve are changing.

**NT: You have also said that the Bureau will be more accurate in determining the economic and environmental costs of your activities. How has the Bureau inaccurate in the past?**

DB: The history of water resource development in the United States and in the world is really a chapter of engineering and political activity. It is the history of the failure to tell the truth and providing accurate and timely information about the impacts of building and operating large dams. Engineers have become so absorbed in building projects that they gave little attention to informing people about the impacts of the facilities on the environment, on indigenous people, and on the economy.

We have significantly underestimated the costs of our facilities. They have usually cost at least 50 percent more than we thought they would. I don't believe that we should continue these practices. In our country, there have been public and political debates about whether or not to proceed with each one of the major dam facilities we build, but not always with full information. For now on we ought to make accurate and timely information available so that proper decisions can be made.

The changes we are making at the Bureau are not just the whim of an individual. They are a response to a substantial and dramatic shift in public attitudes and opinions. In addition to popular support, I have support from the people in the ranks of our organization, as well as substantial support from President Clinton, Vice President Al Gore, and Department of the Interior Secretary Bruce Babbitt.

**NT: If your political support declines, or if President Clinton is not reelected, will the policies of the Bureau revert back to promoting large dams?**

DB: No, I don't believe so. The changes aren't based solely on politics or political philosophy, but on real changes in the field over the past 20 years. Slowly but surely, this will have an impact on every country in the world.

**NT: But in reality, the international funding agencies, multinational consultants and construction contractors do not think the same way as you do. Hydropower and irrigation projects in the third World countries are one of their prime businesses.**

DB: There is a substantial infrastructure that surrounds dam building. There are people in the business to make money. They are spreading around the globe trying to encourage dam construction. All we can do is relate to people our experiences and encourage them to look for a different approach. It may well be that a dam is the best answer and the only feasible alternative to a particular problem.

But I think any decision like this has to be made after clearly looking at every alternative, and its implications. So many large dams have been constructed that they erroneously appear to be the answer to any problem. This occurs because many professionals in the construction business are running around encouraging the construction of dams. They are less interested in the problems because promoting dams is their business.

I think that government agencies in any country in the world have an obligation to their citizens to fend off those people and to keep them away until they look at all the alternatives and then decided what is the best thing to do.

**NT: How can your Message reach governments in developing countries?**

DB: I've been trying to get the message across at international conferences I want to explain what is happening to us, why, and what it is that we plan to do in future. I see this as an important message, one that I wish to carry and deliver.

**NT: Is the Bureau helping other countries to find alternatives? What types of project is the Bureau implementing internationally now?**

DB: In the future we will turn more and more to demand side management and water conservation as a means to solving water resources problems across the globe. These types of solutions offer some of the best, the cheapest, and the most efficient way to solve water resource problems.

In the last 20 years, the water resource utilities business in the United States has undergone a complete transformation. Power supply systems are moving more and more toward energy conservation rather than constructing new generating facilities.

I expect to see similar changes in the water field during the next 20 years. We will find ways to use conservation and demand-side management to solve the problems.

Right now, we have cooperative arrangements with 15 different countries. We undertake some construction management as well as some hydroelectric work. For example, we are helping the Egyptian government to replace the turbines in the Aswan Dam. But we have also done a significant amount planning in other countries toward a more comprehensive approach to the solution of water resource problems.

Our international contribution is to encourage a comprehensive approach based on a more holistic philosophy.

*(This interview is excerpted from a longer version which first appeared in the Bangkok English-daily newspaper The Nation.)*



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## Thailand's Pak Mun Dam: A Case Study

*Dam proponents and governments stubbornly refuse to recognize the inevitable devastation to the region's ecology and the accompanying loss of the means of livelihood for the local people. that would accompany damming of the regions rivers. But it is hard to ignore the realities of a destroyed fishery and the changed way of life experienced by the Mun River villagers since the Pak Mun Dam was built. Located in Northeast Thailand, 6 km upstream of the Mun River's confluence with the Mekong, the dam and its impacts provide a case study for what may happen throughout the region.*

*Dave Hubbel, of the Bangkok-based group, Toward Ecological Recovery and Regional Alliance, reports.*

Construction of the 136 MW Pak Mun Dam began in May 1991 and was completed in November 1994. The Electricity Generating Authority of Thailand (EGAT) and the World Bank designated the 17 meter-high Pak Mun Dam as a "run-of-river" design, to which a fish ladder, the first of its type to be built in Southeast Asia, was added in 1991. World Bank funding for approximately 10 percent of the project cost was approved in December 1991 despite protests from people who would be evicted by the project.

### When Public Relations Equals Consultation

No reliable information about the impact of the Pak Mun was provided to local people living along the Mun River, the vast majority of whom are artisanal fishers and agriculturalists. Instead, EGAT distributed public relations materials emphasizing the benefits of the dam and reservoir for Mun River communities. In June 1991, Dareyes Mehta, World Bank Senior Power Engineer for Asia Region, wrote to a Thai NGO that "We had contacted EGAT in the matter of publicizing information on the Pak Mun hydropower project and were informed by EGAT that it had given extensive publicity to the project and had kept affected persons fully informed on the impacts of the projects and the plans for resettlement." In September 1991, the Bank released "The Pak Mun Hydropower Project, Environmental Issues: Questions and Answers," a report which included information on EGAT's information dissemination practices. The report described meetings held "with headmen of affected villages, representatives, and spokespersons of affected villages, and directly with villagers" "On 11-15 June 90", the report said, meetings had been held in " Phibun Mangsaharn and Khong Chiam (districts), all villages."

The Bank information had been obtained from an EGAT report, "PR Activities for Pak Mun Project", that outlined EGAT's work between September 1988 and January 1991. The EGAT report had described the meetings of 11-15 June as "Activities...cooperating with district officials in providing the correct understanding on [sic] the Project to the affected villagers", and described the results as "the Project received high interest and understanding from affected villagers."

In fact, EGAT's PR activities contributed to the intensity of villager people's opposition to the Pak Mun. Said fisher Boonteng Temdee, "EGAT never asked me or any of these people about the fish, our river, or the dam. No one from EGAT ever asked us what we thought. They only told us what we had to do." For more than five years, local people demanded reliable information about the Pak Mun Dam, including a detailed topographical map showing the exact location of villages, forests and fields that would be flooded by the reservoir. The only map ever provided by EGAT was made public two years after construction of the dam began. Displayed in a 'Public Information Center' 6 km downstream from the dam site, the map was a hand-drawn picture of the reservoir, with no contour lines, no names showing location of villages. There was little indication of what lands would be flooded by the Pak Mun Dam reservoir.

## **Environmental Impact Assessments and Project Justification**

Two EIAs for Pak Mun were completed, in 1982 and 1984. The EIAs related to a dam designed entirely different to what was built and at a location nearly one kilometer downstream of the present dam site. But the discrepancies didn't sway World Bank management from praising the project, and the EIA process.

"The Pak Mun Dam is a good illustration of how environmental assessment can help improve a project's overall quality and minimize its environmental impacts. For example, the height of the dam was reduced by four meters and its location changed which reduced the dam's impacts and the number of families to be resettled from several thousands to 248," wrote Mohamed El-Ashry, former director of the Bank's Environment Department.

EGAT and the World Bank consistently state that these changes in the project obviated the need for a new EIA. However, the 1982/1984 EIAs did not study, or studied inadequately, every potential major impact of the Pak Mun Dam on the Mun River and its communities.

## **Mun-Mekong River Fisheries**

Of most concern to Mun River villagers, Thai NGOs, and academics was that the EIA did not study seasonal fish migrations between the Mun and Mekong Rivers that would be obstructed by the dam. According to Dr. Tyson Roberts, who has 20 years experience researching freshwater fish in Thailand and the Mekong basin, "Previous environmental impact analysis of the Pak Mun Dam underestimate or ignore major negative impacts on fish...Pak Mun Dam predictably will have significant negative impacts on the ecology and fisheries of the Middle and Lower Mekong basin, not just the Mun River and its tributaries."

In the absence of studies and analysis, the World Bank released an "Environmental Fact Sheet" for Pak Mun in August 1991. The Bank's "facts" included the following: "Upstream movement of fish could be

affected by the project. The migratory pattern has not been established. It is likely that the upstream movement of fish could be only for food and not for reproduction." The Bank accepted that fish "could" starve, but also "could" continue to reproduce.

A fish ladder constructed to permit fish to move from downstream into the reservoir appears to have failed, as independent fisheries experts, and every villager forewarned. If some of the more than 150 species of fish that once lived in the Mun River do ascend the fish ladder, the only way to return downstream is through the turbines or the highly pressurized water released through the flood-gates. The World Bank's "Environmental Fact Sheet" claimed, without substantiation, that Pak Mun Dam was not expected to "cause any significant impact on the downstream movement of fish as mortality rates through the bulb turbines are expected to be low (below eight per cent) and the spill gates would be open for three months of the year." According to Mun River fishers, the great migrations of fish occur from December to February, late May to July, and late August to late October, depending on the volumes of water in the Mun and Mekong Rivers. Local people, and the fish upon which they depend, clearly require the Mun River to be free flowing all year round.

### **Forest Foods and Dry-season Agriculture**

Food and medicinal plants of forests along the banks of the river, and small-scale, dry season agriculture on the river's exposed alluvium, were of major importance to Mun River communities. Neither the economic, dietary, nor medicinal importance of these activities were considered by the Pak Mun EIAs. In 1993, a field survey by Thai NGO researchers determined that more than 80 per cent of the Mun River families harvested food and medicines from river-side forests and approximately 50 per cent of families grew food and cash on the exposed alluvium during the dry season. The Pak Mun Dam reservoir flooded these forested areas and does not permit the dry-season exposure of alluvial deposits.

### **Water-Borne Diseases**

The potential establishment of schistosomiasis, a water-borne disease endemic to the area, was not studied by EGAT's EIA or the Bank's public health consultant (who was also responsible for the public health component of the EIA). In 1990, two species of snail that are known vectors for the disease were discovered in the proposed Pak Mun reservoir area. Since 1968, it has been known that some people living in the project are infected with schistosomiasis, which can be introduced into the reservoir via the feces of apparently healthy dogs and rats.

Dr. David Woodruff, co-author of the study reporting the discovery of the two snail species in the Mun, met with World Bank Executive Directors in November 1991. Dr. Woodruff warned of "a significant increase in public health problems" as a direct result of Pak Mun Dam, including the potential establishment of schistosomiasis in the reservoir and an increase in other waterborne diseases, including malaria.

### **"Affected" Families**

The number of families "affected " by Pak Mun was initially estimated by EGAT and the World Bank to

be 248 families, those whose houses and/or farmland would be flooded by the reservoir. The resettlement site for these families was cleared of mature recovering forest to expose soil that turned to sand within weeks. Mr. Thiang Bantao, a villager representative on a government-appointed committee considering Pak-Mun's impacts on local people, told World Bank Executive Directors that, "committee members went to inspect the resettlement site and we saw it is not suitable." With the dam completed and the reservoir full, not one family has moved to the site, choosing instead to live in the vicinity of their former villages.

A government committee recently admitted that the number of families affected by Pak Mun now stands at 2,211 families, while Mun River villagers continue to insist that the number is actually 4,000 families, including 800 families living in communities downstream of the dam. These families have been, to use the World Bank's curious term, "indirectly affected" by a near-total disappearance of fish in the Mun River.

Fishers on the Mun River report that, since the closure of the dam's flood gates in June, 1994, they see only two species of fish in the vicinity of the dam site. 'Pla hua daeg' (fish with crushed head) lives in the Pak Mun fish ladder, and has fractured its skull swimming into the cement dividers between the ladder's levels. 'Pla mai mee hua' (fish without head) inhabits the outflow channel below Pak Mun's four turbines. EGAT and the World Bank, as proponents of Pak Mun and of other dams being planned for the Mekong tributaries, remain undaunted by the litany of problems at Pak Mun. "The World Bank is fully satisfied that the environmental and social aspects of Pak Mun have been adequately addressed," wrote Andrew Steer, Director of Bank's Environment Department in a letter to Bangkok's *The Nation* newspaper on 13 December 1994.

The World Bank's financial and political support for Pak Mun has sent a clear message to dam-building corporations, multilateral and bilateral funding agencies, and governments in the Mekong region: building large hydroelectric dams in the Mekong basin is required, regardless of the destruction of the Mekong, its tributaries, fisheries, forests and local people's means of livelihood.



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## **Pak Mun Villagers Demand Compensation**

*by Dave Hubbel*

On 27 November 1994, more than 600 Mun River village people dismantled razor wire barriers and occupied the Pak Mun Dam on the Mun River in Northeastern Thailand. Within days, more than 1,200 people were on the dam site.

The occupation followed more than six weeks of demonstrations by Mun River people demanding adequate compensation for the destruction of their fishing-based livelihoods by Pak Mun Dam, built by the Electricity Generating Authority of Thailand (EGAT) and funded by the World Bank. Those demonstrations included fishers piling hundreds of traditional fish traps on the ground in front of the Provincial Government House in Ubon Ratchatane.

Substantial declines in fish catches and diversity of fish species in the Mun River occurred in a matter of weeks after construction of the dam in May 1991. Since the closing of the dam in June 1994, fish have all but disappeared from the Mun River.

Mun River people are demanding 35,0000 baht (U.S.\$1,400) in compensation for each year of the 30-year period of dam construction. Fishers attribute loss of income and destruction of fisheries directly to the Pak Mun dam.

Compensation has been slow in coming, largely because no government agency wants to get involved in the dispute. According to EGAT Public Relations Director Subhin Banyamag, it is not EGAT that is responsible for compensation, but the "Committee for Consideration of Impacts on Mun River People by the Pak Mun Hydroelectric Project," chaired by the Governor of Ubon Ratchatane province.

Ongoing protests started after the Committee decided to support a compensation plan drawn up by a group of fisheries experts. Village people were astonished to learn that the fisheries experts attributed declines in fishing-derived income to be a result not only of the Pak Mun Dam, but listed 21 other factors as well. These factors, none of which are explained in the study, included the natural, seasonal "water flow" and "rapid flow" of the Mun River, "species of fish in Mun and Mekong Rivers", and "national conditions."

Taking into account such factors, the experts calculated the Pak Mun Dam to be responsible for between 20 and 32 percent of fishers' income. A few villagers living immediately downstream of the dam have received a total of 90,000 baht (US\$3,600) in compensation, while those living in the zone furthest from the dam have received as little as 8 baht (U.S. 40 cents).

Dr. Savit Bodhivihok, Government Minister responsible for EGAT, who had refused consistently to consider any further financial compensation for Mun River families, was recently replaced by Dr. Korn Dabbaransi. The new Minister has since appointed Fisheries Department Chief, Dr. Plodrasop Suraswadi, to lead a new committee to determine non-financial compensation (new wells, fish ponds, supplying dairy cows, etc.) to Mun River fishers to them "recover their livelihoods".

"The new committee is making the same mistakes as six previous government-appointed committees on Pak Mun", says NGO activist Watcharee Paolaungtong. "It refuses to recognize that Pak Mun Dam has destroyed the Mun River and the livelihoods of its fishing communities. It refuses to accept that the government, EGAT, and the World Bank are morally and legally responsible for compensating the Mun River's fishers for their economic losses directly resulting from the construction of the Pak Mun Dam."

The impasse between Mun River families and government technocrats continues, as does the occupation of the Pak Mun Dam by local people.

"Our family is a victim of development. All Isan [Northeast Thailand] people used to envy us for living in the most prosperous area in the region," says Charoen Kornasuk of Hua Heo village, located below the Pak Mun Dam. "But now, we have lost everything of value, and the authorities just tell us that we have to make a sacrifice. To protest peacefully is the only thing I can do. We have already lost our home and our land and been forced to give up our profession. So here we are, to beg the government to give us some help."



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*Volume 9, Number 4 / Fourth Quarter 1994*

## **The Gift of the Sea of Laos**

*by Steve Rothert*

Wild fisheries have long played an integral role in the lives of rural people in Laos. For this small landlocked country, the Mekong River is known as "the Sea of Laos." But plans for more than 50 dams on Laos' rivers could mean an end to the Sea, and its bountiful supply of fish.

Considered a gift from nature to the Lao people, fisheries represent the main source of subsistence for Laotians who live along the Mekong and its tributaries, providing an estimated 90 percent of the protein and for many families the only source of income.

Scientists know shockingly little about this complex river ecosystem, which has been described as one of the world's richest in fish biodiversity and productivity. In the last two years alone, fish biologists have added three new species to the list of 1,000 indigenous species already identified. Many more remain to be found.

If the riparian countries pursue their aggressive dam construction plans, the region may lose its last opportunity to study the river system in its relatively undisturbed condition. Given the extent and severity of alteration proposed for the basin, it is within reason to assume that some known species will not survive the change, and some species will never be known to science.

Besides threatening the rivers' biodiversity, large dams would also invariably lead to a significant reduction in food for the people whose lives are intertwined with the cycles of this river system. Both individually and cumulatively, dams will harm the river system in a number of ways: fish migration routes will be blocked, cutting off spawning and feeding habitat; sediment will be trapped behind the dam, and reduced seasonal flows will result in the loss of nutrients. Without the rich sediments once deposited by the river, the floodplains themselves will diminish in productivity.

Despite the extreme importance of fish to the diets and economies of the Mekong River communities, threats to the fisheries posed by the dams have not received sufficient study, nor has there been public discussion about the possible impacts of the projects on the livelihoods of millions of people who live along the banks of the Mekong.

The devastating impact of dams on migratory fish is well documented in the Pacific Northwest, where

once great salmon populations have all but disappeared. The impacts of dams on migratory species in the Mekong could be even worse. Migrating fish of the Northwest constitute a relatively small number of closely related species that travel once in their lifetime in a linear fashion to historic spawning areas. In the Mekong basin, however, dozens of very different types of fish appear to migrate repeatedly both up and down river, as well as back and forth between the main river, tributaries, seasonal streams, wetlands, and even rice fields. The seasonal migrations allow the fish to adapt and flourish within a river system that is characterized by extreme seasonal variations in flows.

A large percentage of Mekong species inhabit large rivers during the dry season, when the smaller streams dry-out or are reduced to a trickle. In May and June, with the arrival of the monsoons, the fish migrate to the new fresh water to feed and reproduce.

Many Mekong species are believed to take long annual migrations up and down the largest rivers, including the Mekong mainstream. Schools of *Pangasius kempfii*, a large economically important catfish reaching more than a meter in length and weighing 15 or more kilograms, are believed to migrate well over 1,000 kilometers from the South China Sea and Mekong Delta in Vietnam up the mainstream past Cambodia and deep into tributaries in Laos and Thailand. Other species, such as huge anguilla eels, which are known to reproduce far out at sea, and various species of anchovies and herring, are also believed to travel up and down the Mekong River from the South China Sea to Laos and Thailand.

The proposal to minimize impacts to fish migration through the installation of fish ladders is less convincing than proponents would hope. One reason is the disastrous record of the technology, particularly in the Pacific Northwest of the United States, where the concrete staircases failed to stop the all-out destruction of the region's once famous salmon fisheries.

In the Mekong, ladders would have to be designed to accommodate the widely differing needs of the numerous migrating species, including those that migrate as adults in both directions. Some species prefer fast moving water, while others keep to the slow backwater areas. The failed fish passage system at the Pak Mun Dam at the mouth of the Mekong in Thailand has shown how inefficient ladders can be in a tropical river.

The Mun River is the largest Thai tributary of the Mekong, and fish here migrate back and forth from the Mekong main channel. According to Thai fishers, who once had annual catches valued at US\$3,000 per year, the Pak Mun has blocked the migratory fish from the Mekong. "Thai fish don't know how to climb ladders," they joke bitterly.

Ultimately, damming the rivers of Laos will prove devastating to both aquatic and terrestrial ecosystems in the Mekong Basin. While dam proponents perceive seasonal flooding to be a problem in need of a solution, villagers living along the Lower Mekong River in Laos view floods in a very different way. Floods provide nutrients for the productive floodplain, and for the fish, which they observe to be more abundant in years following extensive flooding. For the people who live here, fluctuating water levels aren't a menace, they are a way of life that is now in danger of disappearing.

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# World Rivers Review

Published by International Rivers Network

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## Foreign Aid, Consultants, Dam Builders: The Unholy Alliance

by Steve Rothert

Brought to a virtual standstill by popular protest in many developed countries, the dam industry has found new life by moving to developing nations. Instrumental in this new business is the relationship between governmental aid agencies, consulting firms, and dam construction and equipment companies. Nordic involvement in developing dam projects in the Nam Theun River basin typifies what critics warn is an uncaccountable and corrupt system that pervades the dam building industry.

In this case NORAD, the Norwegian government aid agency, has money to spend on development projects in Laos, and prefers to involve Norwegian nationals in the process. So, NORAD contracted Norconsult, a Norwegian consulting firm, to perform the environmental impact assessment on the Nam Thuen-Hinboun Dam project. Statkraft, a Norwegian dam builder and part owner of Norconsult, holds a significant share in the Nam Thuen-Hinboun project.

Ironically, three Norwegian government agencies criticized Norconsult's impact study, saying that it was plagued by inadequacies and inconsistencies. Even NORAD concluded the study was unacceptable on the grounds that Norconsult has a "vested interest" in seeing the dam built because of the Norconsult/Statkraft relationship.

In the end, despite the documented problems with the study and obvious conflicts of interest, NORAD followed Norconsult's recommendations and increased funding for the troubled Nam Theun-Hinboun project.



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# World Rivers Review

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## **Banking On Dams: The Role of the Asian Development Bank**

*by Nantiya Tangwisutijit*

"An airplane taking off with six powerful engines" is the way that the Asian Development Bank's Program Department (West) Noritada Morita, of Japan, describes the speeding economic growth potential of the six riparian states of the Mekong River Basin.

As a multilateral development bank promoting a market economy in the Asia-Pacific region, the ADB plays an ambitious leading role in directing economic development China, Burma, Thailand, Laos, Cambodia, and Vietnam.

The region's wealth in natural resources (with the exception of Thailand, where a great percentage of forests and dam sites have already been exploited) are central to ADB plans, with the focal point being the 4200-kilometer long Mekong River. ADB's master plan calls for massive investment in roads, rails, air and water transport linking the six countries, and hydro-electric development for energy trade within the region. Thailand, which enjoys the highest economic growth in the region and has largely run out of dam sites, has been identified by the ADB as the market for two thirds of the energy generated by the other countries of the region that boast abundant water resources and dam sites already deemed appropriate for development by the ADB, the United Nations Development Programme (UNDP), and the commercial dam building industry.

"The trade of electricity from Nam Ngum and Nam Thuen Hinboun dams between Laos and Thailand are good examples of cooperation for regional hydropower development. We want to see more of this approach in other countries," said Vladimir Bohun, manager of the ADB' Power Division (West). ADB last year approved US\$60 million loan to the Laotian government for the construction of Nam Thuen Hinboun.

As recommended by its Oslo-based consultant, Norconsult Internatinal A.S., the ADB has identified as high priority 54 hydropower projects and transmission lines throughout the six country region. Eighteen dams are proposed for Mekong tributaries and other rivers in Vietnam, 15 in Laos, nine in Burma, three in Thailand and five on the mainstream Mekong in the southern Chinese province of Yunnan.

To support the plans, the ADB is procuring and coordinating regional investment by the private sector. In November of 1994, the ADB-sponsored international conference held in Bangkok, "The Greater Mekong Subregion: Investment Opportunities Through Economic Cooperation", brought together representatives of key commercial banks and transnational corporations such as the Bank of Tokyo, Credit Lyonnais, Sony International Ltd., and the Japan Overseas Development Corporation. Although hydroelectric dams have been planned for the Mekong mainstream since the 1950s, it wasn't until four decades later that the first, the 1500MW Manwan Dam, was completed in China's Yunnan Province.

Fearing that persistent political conflicts in the region could continue to delay project implementation, the ADB has played a key role in the establishment of a permanent six-government committee charged with reviewing and implementing the project construction. Based on a Nordic model of planning and implementation, the committee was another recommendation by Norconsult. The committee may shift the responsibility of the projects from that of high level politicians to a smaller group of technocrats.

In another step to move the projects forward, Japan will host a ministerial-level meeting in Tokyo in February 1995. The "Forum for Comprehensive Development in Indochina" will be another gathering of donor agencies and multilateral development banks including the World Bank, International Monetary Fund, the United Nations Development Program, and government representatives from the United States, European Union and ASEAN countries.

The ADB has always served as an important channel of influence for Japanese business in the region. As its largest capital contributor (16.43 percent of the ADB's total subscribed capital, in comparison to the United States, holding of 15.9 percent), Japan has, since the ADB's founding in 1966, held a powerful and influential position in the institution's governance, a situation similar to that held by the U.S. at the World Bank. By tradition, the Bank's president and high ranking officials have always been Japanese.

Since its founding in 1966, the ADB has approved just over U.S. \$50 million in loans to 1,316 projects in developing countries in the Asia Pacific region. The largest percentage of lending (25.35 per cent) has been targeted to the energy sector, and the smallest percent (1.47 percent) has gone toward education.

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- See the [International Finance Campaign](#) page for more information on the Asian Development Bank.



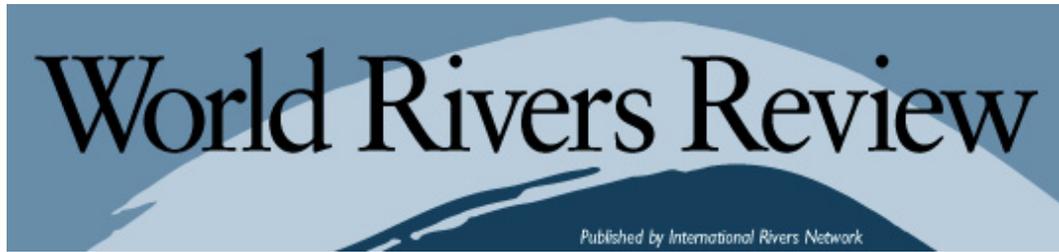
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## News Briefs

### India

#### Supreme Court Rules on Sardar Sarovar

The Indian Supreme Court has ruled that issues of hydrology, dam height, environmental impacts and resettlement and rehabilitation on the Sardar Sarovar dam project be referred back to five member independent review team for further investigation. The review team had previously issued a critical 90 page report, but their terms of reference prevented them from commenting on key points such as dam height.

The Supreme Courts ruling, made on 24 January 1995, was viewed with caution by Narmada Bachao Andolan (NBA, Save the Narmada Movement) who welcome further investigation of the issues, but do not believe the review team is sufficiently independent of the Indian Government. The review team has until 28 February to send recommendations back to the Supreme Court. The NBA is preparing submissions on each of the issues to send to the review team.

The Supreme Court refused to consider the NBA request for an injunction on dam construction. Construction has stopped temporarily, however, because the dam wall has reached the pre-approved 80.3 meters. The Madhya Pradesh government has vetoed the Gujarat government's attempts to continue construction beyond 80 meters and the issue has been referred to an inter-state resettlement subgroup. Events at that level could be superseded by the review team's final report which should include a recommendation on height.

The Supreme Court ruling comes amidst growing controversy over new reports that large portions of the lower part of the dam called the stilling basin were washed away during heavy flooding last September. The NBA have accused the dam authorities of negligence and attempting to cover up the extent of the damage. *Lori Udall*

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

### Nepal

## **World Bank Investigation Stalled**

A desire on the part of the World Bank Board of Directors to confirm the intentions of the new Nepali government regarding the Arun III project has stalled an investigation into the Arun III Dam recommended by the World Bank Inspection Panel on 16 December 1994. The investigation would consider claims of alleged World Bank violations during the preparation of the Arun III project. The claims were filed by the Arun Concerned Group, a coalition of Nepalese NGOs, charging that the Bank had violated its energy, environment, resettlement, indigenous people's, and information policies in relation to Arun III.

World Bank board members want to know whether the new Nepali government is fully behind the project before approving the investigation. A Nepali government delegation met with Bank officials in Washington DC during the last week of January. The Nepali delegation, headed by Minister of Water Resources Hari Prasad Pandey, reportedly want to renegotiate certain components and conditions to lower the project costs. The delegation is also said to have brought an alternative investment plan which calls for Arun coming on line five years later than currently planned. Sources inside the Bank say that Bank management is in no mood to open up negotiations on Arun again and is pressuring the Nepali government to accept the project as it is. *Lori Udall*

## **Lesotho**

### **Trouble at Highlands Water Project**

As officials formally celebrated the early completion of the 45-km-long Transfer Tunnel North of the Lesotho Highlands Water Project, inside the tunnel things were literally falling apart. Sections of the degradable basalt rock have deteriorated more extensively than expected, requiring additional support in the tunnel lining. The Lesotho Highlands Project contractors (a joint venture led by Spie Batignolles of France) have decided that the entire length of the tunnel will have to be lined with concrete. "The basalt pattern is completely arbitrary, rendering a selective lining program uneconomical," explained a project spokesperson.

Transfer Tunnel North, which is one of the longest water supply pressure tunnels in the world, connects the Katse Dam with the Muela hydropower station. The lining of the tunnel is expected to cost an additional R250 million (U.S.\$73.6 million), and cause delay's of up to a year. Plans call for the The Lesotho Highland's Water Project to be implemented in four phases over a 30-year period, with a total cost of U.S.\$2 billion. Prior to this setback, project completion of Phase 1A was slated for May 1997.

*Christa Coleman*

*Sources: International Water Power and Dam Construction, January 1995; Hydropower & Dams, November 1994; and Africa Analysis, 30 September, 1994.*

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

## Chile

### Dams Multiply on Biobío

A confidential feasibility study, finally released in late 1994 confirms that a second dam on the Biobío River at Ralco has always been considered as integral to the workings of the Pangué Dam now under construction. Critics of Pangué have long called for environmental impacts assessments to consider the cumulative impacts of both projects, but authorities maintained that the two projects did not depend on each other.

The recently released feasibility study for Ralco describes it as being a key piece of the complex, serving as an accumulation reservoir that would regulate the flow and retain 96 percent of the sediment of the Biobío for an optimum performance of Pangué and three other plants downstream from it.

In preparation for forced relocation of the indigenous Pehuenche people, whose land will be inundated by the Ralco reservoir, the Chilean private utility ENDESA has purchased land known as the "El Barco" farm for U.S.\$3 million. The reservoir will inundate 3400-4800 hectares, depending on the final height, which has not yet been determined.

Public opposition to Ralco is deep. In January, youth groups representing the three major political parties held a sit in at the headquarters of the National Committee on the Environment (CONOMA) whose final approval has not yet been granted. The Pehuenche are protesting too, calling for the construction crew to leave the site, and for the project to be officially suspended. The project, they say, will cause irreversible damage to nine native communities, seven cemeteries, and the surrounding ecosystem. Referring to the pro-dam speech delivered by Chilean president Frei last summer, a spokesperson for the Pehuenche said, "His voice was not representing presidential thought, but rather, was the voice of a businessman."

Work continues on the projects despite a new official plan presented by the National Energy Commission which identifies natural gas piped from Argentina as the most attractive energy-development option, and suggesting that hydroelectric development be considered only if energy demands are not met by 2001. *Elizabeth Hennin*

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

## Portugal

### Dam Destroys Stone Age Art

The Portuguese state electric company refuses to halt construction of a U.S.\$300 million dam that will destroy one of the most important collections of Stone Age art in the world. More than half of the 20,000-year-old rock carvings are already under water because of the dam, which is located across the northern Coa River. Experts predict that by 1999, the entire outdoor gallery will be submerged.

Progress on the dam continues despite a request from the Portuguese Institute of Patrimony that the electric company stop construction until a plan can be devised to save 60 animal figures carved on the granite riverbank. Scientists from UNESCO plan to study the carvings and pose possible solutions to the Portuguese government. Frances' leading expert on Paleolithic rock art, Jean Clottes, recommends lowering the water level every decade to determine damage to the carvings.

The electric company, which claims that the dam will increase electrical output in Portugal by as much as 20 percent, says it will cooperate with archeologists to reach a "workable solution." *Marlene Goldman*

*Source: The Associated Press as printed in the San Francisco Chronicle January 10, 1995.*

## **Paraguay/Argentina**

### **Dynamiting Islands in Yacyreta Reservoir**

Paraguay and Argentina said they may dynamite several small floating islands, more than a hectare in size, that are now threatening to damage the same dam that caused them to break loose. The land masses, which broke off from the land inundated by the reservoir between Ayolas, Paraguay and Ituzaingo, Argentina, have already caused U.S.\$160,000 in losses to the Yacyreta hydroelectric power station after forcing the turbines to close down for two hours. Power station officials are worried about the potential damage from another chunk of land, with a 12 to 15 hectare mass, that is on the verge of breaking off a fixed island.

"We had no idea that nature would react in this way," said Joaquin Rodriguez, Director of the binational group that manages the dam. *Marlene Goldman*

*Source: InterPress Third world News Agency, January 10, 1995.*

## **Paraguay**

### **Dam Added to Hidrovia Plans**

As debate intensifies over the impacts of a proposed shipping channel on the Paraguay River, the already pharonic plans for transforming the second-largest river system in south America have become even more ambitious with the announcement by Paraguayan President Juan Carlos Wasmosy that his country now proposes to build a dam on the river.

According to Wasmosy, the dam, which would be built below the point where the Paraguayan, Brazilian, and Bolivian borders meet, would pump water into the Pantanal and Chaco wetlands to mitigate the environmental impacts of the Parana-Paraguay Hidrovia.

The Paraguayan government has also solicited bids by construction companies for the demolition of rock outcroppings thought to control the flow of water from the Pantanal. The announcements have heightened concern that environmental impact studies, which the UNDP and Inter-American

Development Bank will begin in February, will have no value if construction on some components has already begun to destroy the ecosystem.

Meeting in Sao Paulo in December, 1994, representatives of 75 environmental and human rights organizations, scientists, and indigenous peoples from the five countries directly affected by the projects, as well as activists from the international community called for public participation in the environmental assessment. "Work should not begin on any single component of the project until the EIA process for the entire project is completed," they said. *Glenn Switkes*

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

## China

### Ground Breaking at Three Gorges

On 14 December China's Prime Minister Li Peng hastily organized a ceremony to officially announce the start of construction of the world's largest hydroelectric project, the Three Gorges Dam. Hoping to bolster domestic support for his pet project, Li Peng pushed the celebration amid mounting speculation that the Communist Party leadership may lose interest in the dam when their leader, Deng Xiaoping, dies. Deng's health is reported to be deteriorating. Although determined to win international support for the dam, Li Peng opted to keep the ground breaking ceremonies closed to all foreign journalists, reportedly due to a variety of problems at the site. Engineers there are reported to be uncertain about the viability of the dam design. Despite efforts to stifle bad news about the project, reports are finding their way out of China that the resettlement of 10,000 people already moved into test zones in Hubei province is suffering from poor planning, and a gross underestimation of funding required to resettle the 1.1 million people to make way for the dam. Still far from securing the estimated \$20 to \$30 billion necessary for the project, Li Peng is likely to continue keeping the international press corps in the dark about the project's problems. *Owen Lammers*

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



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