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Two Rivers: The Chance to Export Power Divides Southeast Asia



The Irrawaddy River, which flows north to south through the heart of Myanmar, is a commercial and cultural lifeline for millions of residents.

Photograph by Khin Maung Win, AP

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Jeff Smith
For National Geographic News
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The Mekong and Irrawaddy rivers, though unconnected and hundreds of miles apart, are both integral to life in Southeast Asia, supporting millions of people and more than 1,200 species of animals, including freshwater dolphins and—in the Mekong—giant catfish.

Now, in an energy-hungry age on the continent, the rivers share another distinction, as wellsprings of financial temptation for the struggling countries that rely on their flow, Laos and Myanmar (Burma). Both countries are grappling with decisions on whether to build massive hydropower dams on the two significant rivers. The projects could put fragile ecology and associated livelihoods at risk,

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but the dams could help the two countries reap billions of dollars by exporting the megawatts to China and Thailand, two neighbors with rapidly growing energy demand.

For now, it looks like the two nations are taking different paths. In Laos, the government appears to be going ahead with the \$3.8 billion Xayaburi dam on the Mekong River—despite opposition by environmental groups, some international donors, and some neighboring countries. In Myanmar, meanwhile, the government shocked many observers last month when it announced it would suspend work on the \$3.6 billion Myitsone dam project on the Irrawaddy River. The decision came without notice to its Chinese partner, and just weeks after Myanmar's power minister was adamant the project would go forward. Some observers both within and outside Myanmar are skeptical the suspension will hold.

(See "Myanmar-Land of Shadows" and related map: "Exploiting a Land of Plenty")

A Region's Changing Flow

The dams, if completed eventually, would be the first on the mainstreams of the lower Mekong and the Irrawaddy. But China has been building a series of dams on the upper Mekong.

Energy demand has been rising exponentially as the region becomes more prosperous. The money could transform the poorly developed economies of Laos and Myanmar, although many worry the revenues would just enrich the elite.

Scientists and environmentalists are concerned the dams will displace thousands of people, and damage river ecology and the livelihoods of people along the river. They are concerned the dams will lead to additional projects that could have even more devastating impacts.

The dams on the upper Mekong and on the Mekong's tributaries are already triggering changes in river flows.

There are longstanding plans to build as many as 11 additional dams on the Mekong in Laos and Cambodia. Researchers project that if all those dams were built, the impact on wetlands and migratory fish such as the endangered giant catfish could be disastrous.

In addition, 30 percent of the protein sources in Laos and Cambodia would be at risk, according to [an environmental assessment](#) (pdf) done for the [Mekong River Commission](#) (MRC), an international cooperative body that aims to manage river uses sustainably.

Many poor people living along the Mekong subsist on a diet of rice, fish paste, and some vegetables.

(Related: [Video on the Mekong giant catfish](#))

Diana Suhardiman, a research scientist for the [International Water Management Institute \(IWMI\)](#) in Vientiane, Laos, said the issues are complex, with "formal political/environmental agendas, vested interests, desire for economic growth, all mixed up and contextualized into one single dam development." (Suhardiman was speaking about Laos's planned Xayaburi, but Myanmar's Myitsone reflects similar conflicting interests.)

IWMI is one of 15 nonprofit research centers collectively known as the Consultative Group on International Agricultural Research, funded by 60 governments, private foundations and international organizations.

(Related: "[New Dam a Go and a Blow to Megafishes?](#)")

Potential Financial Gains Immense

Laos and Myanmar stand to benefit immensely from hydroelectric plants.

Laos—long referred to as a potential "battery" for the region—would primarily sell power from the 1,260-megawatt Xayaburi to neighboring Thailand. If Laos eventually moves ahead with all six of its planned foreign investor-financed dams on the Mekong, it could generate more than \$2.5 billion a year in revenue, according to estimates.

Myanmar's suspended Myitsone project was envisioned to have a capacity of 6,000 megawatts, nearly the size of the largest hydroelectric plants in the United States and Russia.



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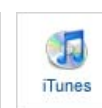
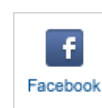
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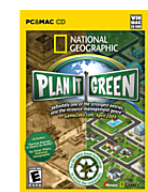
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Myanmar was under contract with the state-owned China Power Investment Corporation to sell 90 percent of Myitsone's power to China and reap an estimated \$500 million of revenue a year. There also was an agreement between the two countries for six additional large dams in the region.

But the economic costs could be steep as well. Although there is no similar analysis of the potential impact of Myitsone, this issue as it pertains to the Mekong River has been studied intensively.

Losses from the damage to the fisheries and agricultural industries on the Mekong could reach \$500 million a year if planned dams are completed, according to the environmental assessment done for the [Mekong River Commission](#) (MRC). The lower Mekong strategy began during the Cold War, when the United States, Soviet Union, and China similarly envisioned large hydropower dams for economic development. However, costs, water management disputes, and conflicts such as the Vietnam War impeded the plans. (A 1,070-megawatt [hydropower plant](#) recently was completed on the Nam Theun River in Laos with the backing of the World Bank and Asian Development Bank.)

In 1995, the [Mekong River Commission](#), originally a United Nations body but now an independent international oversight organization, was reformed with an agreement that its four member countries-Cambodia, Laos, Thailand, and Vietnam-would discuss the 12-dam Mekong River plan before any decisions were made. But the MRC has no legal authority.

Laos earlier paid heed to the process and opposition by such neighboring countries as Vietnam. But the Laotian government apparently has chosen to ignore the MRC's April consensus to delay a decision on Xayaburi.

Laotian energy ministry officials didn't respond to a query. In July, a [letter leaked](#) to the environmental organization International Rivers revealed that the government told its Thai partner that the study process had been completed. Construction work at the dam site has been proceeding [for months](#), says International Rivers, a nonprofit that works to protect rivers and the people who live along those rivers.

Complex Environmental Impacts

The Mekong has been researched extensively, but the impacts of large hydroelectric development can be complex. The potential for damage depends on the location of the facility in the river system, said Tira Foran, a research scientist who has studied the Mekong for years and is now with the Australian Commonwealth Scientific and Research Organization in Canberra.

(Related blog: "[Sustainable Hydropower: A New Flow of Ideas](#)")

Hydropower dams redistribute river flows; dry season flows generally increase, and monsoon peak flows generally decrease. Theoretically that can lead to better flood control in the wet season, and benefit irrigation during the dry season. But a hydropower operator's first priority is to produce electricity, not to prevent floods or irrigate dry season crops.

Researchers project that dams and the changing water flows on the lower Mekong will have significant, negative impacts on river ecology. Preliminary research indicates the impact on migratory fish is potentially catastrophic and unlikely to be mitigated by fish ladders and other technology.

Foran and other researchers also note the Tonle Sap wetlands area in Cambodia-which bulges in size during the wet season-may be threatened. The Tonle Sap is one of the most bountiful inland fisheries in the world. During the monsoon season, the Mekong River swells and exerts such a force of water that the Tonle Sap tributary reverses direction and floods the lake.

(Related: "[Why We Shouldn't Dam the World's Most Productive River](#)")

Similar conclusions have been made for the Myitsone in Myanmar, with devastating impacts predicted for many species of migratory fish.

In Myanmar, a Case of Unity

Activist groups long have opposed dam building on Southeast Asia's main rivers.

Opposition in Myanmar came from an unusually passionate discourse in a country that has had a civilian government since early this year, but where a military junta remains in firm control.

The Irrawaddy has a special place in the hearts of the Burmese and in their

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folklore. One local legend describes the Irrawaddy being formed by water poured from two gold cups by a great spirit sitting in the Himalayas. (The Irrawaddy starts at the confluence of two smaller rivers fed from the Himalayan region.)

The Burmese tested the boundaries of a limited democracy by speaking out against the dam, holding art and photo exhibitions, and circulating a petition to stop the dam. Nobel Peace laureate Aung San Suu Kyi, who was freed from house arrest last year, has spoken out against the project.

(Related: "[Myanmar's River of Spirits](#)")

In a surprise turn of events last month, President Thein Sein, in a letter to parliamentarians, suspended work on the Myitsone, saying the government would respect the wishes of its people. He added the project could damage the natural beauty of the area, the livelihoods of local people, and agricultural plantations.

Other factors besides public pressure may have been at play as well.

An [environmental impact assessment](#) commissioned by the Chinese power company and recently released concluded such a massive project wasn't needed.

Fighting has been intense between the Myanmar army and an ethnic Kachin army in the region, according to reports by the Kachin News Group. Some Burmese observers note there may have been concerns that the Chinese were exerting too much power over Myanmar's affairs; there may be hopes that the West will ease sanctions against the country.

(The United States already has made signals it may do so not just because of the Myitsone suspension but because Myanmar has released some political dissidents, has relaxed its control over the media, and has made other "welcome" gestures that signal "a trend toward greater openness," a U.S. State Department official said in [a briefing this month](#).

Whatever the motive or combination of motives, Burmese see the dam suspension as a milestone.

"Irrawaddy has become the first issue on which the government, opposition and the people have become united since the 1962 coup," Yangon journalist Ye Naing Moe wrote in an email. "It could be public pressure or it could be the so-called new civilian government's effort in seeking legitimacy. Anti-Chinese sentiment could be a part of it as well. Anyway, the decision to suspend Myitsone dam has encouraged Myanmar people to keep pushing forward and has taught the government that being loved by the people is good."

Ye Naing Moe traveled to the area in late 2009 with a group of journalists to document and photograph the Irrawaddy as it was before the dam was built. Their efforts were made into a photo book called "Sketch of a River: Irrawaddy," which was published recently as part of an art and photo exhibition.

Uncertain Futures

It's unclear what will happen next in Laos and Myanmar.

Activist groups hope that Laos reconsiders its decision.

"The decisions now are being made without knowledge but with politics," said Pianporn Deetes, Thailand campaign coordinator for [International Rivers](#). "They forget that livelihoods and food security of millions are at stake."

In Myanmar, hundreds of Chinese and Burmese construction workers have left the area but some remain, according to the Kachin Development Network Group. Fighting between the ethnic Kachin army and the Myanmar army has continued, the Kachin News Group has reported.

More than 2,000 people living near the dam site already have been relocated to "model villages," according to the government's New Light of Myanmar newspaper. Aung San Suu Kyi in August said 12,000 people had been relocated.

An ethnic Kachin, who asked that her name not be used because of security concerns, said she has heard from villagers that they can't grow anything on their soil because it is covered with rocks or gravel, and they feel separated from their homelands. But she said she doesn't know whether they will try to go home.

Deetes of International Rivers said there's a window of opportunity to pressure the government to be more transparent and to consider more responsible development and environmental standards. The Burmese people also hope for greater openness.

"People want the transparency because they are not sure how much they will benefit from the project," Aung Htun U, a consultant, said in an email from Yangon. Like many, he's skeptical the Myitsone dam project is dead for good.

This story is part of a special series that explores energy issues. For more, visit [The Great Energy Challenge](#).

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