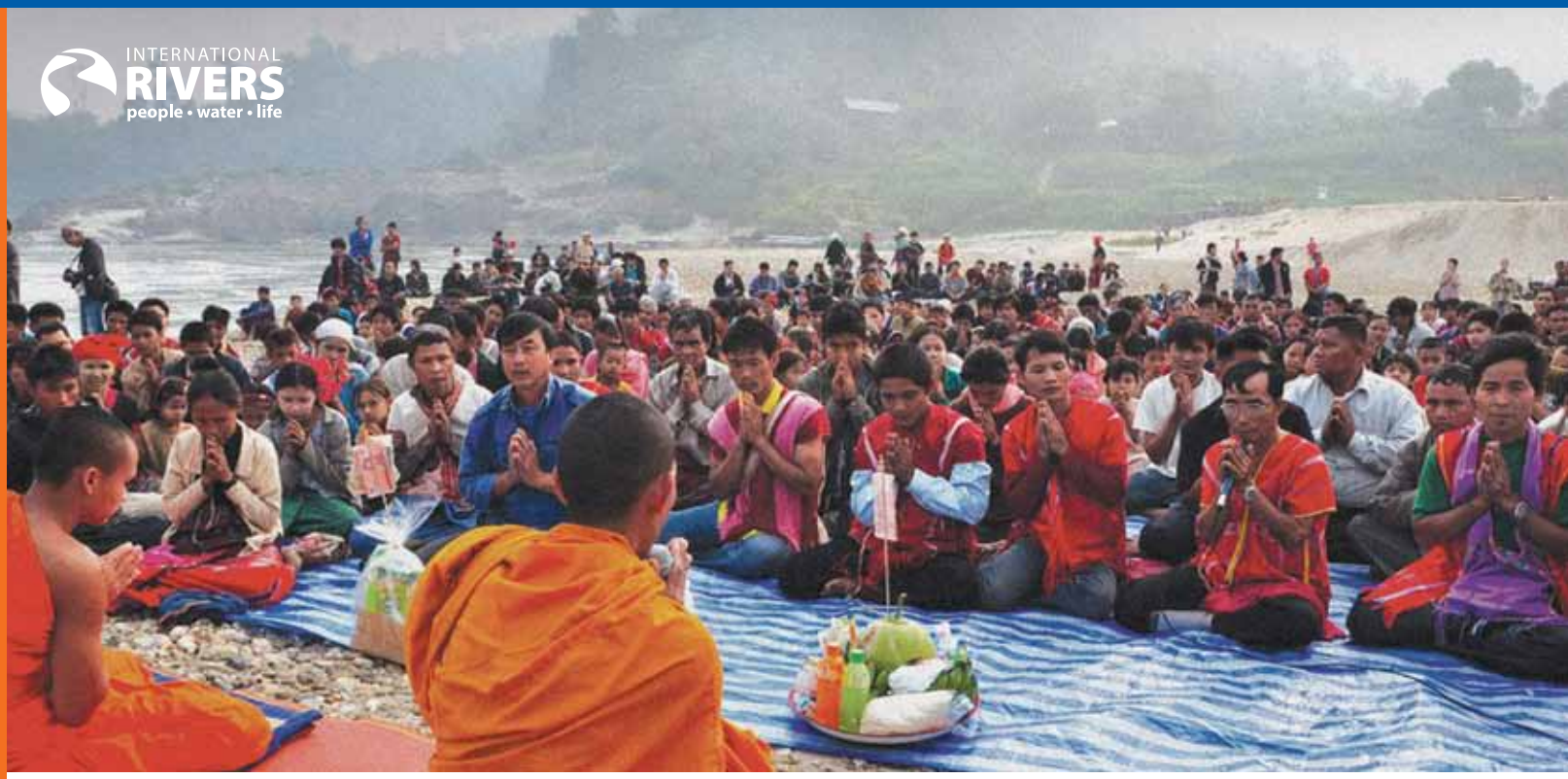


Villagers at the Thai/Burma border gather to bless the Salween River and oppose construction of large dams.

The Salween River Basin

DAM CASCADES THREATEN BIOLOGICAL AND CULTURAL DIVERSITY

From its headwaters in the Tibetan Plateau to its estuary in Burma, the Salween River supports over ten million people. For many decades, it was the longest free-flowing river in Southeast Asia. It sustains rich fisheries and farmlands central to the lives of many indigenous communities living along its banks. However, large dam cascades in China and Burma are being planned in complete secrecy, with no participation from affected communities and no analysis of the cumulative impacts or seismic risks of these projects.

The Salween River, known as the Nu in China and the Thanlwin in Burma, stretches over 2,800 kilometers from its source to the Andaman Sea. Known as the "Grand Canyon of the East," the river cuts deep into the earth to create spectacular views. Impressed by the landscape and the remarkable biological diversity of the area in China through which the Salween flows, the UNESCO World Heritage Committee proclaimed the region a World Heritage Site in 2003. Only two months after receiving the World Heritage designation, the Yunnan provincial government announced its intention to build a 13-dam cascade on China's portion of the river.

The governments of Burma and Thailand are also pushing seven dams and a water diversion project for the lower Salween, despite the ongoing conflicts near the dam sites between the Burmese army and ethnic groups in Karenni, Karen and Shan states. Since 2004, communities in China, Burma and Thailand have voiced strong opposition to dam construction on the Salween.

CHINA'S BIODIVERSITY HOTSPOT

In China, the Salween is known as the "Angry River," a name given by the local Lisu people. Along with the Lancang and Jinsha rivers, it flows through the Three Parallel Rivers World Heritage Site, which is home to 7,000 plant species and 80 species of rare or endangered animals. It is believed to support over 25% of the world's and 50% of China's animal species, according to UNESCO. The area is also known for its cultural diversity – within Yunnan, the watershed is home to approximately five million people from 13 different ethnic groups, most of whom are subsistence farmers.

The total impact of the dams on the flora and fauna of the area are likely to be significant. The dams would disrupt the freshwater fish ecology and threaten one-third of the 75 fish species in the river. The construction of large dams in the vicinity of the World Heritage Site would also lead to road construction that would open the Site to poachers, loggers and other resource users, thereby threatening the ecological integrity of the area.

In an incredible victory for the burgeoning Chinese environmental movement, Chinese Premier Wen Jiabao announced in 2004 the suspension of all projects on the Salween, a result of their failure to comply

Construction of dams and related activities could aggravate geologic hazards. Photo: Fan Xiao

with reporting requirements under China's new environmental laws. However, in 2011, officials revealed plans to resume the dams as part of China's 12th Five-Year Plan.

Seismicity

Among the key concerns voiced by critics of the project are its seismic risks. The Salween sits at the intersection of the northeastern Indian plate and Eurasian plate. Most of the projects discussed under the 12th Five-Year Plan would be built in this dense fault zone, which is China's most seismically active area. From 1512 to 1976, west of the Salween, there were 15 earthquakes of magnitude six or greater, occurring at a rate of once every 30.9 years. The devastating earthquake of 2008 in Sichuan Province, which damaged hundreds of dams and may have been triggered by a reservoir (known as Reservoir Induced Seismicity), illustrates the risk of building hydropower projects on fault lines.

The valley also experiences deadly landslides during the rainy season, due to the steepness of the terrain. These hazards could increase if reservoirs are created or an earthquake is triggered by a large dam. Should one dam break or a reservoir overflow, a domino effect of dam failures could lead to devastating flooding downstream.

Social Impacts

Project proponents claim that the dams would help bring development and modernity to the impoverished areas along the Salween. However, the record of resettlement in China is not positive, and many people fear that the promised benefits would not materialize. The cascade in China would displace over 50,000 ethnic minority people. 144 households in Xiaoshaba village near the proposed Liuku Dam have already been relocated. The result has been a number of problems including exorbitant prices for resettlement houses, a failure to allocate new farmland, and a lack of long-term support programs like job training.

One ethnic Tibetan who would be affected by the northernmost dams told *The New York Times* in 2007: "If people are forced to move because of the project, they are going to lose the way of life that makes them special. It's inevitable that people will lose their traditions if they move away." Officials state that affected villagers would be moved either to far away towns or to higher ground where the land is less arable. The demands by local communities for fuelwood and non-timber forest products would put a strain on the area's limited resources and increase pressure on protected areas. In addition, the increasing competition for scarce resources could lead to conflicts between resettled and host communities, which could result in inter-ethnic rivalries.

Site preparation on four of the 13 dams was allowed to begin in 2007. Local communities have been minimally consulted, and thus far, the government has not published the full Environmental Impact Assessments for any of the dams.

DOWNSTREAM IMPACTS TO BURMA AND THAILAND

Communities in Burma and Thailand fear the cumulative impact that dams on the Chinese stretch of the Salween could have. In addition, Burma's own cascade of dams could cause severe impacts to their livelihoods and natural resources.

Fisheries are a major source of dietary protein for communities in Burma, and the river's nutrient-rich waters sustain vegetable gardens and farmlands. Local people collect fresh water at high tide and store it in community pools for drinking, household use and irrigation, which they manage in a delicate balancing act between the high and low tides. Natural seasonal floods also irrigate and replenish fields. If the dams are built, the downstream effects stand to alter the lives of over half a million people. These effects could include altering river flows, increasing erosion, destroying islands, damaging downstream agriculture, reducing fish catches, and potentially triggering disastrous earthquakes and dam breaks in this seismically active region.

Biodiversity

Among the seven dams in Burma, the Hatgyi Dam would flood two wildlife sanctuaries in Karen State, the Tasang Dam would flood pristine teak forests including the diverse "one thousand islands," and the Weigyi Dam would inundate parts of the Kayah-Karen Montaine Rainforests, Salween National Park and Salween Wildlife Sanctuary. The dams would also likely degrade the Khoe Kay, a bend of the Salween River near the Thai-Burma border that is rich in endemic species. 42 species are listed on IUCN's Red List of Threatened Species. Also, many of the plants and animals unknown to Western science are used by the Karen people for food and medicine.

Conflict Areas

The proposed dams in Burma are located in active civil war zones, which is partly why they have proven problematic to develop. Since project preparations began, there has been increased militarization at the dam sites, which has been linked to the escalating abuse of local populations. According to Human Rights Watch, Shan Women's Action Network and other relief groups, members of ethnic

A Thai-Karen fisherman showing off his catch.

minority groups like the Kachin, Shan and Karen are not only being systematically and forcibly moved from their homes, but in some cases robbed, tortured, raped or executed.

The dams are being developed by companies from Thailand, China and Burma. In June 2006, China's largest hydropower company, Sinohydro Corporation, announced an agreement with Electricity Generating Authority of Thailand (EGAT) and Burma's Ministry of Electric Power to jointly develop the Hatgyi Dam. 75% of the output would be delivered to Thailand in 2019, according to EGAT. Hatgyi's EIA was broadly criticized by experts and NGOs for downplaying the environmental and human impacts and for making dubious claims about the extent of the opposition to the project by the local ethnic Karen.

Tasang Dam would be the largest dam in Southeast Asia and the single largest investment in Burma. The site is located in southern Shan State. Thailand is expected to purchase at least 85% of the annual energy production, but no power purchasing agreement has been signed thus far. Construction of Tasang Dam has been accused of causing human rights abuses and widespread environmental damage. A Shan advocacy group has said that over the past 10 years, the Burmese army has relocated more than 60,000 villagers from areas adjoining the dam site and projected flood zone. EarthRights International has said the project would displace tens of thousands more from their homes in the Shan, Karenni and Karen states, as well as from the Mae Hong Son Province in Thailand. Others have been press-ganged into forced labor, raped or killed by the Burmese military during the preparatory stage of Tasang Dam. Fighting around the dam site in June 2011 spread to other Chinese-funded dam sites and forced at least 2,000 refugees to flee to the China border. According to one villager, "We are ordered to move out with threats but we don't know where to go and how we will survive."

FAST FACTS: DAMS ON THE SALWEEN RIVER

Dam Name	Height (m)	Capacity (MW)	Estimated Displacement	Status***
China* Developer: Huadian Corporation				
Songta	307	4,200	3,633	Active site preparation
Bingzhongluo	55	1,600	0	Planned
Maji	300	4,200	19,830	Active site preparation
Lumadeng	165	2,000	6,092	Site preparation halted
Fugong	60	400	682	Planned
Bijiang	118	1,500	5,186	Planned
Yabiluo	133	1,800	3,982	Site preparation halted
Lushui	175	2,400	6,190	Planned
Liuku	35.5	180	411	Site preparation halted
Shitouzai	59	440	687	Planned
Saige	79	1,000	1,882	Site preparation halted
Yansangshu	84	1,000	2,470	Planned
Guangpo	58	600	34	Planned
Total in China		**21,320**	**51,079**	
Burma** Project Participants: Burma's Ministry of Electric Power, Electricity Generating Authority of Thailand, Sinohydro Corporation, Russia's Power Machines Company, Zhejiang Fuchunjiang Hydropower Equipment, Tasang Hydropower Company, Ltd., Hanergy Holdings Group, Gold Water Resources Co Ltd.				
Kun Long	Unknown	2,400	Unknown	Planned
Nong Pa	Unknown	1,200	Unknown	Planned
Tasang	230	7,110	60,000+	Pre-feasibility study
Ywathit	Unknown	600	Unknown	Feasibility study
Weigyi	168	4,540	30,250	Feasibility study
Dagwin	49	792	Unknown	Feasibility study
Hatgyl	100	1,190	2,400	2nd Environmental Impact Assessment under preparation
Total in Burma		**17,832**	**92,650**	
Total for All Dams		**39,152**	**143,729+**	

Sources:
* Brian Tilt (2012). "Damming China's Angry River: Vulnerability in a Culturally and Biologically Diverse Watershed," *Water, Cultural Diversity, and the Global Environmental Change: Emerging Trends, Sustainable Futures?* B.R. Johnston et al. (eds.). UNESCO
** Burma Rivers Network
*** International Rivers, China Global Dams Database, accessed 3 May 2012.

A BETTER WAY FORWARD

The dams on the Salween River in China are part of China's Western Region Development Strategy, which seeks to send electricity from the western provinces to the eastern provinces. However, experts fear that building these dams could trigger a new wave of energy-intensive industrial development in China and further exploitation of the region's rich mineral deposits. In addition, they fear a repetition of history, where few of the benefits reach the local displaced communities, and existing disparities between the eastern and western regions are exacerbated.

China is already making impressive inroads in alternative energy development. The National Development and Reform Commission plans to enforce a series of new demand-side management policies and efficiency measures to reduce energy use. New and expensive hydropower projects could be avoided by increasing investment in energy efficiency measures, alternative energy, end-use conservation, and by rehabilitating and improving management of existing hydropower projects.

In Thailand, energy planning is currently biased towards building new large power plants rather than seeking alternative solutions. Furthermore, a consistent overestimation of power demand has resulted in excessive investment in new power plants, leading to needless environmental and social costs, as well as unnecessarily high electricity bills for Thai consumers. Thailand could meet its future energy needs through promoting energy efficiency, upgrading existing power generation facilities, and removing barriers to renewable energy technologies. A recent report shows that Thailand could increase its non-large hydro renewables to 4,804 MW by 2030 and reduce its hydro imports from projects like those on the Salween from 15% to 5%. An additional 4,800 MW of gas-fired cogeneration could contribute a third of Thailand's energy needs.

Basin-Wide Cooperation

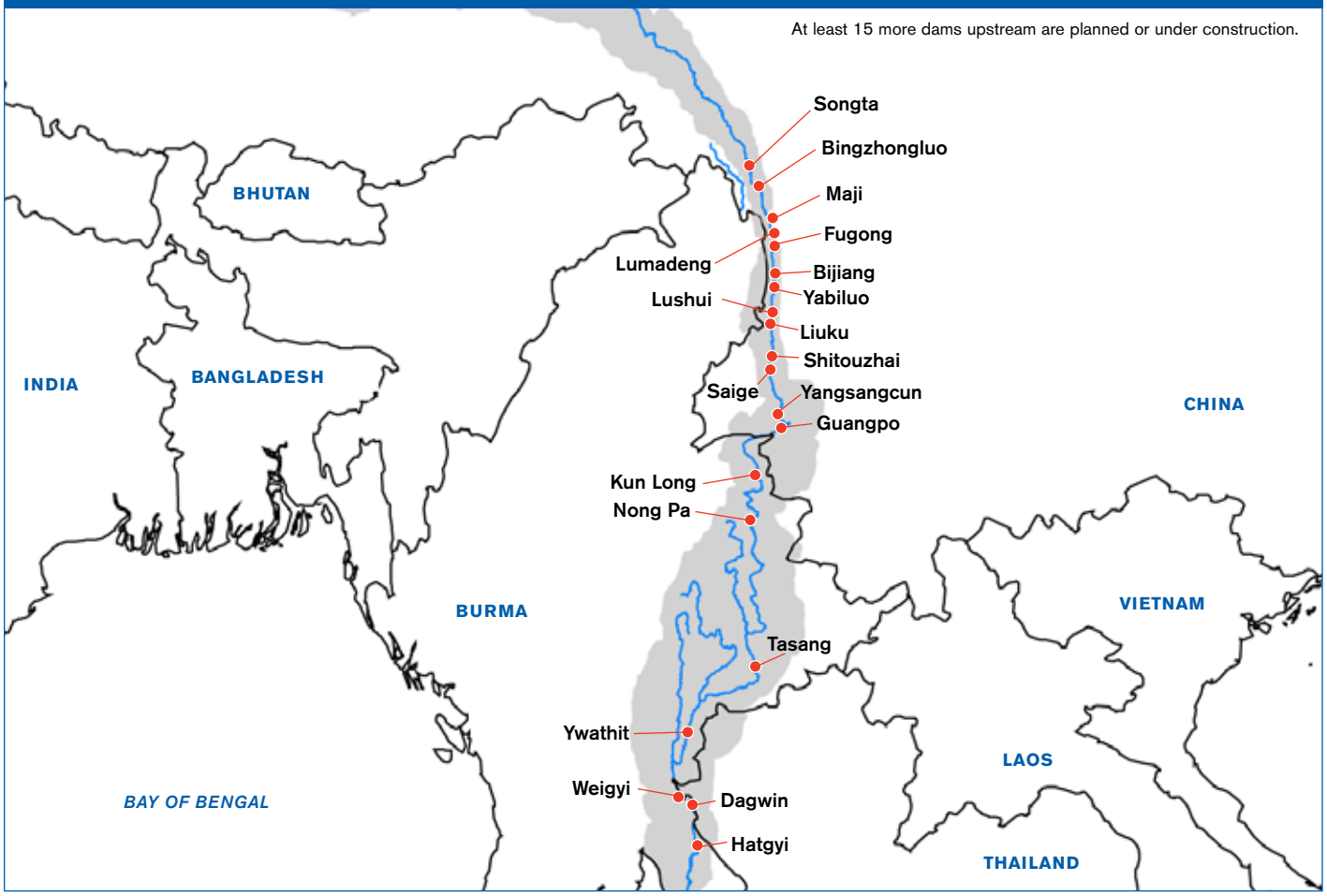
Thus far, no formal institutional structure has been set up for the three Salween Basin countries to share not only technical and economic studies but also the social, cultural and environmental values of the entire basin. A regional framework could be set up to allow all three countries to discuss and address the impacts to the river's flow regime that hydropower development could have. Improving standards of public disclosure and stakeholder participation is also critical to fostering dialogue across borders.

Significant efforts are under way to rethink development of large dams in China, including a recent policy on hydropower planning on major rivers like the Salween River. Recent successes around the suspension of the Myitsone Dam on the Irrawaddy River and the slow opening up of civil society dialogue may be a sign that change is possible in Burma. The past success of international campaigns to stop the dams on the Salween also show that leaders do respond to public pressure, despite the powerful interests that are pushing for the projects to be built. Promoting an open discussion on the cumulative impacts of these projects may save one of Asia's most important lifelines.

WHAT YOU CAN DO

Write to the Ambassadors of Burma, China and Thailand in your country asking them to halt dam projects on the Salween River and conduct a full Strategic Environmental Assessment of the entire basin. Here's how: www.internationalrivers.org/resources/save-the-salween.

PROPOSED DAMS IN THE SALWEEN BASIN



MORE INFORMATION

Learn more about the dams in Burma: www.salweenwatch.org
Learn more about the dams in China: www.internationalrivers.org/campaigns/salween-nu-river
Get connected to receive updates and actions on how you can help: www.internationalrivers.org/get-connected