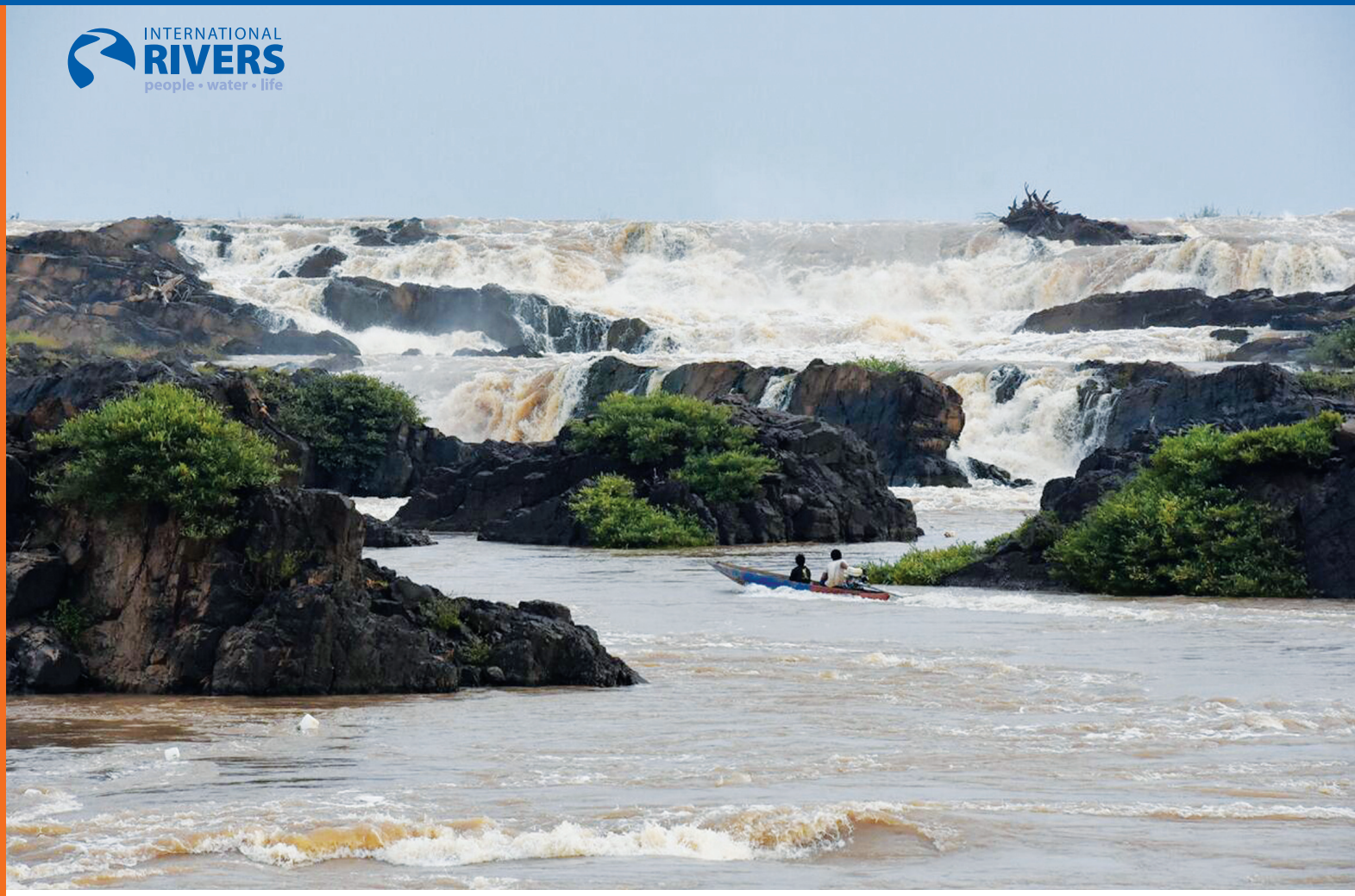


Fishermen navigate the rapids in Siphandone, close to the site of the Don Sahong Dam, June 2017

A Dangerous Trajectory for the Mekong River

UPDATE ON THE STATUS OF MEKONG MAINSTREAM DAMS

As the world's largest inland freshwater fishery, the Mekong River feeds more than 60 million people who live within its basin. Its extraordinary aquatic biodiversity is second only to the Amazon. The Mekong River and its tributaries support a large number of globally threatened species, and provide habitat for diverse fish, plants and invertebrate. The Mekong's connectivity and flood-drought cycles are essential to maintain its rich fisheries, ecology, and the sediment and nutrient balance necessary for sustainable production of food crops on its fertile floodplains.

Despite the significance of the Mekong River Basin to the people of mainland Southeast Asia, a dam-building boom is underway, threatening the basin's vital ecosystems. A cascade of dams is planned for the Mekong mainstream, with many more dams proposed and under construction on its tributaries. Two dams are already under construction on the lower Mekong River mainstream - the Xayaburi and Don Sahong Dams. The Pak Beng Dam, the third project proposed for construction within the cascade, has recently completed a regional consultation process under the framework of the 1995 Mekong Agreement. Dams on the Mekong River mainstream will block the major fish migrations that feed and provide income to millions of people, and threaten the ecological integrity of the entire river system. The impacts of dams planned and under construction on the lower stretch of the Mekong River are compounded by a cascade of dams on the upper Mekong River, or Lancang, as it is known in China.

The regional decision-making process for the cascade of dams on the lower Mekong mainstream has been fraught, characterized by ongoing disagreement between Mekong countries and concern from communities, civil society groups and other stakeholders in the Mekong region and internationally.

To date, decision-making over Mekong dams has taken a "project-by-project" approach, which fails to adequately consider the cumulative and transboundary impacts of the entire cascade of dams planned and under construction within the Mekong River Basin. Dam proponents have largely ignored scientific studies, which point out severe risks to food security and the ecological integrity of the Mekong River if all of the proposed dams are built. Local communities whose lives depend on the Mekong River will bear the brunt of the impacts from the projects, yet they have been largely left out of the decision-making process, their voices ignored. Many communities in Thailand, Cambodia and Vietnam have been vocal in their opposition to dams on the lower Mekong River. In Thailand, this concern has led Mekong villagers to file two lawsuits against Thai state actors involved in Mekong dams, citing the expected transboundary impacts of these projects.

The drive to build dams along the Mekong River belies the reality of energy demand in the region. Much of the power from dams on the Mekong mainstream in Laos is planned for export to Thailand. However studies have shown that Thailand does not in fact need this electricity. Overall, Mekong mainstream dams do not add up. The loss incurred to the region's rich fisheries alone would be irreversible, and such impacts can never be fully mitigated. There is an urgent need for Mekong governments to re-think the trajectory of dam building on the Mekong River, learning from the studies and experiences of the last decade. Mekong countries have an opportunity to become leaders in truly renewable energy alternatives, which can help meet the needs of people throughout the region in an equitable and sustainable way. Governments must move towards water and energy solutions that prioritize the voices of local communities and balance the needs of the entire Mekong Basin.

STATUS OF MEKONG DAMS

Project	Province / Country	Status	Developer	Installed Capacity
Pak Beng Dam	Oudomxay, Lao PDR	• MoU signed 2007, with China Datang Overseas Investment. • March 2014, Datang received environmental permits from the Lao Government (GoL) • GoL submitted the Pak Beng Dam for Prior Consultation under the MRC's PNPCA process on November 4, 2016. • Prior Consultation officially began December 2016.	Datang International Power Generation Co.Ltd. (China-Hong Kong)	912 MW
Luang Prabang Dam	Luang Prabang, Lao PDR	• MOU signed October, 2007 • New studies underway	Petro Vietnam Power Corporation (Viet Nam)	1,410 MW
Xayaburi Dam	Xayaboury, Lao PDR	• MOU signed May 2007 • PDA signed November 2008 • PNPCA initiated September 2010 • Construction began 2012 • Construction as of May 2017 close to 75% complete	Xayaburi Power Company Ltd. Shareholders: Ch.Kanchang (30%), EGCO (12.5%), PTT (25%), BECL (7.5%) , EDL (20%), PT (5%)	1,285 MW

STATUS OF MEKONG DAMS

Project	Province / Country	Status	Developer	Installed Capacity
Pak Lay Dam	Xayaboury, Lao PDR	• MOU signed June 2007 • EIA Approved	Power China Resources	1,320 MW
Sanakham Dam	Vientiane, Lao PDR	• MOU signed December 2007 • EIA Approved	Datang International Power Generation Co.Ltd.	700 MW
Pak Chom Dam	Vientiane, Lao PDR and Loei, Thailand	• Planned	*Department of Alternative Energy Development and Efficiency, MoE, Thailand (Thailand)	1,079 MW
Ban Khoum Dam	Champasak, Lao PDR and Ubon Ratchathani, Thailand	• MOU signed March, 2008	Italian-Thai Development PLC & Asia Corp, Holdings Limited. (Italy-Thailand)	1,872 MW
Phou Ngouy Dam (Formerly Lat Sua)	Champassak, Lao PDR New site planned 2-10 km South of Pakse	• MOU signed 02/04/2008 • PDA 7/12/2010 • EIA underway by Thailand's Panya Consultants and China's Hydrochina Engineering Corporation Group (from Lao office)	Charoen Energy and Water Asia Co.Ltd. (Thailand) (CP Group)	651 MW
Don Sahong Dam	Champassak, Lao PDR	• MOU signed 2010 • EIA approved 2013 • PNPCA began 25/07/2014 • Construction began January 2016 • Construction more than 25% complete as of May 2017	Mega First Corporation Berhad (Malaysia) Sinohydro (China)-EPC Contractor	260 MW
Stung Treng Dam	Stung Treng, Cambodia	• MOU signed 08/12/2009 • Pre-feasibility study completed	Royal Group	900 MW
Sambor Dam	Kratie, Cambodia	• MOU signed 04/11/2010 • Natural Heritage Institute (USA) working with MME on two studies examining alternative options, including alternative design and no-dam options. • Cambodia Daily reports that in October 2016, the Cabinet granted in-principle approval to studies for the Sambor and Stung Treng dams.	China Southern Power Grid - Original developer dropped out of the project in 2011, citing that they were a responsible company. Hydrolancang and Royal Group (media reports indicate)	2,600 MW - original favored option 465 MW or 2,600 MW

1. PAK BENG DAM

Status: Prior Consultation completed. Preparatory construction work underway.

The Pak Beng Dam is the northernmost of eleven dams proposed for construction on the lower Mekong River mainstream. The project is located seven kilometers upstream of Pak Beng town, in Oudomxay Province, Northern Laos. The 912 MW hydropower dam is expected to generate 4,700 GWh of electricity per year, of which 90% will be sold to Thailand and the remaining 10% to Laos' state-owned utility, Electricite du Laos. On 4 November 2016, the Government of Laos (GoL) notified the Mekong River Commission (MRC) of its intention to develop the project, as required by the Procedures for Prior Notification, Prior Consultation and Agreement (PNPCA) under the 1995 Mekong Agreement. This triggered the Prior Consultation procedure between the four MRC member countries, which officially commenced on December 20, 2016.

An independent expert review of the Environmental Impact Assessment (EIA) for the Pak Beng Dam - commissioned by International Rivers - found that project studies submitted during the Prior Consultation procedure are inadequate to provide a basis for meaningful evaluation of the environmental and social impacts of the Pak Beng Dam. The project documents are characterized by insufficient baseline information, draw on outdated data collected in 2011 and earlier, and do not consider more recent scientific studies and accumulated data. Furthermore, the studies largely ignore changes to the Mekong River; including the construction of the Xayaburi and Don Sahong Dams on the lower mainstream of the river. Of particular concern are the transboundary impacts of the Pak Beng Dam in Thailand, due to the changes in hydrology of the river and the barrier to critical fish migration pathways, including the endangered Mekong giant catfish.

On June 8, 2017 villagers from Thailand filed a lawsuit in Thailand's Administrative Court against Thai state agencies responsible for implementation of the Prior Consultation procedure in Thailand. The lawsuit cited a failure of the state agencies to provide sufficient information about the project, including a transboundary environmental impact assessment, or to ensure meaningful consultation with communities in Thailand, as required both by the 1995 Mekong Agreement and Thai law. The lawsuit is the second case filed by communities in Thailand concerning transboundary impacts in Thailand from dams on the Mekong mainstream.

For more information on the Pak Beng Dam visit:
https://www.internationalrivers.org/node/10852

Riverbank gardens along the Mekong close to the site of the Pak Beng Dam, 2008

2. LUANG PRABANG DAM

Status: Planned

Luang Prabang is the second dam in the lower Mekong cascade, located above Luang Prabang town; 3 km above the confluence with the Nam Ou River and the Pak Ou caves - a famous Buddhist holy site. The developer is PetroVietnam Power Corporation and the power is planned for sale and export to Vietnam. The Luang Prabang Dam would have an installed capacity of 1,410 MW. It has a reservoir area of 90 km^2. An estimated 12,966 people will be resettled by the project. Luang Prabang town center is a UNESCO World Heritage Site.

3. XAYABURI DAM

Status: Under construction, expected to commence operation 2019

The Xayaburi Dam was the first dam to begin construction on the lower stretch of the Mekong River. On 7 November 2012, Laos and Thailand held an official groundbreaking ceremony for the project. Site visits and media reports at the time found that construction activities had commenced in late 2010, however for several years the Government of Laos claimed that these activities were only "preliminary work". As of June 2017 the project is more than 75% complete and is expected to begin operations in 2019. Ch. Karnchang, one of Thailand's largest construction companies, is building the Xayaburi Dam. It is financed by six Thai banks, including Siam Commercial Bank, Kasikorn Bank, Bangkok Bank, Krung Thai Bank, TISCO, and the Export-Import Bank of Thailand (EXIM). Thailand's electricity utility, EGAT, has agreed to purchase 95% of the dam's electricity. Energy experts in Thailand have concluded that Thailand does not need the dam's electricity to meet its growing energy demand. However, the dam is expected to bring enormous profits to these companies and generate revenue for the Lao government.

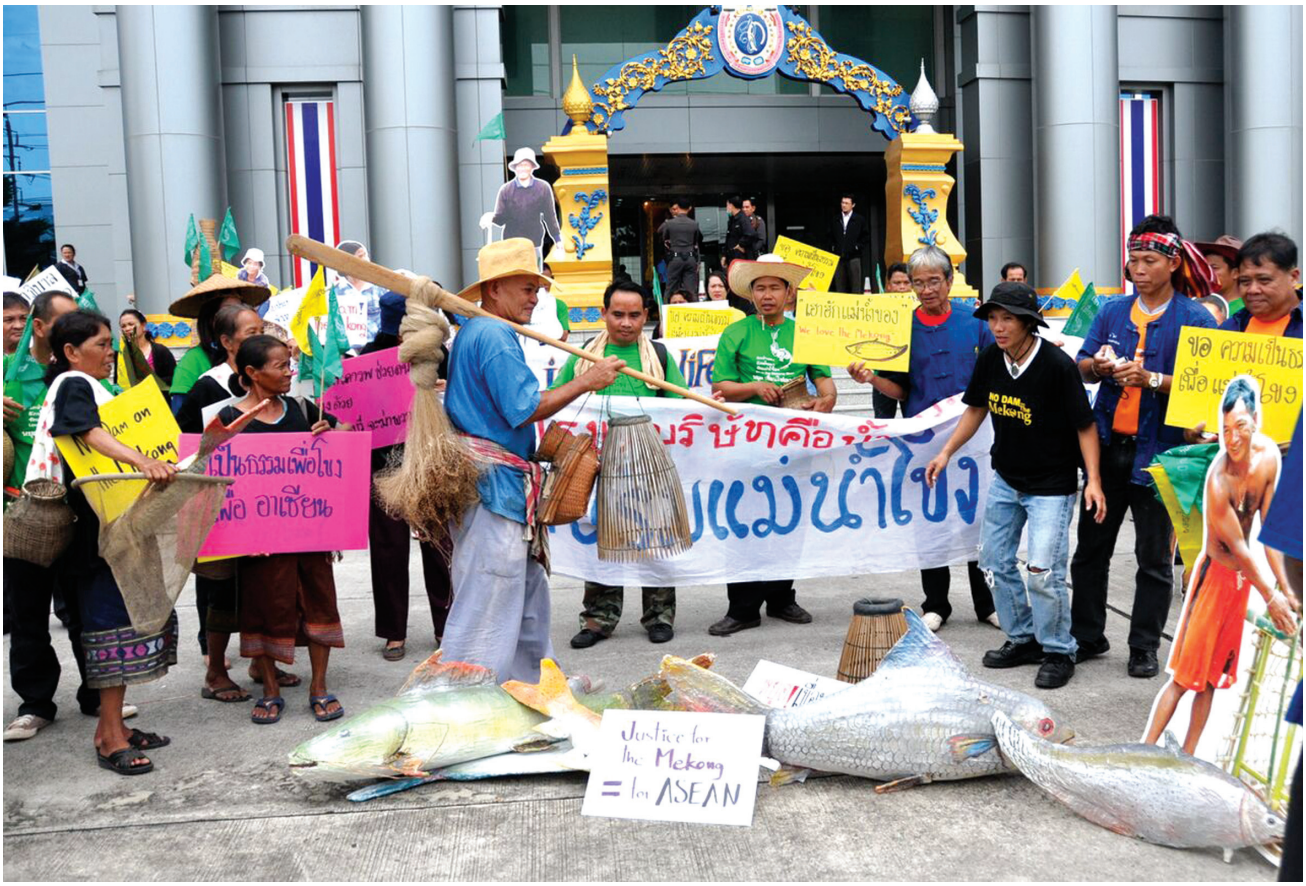
The Xayaburi Dam was the first test of the Prior Consultation process under the 1995 Mekong Agreement, and faced a highly contested process, which failed to reach any clear conclusion. Construction began in spite of ongoing opposition and concerns over project impacts from the governments of Cambodia and Vietnam. Both countries called for a 10-year moratorium on all dam building on the lower Mekong River, in accordance with recommendations of the MRC-commissioned Strategic Environmental Assessment (SEA), released in 2010. Due to the concerns over the impacts of the Xayaburi Dam on fish migration and sediment flow, developers committed to a re-design of aspects of the project, and spent a reported additional 400 million USD on these design changes. The final project designs have yet to be made public.

Scientists expect that the dam will block critical migration routes for between 23 to 100 fish species, including the iconic Mekong giant catfish. The Government of Laos has resettled at least 2,980 people, and more than 202,000 people living near the dam site will be directly affected.

In August 2012, villagers from North and Northeast Thailand affected by the Xayaburi Dam filed a case in Thailand's Supreme Administrative Court, against five Thai state agencies. The case, while initially dismissed by the lower court, was accepted on appeal to the Supreme Administrative Court in June 2014. In accepting the case, the Supreme Administrative Court stated that communities in Thailand "are entitled to participate in the management, maintenance, preservation and exploitation of the natural resources and the environment, in a balanced and sustainable manner, in order to enable themselves to live a normal life consistently in an environment that is not harmful to their health, sanitation, welfare and quality of life." The landmark case is of great significance for Thailand and the wider region, as the first community-filed lawsuit in the region related to dam building on the Mekong River and the first lawsuit relating to obligations in an extra-territorial project. Following the Supreme Court's decision to accept jurisdiction, the case was again dismissed by the lower court. As of June 2017, the case is again under appeal, awaiting a ruling by the Supreme Administrative Court.

"The Mekong River is our life, it is part of our communities. It is our source for food, our income, and our security. If the Mekong is destroyed, how will we sustain our community?"

– Villager from Buengkhan Province, northern Thailand and plaintiff in the Xayaburi Dam lawsuit



Villagers from North and Northeast Thailand file lawsuit against Xayaburi Dam, August 2012

The Xayaburi Dam has set a dangerous precedent for dam building along the Mekong River, both technically and procedurally in the regional decision-making process, with subsequent projects following a similar path.

For more information on the Xayaburi Dam visit: https://www.internationalrivers.org/node/2284

4. PAK LAY DAM

Status: Planned

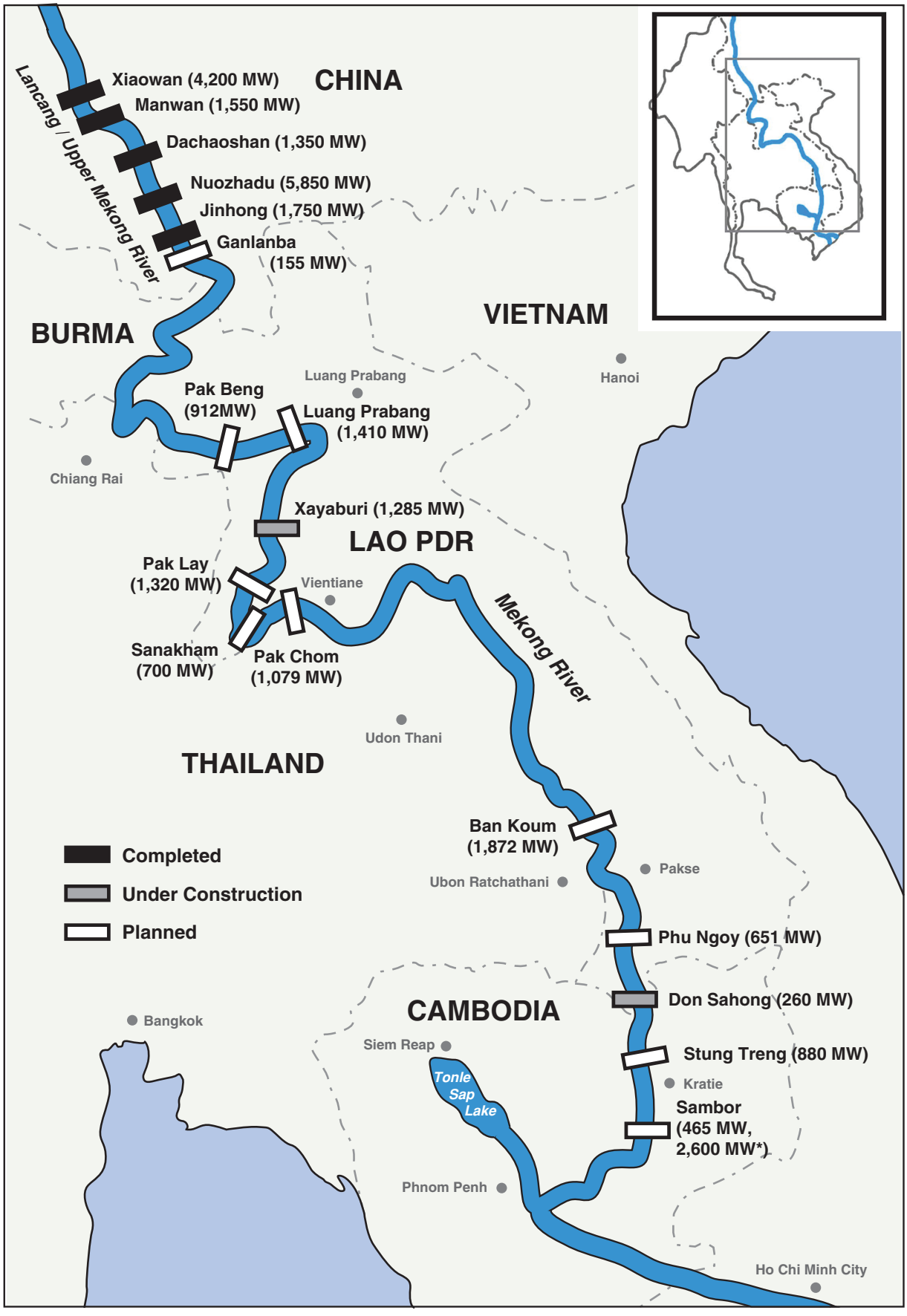
Pak Lay, the fourth dam in the cascade is planned to be located around 30 kilometers upstream of the district town of Pak Lay in Lao PDR, downstream of the Xayaburi Dam. The developer is Power China, with power destined for export to Thailand. In 2007, the Government of Laos signed a Memorandum of Understanding (MOU) with China's Sinohydro Corporation (now Power China) to develop the Pak Lay Dam on a Build Operate Transfer (BOT) basis. The project has an installed capacity of 1,320 MW and is 630 m long and 35 m high. It has a reservoir area of 108 km^2. The Lao Dams Optimization Study found that Pak Lay would result in the resettlement of 6,129 people. Together the six dams planned and under construction in the upper part of the cascade (Pak Beng, Luang Prabang, Xayaburi, Pak Lay, Sanakham and Pak Chom) are estimated to displace more than 76,000 people. In 2007, China Exim bank reported a loan of more than $200 million to the Government of Laos for construction of the Pak Lay Dam.

5. SANAKHAM DAM

Status: Planned

Sanakham is the final dam of the lower Mekong cascade located fully in Lao PDR. Situated just upstream of the Thai Lao border in the well-known Chiang Khan district, between Loei and Vientiane provinces. The developer is China's Datang Corporation and the power is planned for export to Thailand. The project has an installed capacity of 700 MW and a dam 1,144 m long and 38 m high. It has a reservoir area of 81 km^2. An estimated 4,000 people will be resettled to make way for the project.

MEKONG MAINSTREAM DAMS MAP



Source: MRC Strategic Environmental Assessment: ICEM, 2010
*Initially proposed as a 3,300 MW project, 465 MW and 2,600 MW options have also been studied.

"We remind our governments that we, the people of the Mekong region, have protected these rivers for generations and must be involved in decision making about them."

– Statement by local people on dams in the Mekong Region. Mekong People's Forum, September 2015.

6. PAK CHOM DAM

Status: Planned

Pak Chom is the first of the two dams shared between Thailand and Lao PDR on the lower Mekong mainstream. The proposed dam is located about 100 km upstream of Vientiane; its reservoir would flood back towards Sanakham, which is roughly 86 km upstream. Thailand's Alternative Energy Development and Efficiency Department initially proposed the Pak Chom Dam in 2007. A pre-feasibility study and initial environmental examination of two "hydraulic cascade weir projects" on the Mekong River (Ban Koum and Pak Chom) was completed by Panya Consultant Company and Macro Consultant Company in February 2008. The proposed project has an installed capacity of 1,079 MW, and a dam 1,200 m long and 55 m high. The Pak Chom Dam would resettle at least 20 communities in Thailand. Since the dam was first proposed, local villagers have received little information about the project. There has been strong opposition from Mekong communities in Thailand. Community based studies show the resources at risk for communities in Thailand if the Pak Chom Dam is built, including concerns over deforestation, increased competition for resources, loss of riverbank gardens and fisheries leading to a reduction in wild/natural foods that have traditionally sustained local villagers in the area.

7. BAN KOUM DAM

Status: Planned

The Ban Koum Dam is the second of the two dam plans shared between Thailand and Lao PDR. It is located about 10 km above the confluence of the Mun/Chi River with the Mekong River, in a narrow valley. The developer is Ital Thai of Thailand with the power destined for sale to Thailand. It has an installed capacity of 1,872 MW and a dam 780 m long and 53 m high. Ban Koum Dam is expected to flood Sam Phan Bok (the 'Grand Canyon of Thailand' on the Mekong River).

Communities in Thailand have been vocal in their opposition to the project. Minutes from a meeting of Thailand's Sub-Committee on Energy Cooperation dated December 21, 2010, state that the even though an MoU was signed between Thailand and Laos, feasibility study of the Ban Koum Dam could not be undertaken on Thai soil, due to strong opposition from local communities and Thai Senate committees. A resolution from the Thai Energy Policy Committee stated that it would be extremely difficult to build a hydropower project located on the border of two countries. If such a project is to be developed, it must begin with a study to learn about transboundary river management. Plans for both the Pak Chom and Ban Koum dams appear to have been suspended due to strong opposition in Thailand.

Fisherman at Luang Prabang, 2008

8. PHOU NGOY DAM

Status: Planned

The Phou Ngoy Dam (formerly called Lat Sua) is located in the Champasak District of Champasak Province in Lao PDR. The original site was relocated to an area 10 km downstream of Pakse in Laos. The developer is Charoen Energy Water Asia Corporation of Thailand, and the bulk of the power destined for Thailand. The dam has an installed capacity of 651 MW. Studies are underway at the proposed dam site. TEAM Consulting Engineering and Management of Thailand reportedly conducted an Environmental Social Impact Assessment for project development. In January 2016, Nanjing Hydraulic Research Institute (China) reported that hydraulic modeling test were carried out at the dam site, with visits by a delegation comprised of the Ministry of Mines and Energy of Laos, Compagnie Nationale du Rhone (CNR) of France, Charoen Energy and Water Asia Co. of Thailand and PowerChina Kunming Engineering Co. Ltd of China.

Communities from two villages along the Mekong River close to the dam site – Mo Phu and Pak Paew - have been told to prepare for resettlement. A resettlement area has been designated along the highway. There has not yet been any announcement about housing at the resettlement site.

9. DON SAHONG DAM

Status: Under Construction, since January 2016

The Don Sahong Dam is the second dam to begin construction on the lower Mekong River. Construction officially began in January 2016. The 25 m high dam is expected to generate 260 MW of electricity for domestic use and export to Cambodia or Thailand. The project's developer, Don Sahong Power Company Ltd., is a joint venture between Mega First Corporation Berhad (MFCB), a Malaysian company, and the Government of Laos. In March 2006, MFCB signed an MoU with the Government of Laos to prepare feasibility studies for the project. On 15 September 2015, the Don Sahong Power Company entered into a concession agreement with the Government of Laos, to build, operate and transfer the project over a period of 25 years. Following this announcement, on 1 October 2015, Mega First Corporation Berhad announced that a Power Purchase Agreement for the Don Sahong Dam had been signed with Laos' state-owned utility Electricite Du Laos. China's Sinohydro International Corporation has been contracted to construct the project.

The project has faced significant criticism from scientists, affected communities and ongoing concern from neighboring countries. The Don Sahong Dam faced a contested regional consultation process under the MRC's Procedures for Notification, Prior Consultation and Agreement (PNPCA). While the Government of Laos originally only submitted the project for "notification" to the Mekong River Commission in September 2013, sustained public pressure and concerns by neighboring countries, led to the submission of the Don Sahong Dam for Prior Consultation under the 1995 Mekong Agreement in June 2014.

Siphandone has been described as a microcosm of the entire Mekong River, due to the rich aquatic biodiversity and fisheries found in this part of the river. A study conducted by the Mekong River Commission (MRC) in 1994 stated that Siphandone was "so rare in nature that every effort should be made to preserve [it] from any development." Scientists identified the area as a critical bottleneck for fish migration throughout the lower Mekong basin. The Don Sahong Dam is under construction on the Hou Sahong Channel - the main channel in the area that allows for year-round migration of fish both upstream and downstream. The most significant environmental and socioeconomic impacts of the project will be felt by local and regional inland fisheries. The consequences of such a loss in fish migration would have significant impact on regional food security. Fishing families throughout Siphandone have received no compensation for the dam construction, which has altered their livelihoods. Traditional fishing methods, including use of traditional Li traps have been criminalized and banned, since 2016. As a result many families have lost their main source of annual income. Fish catch is also a critical component of the diet and livelihoods of Mekong River communities. Between 40 to 70% of the region's animal meat protein comes from inland fisheries, and studies have shown that this number can increase to up to 80% for communities above and below the Khone Falls.

"If we cannot fish, what will we do?"

– Fisherwoman, Siphandone, Southern Laos, close to the site of the Don Sahong Dam

Fish catch along the Mekong River in Siphandone, June 2016

The Don Sahong Dam is also located just one kilometer upstream of a core habitat for six Irrawaddy Dolphins who inhabit a transboundary deep pool between the border of Laos and Cambodia. The Irrawaddy Dolphin pool is one of the areas' main tourist attractions and a key source of income for communities living downstream in Cambodia. The Mekong's Irrawaddy Dolphin population is critically endangered, and fewer than 85 individuals remain, the majority of which are found in downstream sections of the river in Cambodia. A survey by WWF found that only three dolphins remain in the transboundary pool between Cambodia and Laos, and since construction on the dam began, these dolphins have moved to a pool further upstream in Laos.

Despite a lack of resolution to the Prior Consultation process for the Don Sahong Dam and opposition from neighboring countries, in particular Cambodia and Vietnam, construction on the project has moved forward rapidly. There have been limited monitoring studies shared publicly since the initial project documents were submitted to the MRC. Development partners to the MRC have made repeated requests in public statements for clarity on the resolution of the Prior Consultation process for the project. But construction of the project is moving forward with little accountability.

For more information on the Don Sahong Dam visit: https://www.internationalrivers.org/node/2334

10. STUNG TRENG DAM

Status: Planned

Stung Treng is the uppermost of the two Cambodian dams on the lower Mekong mainstream, the original site was planned about 10 km upstream of Stung Treng town and the confluence with the Sekong, Sesan, and Srepok Rivers. The reservoir would extend up to the Cambodia/Lao border covering 211 km^2. In December 2009 a MoU for Feasibility Study was signed with Vietnam Urban & Industrial Zone Development Investment Corporation. The investor group includes the Song Da Corporation, the Vietnam Machinery Assembly Corporation, the Construction Corporation I, the Infrastructural Construction and Development Corporation and the Bank for Investment and Development of Vietnam. The feasibility study explored three site options for the Stung Treng Dam. At this stage

it is not known where the power is destined. The project has an installed capacity of 980 MW with an 11 km long and 22 m high dam. Estimates show that over 10,000 people would be resettled. According to media reports, the Stung Treng Dam is one of three projects included in a letter issued by the Council of Ministers granting in principle approval to Cambodia's Ministry of Mines and Energy to enter into memoranda of understanding with Cambodian company The Royal Group to conduct pre-feasibility, feasibility and social and environmental impact studies.

11. SAMBOR DAM

Status: Planned, studies underway

The Sambor Dam is the southern-most dam planned in the lower Mekong cascade. In October 2006, a Memorandum of Understanding was signed between China Southern Power Grid and Cambodia's Ministry of Mines and Energy (MIME) to prepare a feasibility study for the 3,300 MW Sambor Dam. However following pressure from Cambodian and international NGOs, in late 2011 China Southern Power Grid withdrew from the project, stating that they were 'a responsible company'. In November 2010, the Cambodian government announced that China Guodian Corporation would carry out feasibility studies for 465 MW and 2,600 MW options of the project, to be located on the mainstream of the Mekong River in Prek Kampi (south of Sambor village in Kratie Province.)

Natural Heritage Institute (NHI) was contracted by Cambodia's Ministry of Mines and Energy in 2013 to study redesign of the Sambor Dam, to address, in particular, concerns around sedimentation. NHI is now undertaking studies for alternative designs options for the Sambor Dam. As of June 2017, the final studies had not yet been made public. Media reports in February 2017 cited a letter from the Cambodian Council of Ministers dated 31 October 2016, linking Cambodia's The Royal Group to three proposed dams in Cambodia – the Stung Treng, Sambor and Lower Sekong Dams. In its letter, the Council of Ministers "agrees in principle" to the Ministry of Mines and Energy to enter into a memorandum of understanding with The Royal Group to "thoroughly conduct" pre-feasibility, feasibility and social and environmental impact studies of the three dams.

If built, the Sambor Dam would block major fish migrations between Southern Laos and Cambodia's Tonle Sap Lake, destroy critical deep pool fish habitats, and interrupt the river's hydrological, sediment and nutrient cycles, impacting the river's wider ecology with widespread impacts through the Mekong Delta in Vietnam. The project would jeopardize the fisheries vital to Cambodia's economy and food security. Local communities in Cambodia have received very little information regarding the proposed project.

The Government of Cambodia have expressed concern over the cascade of dams planned on the Lower Mekong mainstream; calling for a 10-year moratorium on all dam building on the lower Mekong mainstream, in accordance with the recommendations of the MRC commissioned Strategic Environmental Assessment. During the Prior Consultation processes for the Xayaburi and Don Sahong Dams, the Cambodian Government called for transboundary impact assessments, cumulative impact assessments and socio-economic assessments to be carried out, along with quality baseline data in order to accurately assess the project's impacts.

STATUS OF LANCANG (UPPER MEKONG) DAMS

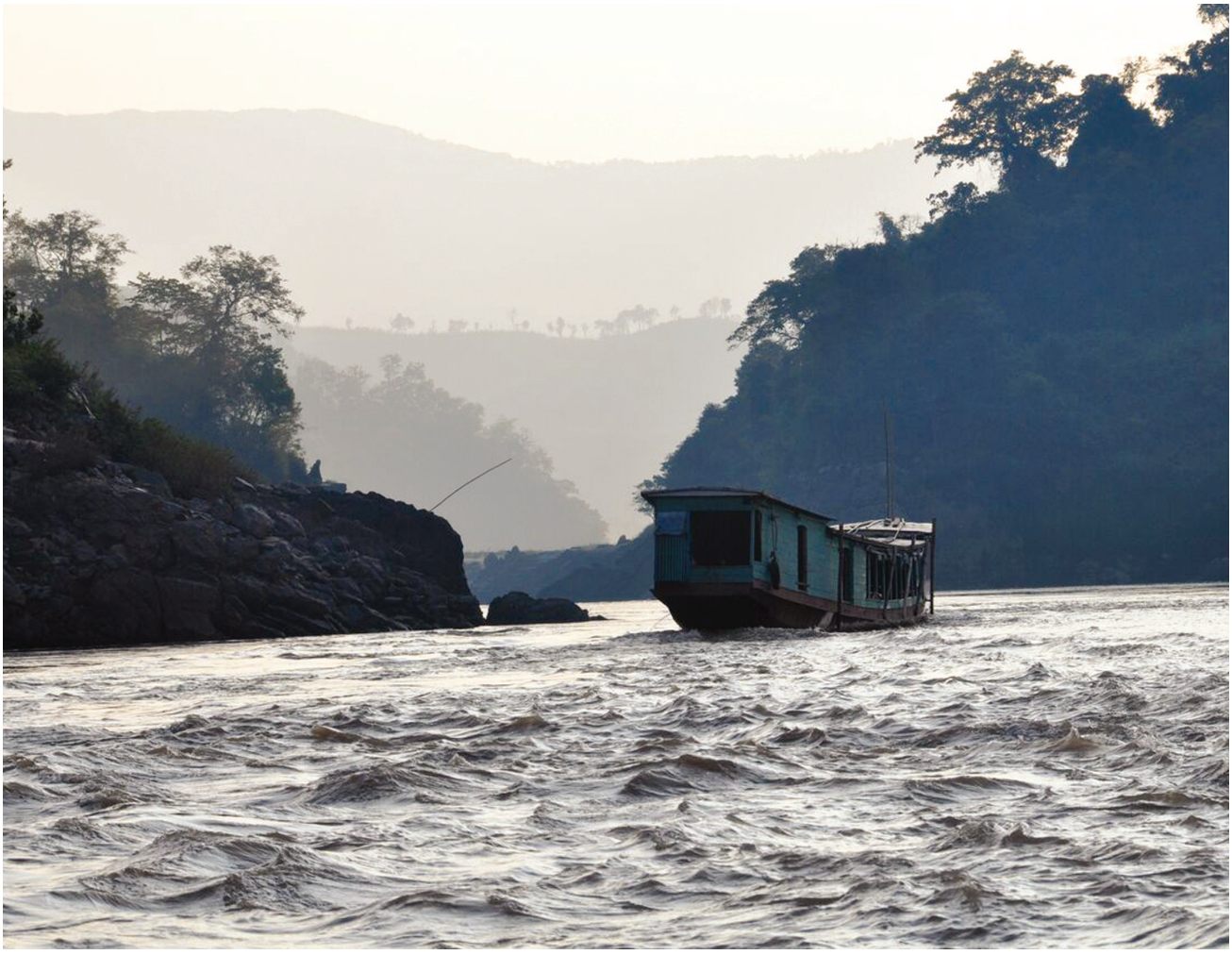
China has planned 28 hydropower dams on the Lancang River, which crosses through Qinghai, Tibet and Yunnan before flowing into Myanmar, Laos, Thailand, Cambodia and Vietnam. Six hydropower dams have been completed on the lower Lancang River in Yunnan, including Gongguoqiao, Xiaowan, Manwan, Dachaoshan, Nuozhadu and Jinghong. The lowest dam on the lower Lancang dam cascade, Mengsong was cancelled, but the second lowest dam Ganlanba is still planned for construction. Additionally, there are another 2 dams completed (Miaowei and Dahuaqiao) and 5 dams under site preparation and under construction on the Middle Lancang, and another 14 dams planned on the Upper Lancang, one of which has already been completed.

Gongguoqiao	Completed (2012)	900 MW
Xiaowan	Completed (2010)	4,200 MW
Manwan	Completed (2007)	1,550 MW
Dachaoshan	Completed (2003)	1,350 MW
Nuozhadu	Completed (2012)	5,850 MW
Jinghong	Completed (2009)	1,750 MW
Ganlanba	Planned	155 MW

IMPACTS OF LANCANG DAMS

A study published in the *Journal of Hydrology* in February 2017 found that construction of large dams on the upper reaches of the Mekong have resulted in widely fluctuating river flow, depending on the hydropower operations. The study found that major changes to the river flow began in 2011 and were the largest in 2014. Hydropower operations caused exceptionally high dry season flows and low wet season flows in northern Thailand. In 2014 the dry season flows reached record highs of two to three times the long-term average. During the same year, wet season flows reached record low levels and were roughly two thirds of the long-term average. These changes in flow were observed over 2000 km downstream in Cambodia.

The Lancang dams have also fundamentally altered fish habitats and affected the rich aquatic and terrestrial diversity in the region by turning a flowing river system into a series of reservoirs. Studies have shown that the Lancang dams will trap half of the sediment load transported from the upper basin to the lower basin, with significant impacts to countries downstream. With the construction of the Lancang dam cascade, China is able to control the quantity of water released to downstream countries. However, the lack of formal agreements on flow volumes means downstream communities may suffer particularly in drought conditions. Vietnam and Cambodia are the countries most at risk. The main developer of the Lancang River dams is Hydrolancang, which is owned by the largest electricity generation company in China, Huaneng Corporation.



Boat to Pak Beng, 2008

FOR MORE INFORMATION, PLEASE VISIT OUR MEKONG DAMS WEBPAGES:
https://www.internationalrivers.org/node/2333