

# Letters from the MEKONG

TIME FOR A NEW NARRATIVE ON MEKONG HYDROPOWER

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THE CURRENT NARRATIVE IS OVERLY  
PESSIMISTIC... **A NEW AND MORE  
NUANCED VIEW** IS REQUIRED.



*Villages in the Siphandon region  
near the Don Sahong Dam site.*

## INTRODUCTION

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This issue brief – the second in Stimson’s “Letters from the Mekong” series – examines the current status of mitigation efforts at Laos’ Xayaburi and Don Sahong dam projects and the relevance of the existing narrative surrounding hydropower development on the river’s mainstream. Based on extensive research on the status and expected impacts of these projects, the authors of this brief have concluded that the current narrative of inevitability surrounding the future of the Mekong is increasingly at odds with what is in fact a very fluid situation. Instead of being the first two of up to nine or eleven mainstream “dominos” to fall, these commercial-opportunity projects are likely to face significantly increasing political and financial risks and uncertainties.

The controversial Xayaburi and Don Sahong dams in Laos are currently the focal point of discussion surrounding development of the Mekong River given their potential negative impacts on other sectors of the water-food-energy-livelihoods nexus. The river’s natural seasonal cycles play a vital role in sustaining the highly productive inland fisheries of the Mekong. Up to eleven large dams planned or already under construction, including nine on the Lao and Lao-Thai stretches of the mainstream as well as two in Cambodia, will inevitably degrade the river’s rich biodiversity and disrupt the migratory cycles for scores of species of fish that play a vital role in regional food security and livelihoods. Dams also trap nutrient rich sediment necessary for replenishing the fertility of farm fields and sustaining the Mekong Delta, which is already seriously threatened by salinization and sea level rise. Unsurprisingly, local civil society groups, environmental experts and activists, and the governments of Vietnam and Cambodia vociferously oppose the projects over concerns about the projects’ local and transboundary impacts.

The current narrative of inevitability has been based heavily on the belief that the inter-governmental Mekong River Commission (MRC), established in 1995 for the explicit purpose of promoting cooperative and sustainable use of the river’s water, has failed to enforce its review protocol or resolve disputes. Critics judge that no meaningful prior consultation has taken place, and the downstream countries contend that the review process remains incomplete. The Lao government’s decision to move forward first with Xayaburi and then with Don Sahong despite these claims fuels the belief that these projects are the first two of eleven “dominos” to fall, progressively destroying the river as they are built.

The content and main findings of this brief are distilled from trips to the region, including site visits to both projects in December 2014, numerous other consultations with technical, environmental, and power sector experts both within Southeast Asia and the United States, and noteworthy recent developments.

Our main finding is that the current narrative is overly pessimistic and that a new and more nuanced view is required. We have cautiously concluded that some of the design

changes in the Xayaburi and Don Sahong projects may successfully mitigate some of the impacts on fisheries and sediment transfer, but this unfortunately cannot be known until the dam is operational and impacts are irreversible. We are also persuaded that the increasing risks and diminishing political and financial viability of large mainstream dams will open up new opportunities for optimizing the inevitable tradeoffs among the competing demands of water, energy, food security and environmental sustainability on a basin-wide scale.

Our conclusions are based on five key factors: First, environmental and anti-dam activism by international and local civil society organizations have had much more impact than these individuals and groups may realize. They have put developers and other pro-dam stakeholders on the defensive, helped neighboring governments make their case against the projects, and generated and sustained awareness of the issues among all stakeholders.

Second, while the MRC's role and review process have been widely disparaged, the required technical assessment by MRC experts substantiated the criticisms of activists and the fears of downstream countries.

Third, the harsh criticisms and suggestions for changes to mitigate impacts from the technical review caused the developers to delay the projects and, in the case of Xayaburi, spend hundreds of millions of dollars to carry out additional research and redesign projects in an effort to mitigate some of the most serious impacts on wild fisheries and sediment flows.

Fourth, the interaction of the above factors raises the political and financial risks to these high cost, commercial opportunity-driven projects, raising serious doubts about whether this particular "public-private" model of infrastructure development will continue to remain viable.

Finally, the concerns of donors about the impact of mainstream dams on food security, livelihoods, and the future of the Mekong Delta have grown rather than diminished, creating interest in supporting more sustainable alternatives that would reduce the appeal of mainstream dams.

These emerging factors could shift the current narrative of inevitability surrounding Mekong hydropower development and lead to a differing—and possibly more sustainable—development trajectory for the river.

## BACKGROUND

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Approximately 5,000 kilometers long, the Mekong River plays a major role in food security and regional stability in Southeast Asia. More than 60 million people, mainly living in Thailand, Laos, Cambodia, and Vietnam, depend on the river for their food security and livelihoods. Millions of the region's poorest people depend on the river's natural bounty of fish and soil nutrients for their very survival.

The Mekong flows through six riparian countries, yet each has differing interests and priorities for using the river's water. China has already dammed the upstream with six operating hydroelectric plants without meaningfully consulting or giving prior notification to its downstream neighbors. For Myanmar, the Mekong is located along its border and currently of mainly local concern, but is an important case study of the challenges that Myanmar will face in developing its national Irrawaddy River as well as the Salween River that flows through it from China.

For Cambodia, Laos, Thailand and Vietnam, China's construction of large and mega-sized dams upstream in Yunnan are a reality that cannot be changed—what hydrological modelers call the “definite future”—even as their own plans for utilizing the lower half of the river are a matter of serious ongoing contention. Because China's downstream neighbors thus far have had no influence China's dam construction and operations, the debate in recent years has centered almost exclusively on the dams planned for the Lao, Lao-Thai, and Cambodian stretches of the mainstream and on tributaries. In some cases Mekong tributary dam projects, such as Laos Nam Theun 2 dam and the Lower Sesan 2 dam under construction in Cambodia, the impact on wild fisheries and sediment flows can be as great as individual mainstream dams.

Laos—one of the world's least developed countries—is counting on income from exporting hydroelectricity to promote domestic development, with few alternative options available. Meanwhile, regional energy planners in Thailand, Cambodia, and even Vietnam are all seeking sources of energy to meet growing demand, incorrectly hyping hydropower as “clean” and emission “free.” Laos' ambition to become the “battery of Southeast Asia” via commercial investment in dams is creating serious conflicts of interest with its neighbors.

There is widespread acceptance among officials in the region that hydropower is a clean and renewable alternative to fossil fuels. While hydropower is renewable, claims that hydropower is a “clean” resource have been questionable for a long time. Studies increasingly show that tropical hydropower dams actually contribute significantly to climate change as organic matter in reservoirs decays and releases methane.<sup>1</sup> This fact is under-acknowledged, and the economic benefits of developing the high potential for

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1 International Rivers, “Reservoir Emissions,” accessed July 6, 2015, at <http://www.internationalrivers.org/campaigns/reservoir-emissions>.

hydropower as an alternative to imported fossil fuels are major drivers for Laos and Cambodia's interest in exploiting the river.

As the world's largest inland fishery, the Mekong region's high level of dependency on the river for food security and livelihoods also makes the future of the river a key factor in regional stability. Cambodia, one of the poorest countries in Southeast Asia, also has the world's highest per capita consumption of fish and other aquatic life. On average, fish supply about 60 percent of the total animal protein in Vietnam and as much as 80 percent in parts of Cambodia and Laos, along with many essential minerals that are missing from rice and other staples of the regional diet. Most of Vietnam's seafood exports of wild and farmed fish and shrimp are from the Mekong Delta. The Delta, which is home to almost 20 million people, is also the source of half of Vietnam's rice production and nearly ninety percent of its rice exports.

Given the stakes, the inability of the intergovernmental Mekong River Commission (MRC) to effectively control or even coordinate the development of the river is a major cause for concern. The MRC is the only organization that addresses regional water governance and coordination, and its provision of scientific and technical expertise is vital for developing riparian countries. The 1995 agreement that founded the organization involves all four lower Mekong states—Laos, Thailand, Cambodia, and Vietnam—and created a set of procedures for addressing projects that potentially have transboundary impacts, including any project proposed for the mainstream of the Mekong River.

The 1995 agreement mandates Procedures for Notification, Prior Consultation, and Agreement (PNPCA), which require member countries to submit proposed projects on the mainstream Mekong for consultation. PNPCA is intended to allow downstream governments and communities to raise concerns about projects, have frank dialogue about the benefits and costs of projects, and ensure that any project moving forward accounts for these concerns. The final phase of the PNPCA is intended to reach consensus on a project—however, the MRC is not given the power to reject projects, and downstream neighbors do not have veto power even when projects are viewed as potentially very damaging.

The first test of the PNPCA took place in 2011 when the government of Laos brought forward its proposal for the 32-meter and 1285-megawatt Xayaburi Dam. The project was controversial from the start: the fish design was criticized as presenting an insurmountable obstacle for the huge variety of migrating fish; the reservoir was large enough to retain sediment and pose difficulties for agricultural communities along the riverbanks downstream and the delta; and there was no real transboundary impact assessment to address concerns raised by neighbors. An April 2011 MRC meeting ended with all three downstream countries raising concerns. Representatives from Cambodia and Vietnam both emphasized a need for further study of transboundary impacts, while the representative of the Thai government recognized Lao PDR's development needs but raised





concerns over process and the project's sustainability.<sup>2</sup> Thailand's unwillingness to fully endorse the project was notable given that the developer and financiers are all Thai companies. Due to the lack of consensus, the issue was pushed to diplomatic discussions for solution, and shortly after Laos announced that it would suspend the Xayaburi project indefinitely for further study.

What seemed at first to be a positive sign that PNPCA could result in backtracking on damaging projects was soon discovered to be at best a temporary solution: NGOs found in mid-2011 that Laos had given Ch. Karnchang—a Thai construction firm and Xayaburi's developer—the go-ahead to move forward with the dam,<sup>3</sup> and preparatory work continued unabated throughout the next year and a half until Laos announced in November 2012 that it had addressed the concerns of neighboring countries and was moving ahead with the project.<sup>4</sup>

The decision to move forward did not surprise those following the preliminary work for Xayaburi, but it has had a serious corrosive effect on regional trust of the PNPCA process and ultimately of the MRC. Criticism of the Mekong River Commission grew, as civil society groups criticized its apparent ineffectiveness to stop Laos from unilaterally moved forward with projects. This distrust was heightened given that MRC experts and downstream neighbors did not have a chance to review the revised project plans before Laos announced that construction was moving forward. It wasn't until 2014—more than a year after construction began—that the dam redesign was sent to the MRC so that experts could give additional feedback on mitigation efforts. Even then, civil society stakeholders and neighboring governments were not given direct access or opportunity to review the changes.<sup>5</sup>

The MRC's credibility was further damaged by the fact that the second mainstream dam—the Don Sahong project—almost did not undergo the PNPCA process at all. As the Mekong flows towards Laos' southern border with Cambodia, it widens and splits into numerous separate channels of tumbling waterfalls and rapids. When proposing the Don Sahong Dam in 2013, Laos argued that because the project spanned only one of the many channels in this area—known as Siphandon, or Four Thousand Islands—it didn't count as a mainstream dam and did not need to undergo either the consultation or agreement phases of the PNPCA process. The MRC was unable to force Laos to bring the project to the table—only significant diplomatic pressure from Cambodia and Vietnam

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2 Mekong River Commission, "Lower Mekong countries take prior consultation on Xayaburi project to ministerial level," April 19, 2011: <http://www.mrcmekong.org/news-and-events/news/lower-mekong-countries-take-prior-consultation-on-xayaburi-project-to-ministerial-level/>.

3 Martin Petty, "Laos defies neighbors on dam project—environmentalists," *Reuters*, June 23, 2011: <http://www.reuters.com/article/2011/06/23/us-laos-dam-idUSTRE75M2DE20110623>.

4 "Laos approves Xayaburi 'mega-dam' on Mekong," *BBC*, 6 November 2012: <https://www.teaism.com/restaurant-details-40.html>.

5 Laignee Barron, "Dam 'redesign' a mystery," *The Phnom Penh Post*, 27 August 2014, <http://www.phnompenh-post.com/national/dam-%E2%80%98redesign%E2%80%99-mystery>.

and criticism from numerous civil society organizations caused Laos to reverse the decision in June 2014, when it announced that it would submit the project to a limited 6-month consultation.

Equally important, the Xayaburi project highlighted fractures within regional relationships that even regional governments had not fully recognized: even as construction on the Xayaburi dam moves forward, Vietnam and Cambodia are still concerned about impacts and oppose the project. Vietnamese officials had previously believed that their historical influence and closeness with the government of Laos would allow them to negotiate quietly to avoid policies that would negatively impact Vietnam. It was only after the failure of the PNPCA and subsequent negotiation on Xayaburi—as well as Laos’ decision to move forward with the Don Sahong project—that Vietnam began to take seriously the threat of mainstream dams on the lower Mekong.

Like Xayaburi before it, the consultation process for the Don Sahong project ended with a lack of consensus—however, this time Thailand joined Vietnam and Cambodia in calling on Laos to do further studies before proceeding with the project.<sup>6</sup> The lack of consensus has led the Don Sahong project to follow in Xayaburi’s footsteps as it is kicked up the chain. The Lao National assembly’s decision to officially approve the Don Sahong concession in early September 2015 supports the prediction of many civil society groups that the project will similarly move forward without sufficient consideration of downstream impacts.<sup>7</sup>

The fact that the first two mainstream Mekong projects are moving forward without credible environmental impact assessments (EIAs), real discussion of possible transboundary impacts, or real dialogue with neighboring riparian countries reaffirms pessimism among Mekong-watchers. The fact that the government of Laos has already indicated that it will soon propose two more large dams—Pak Beng and Pak Lay—to the MRC for the consultation process only reinforces this pessimism. These challenges have led to a pervasive atmosphere of cynicism and widespread view that if Don Sahong moves forward as Xayaburi did, it will be the second of eleven “dominos” to fall.

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6 Mekong River Commission, “MRC holds Special Session on Prior Consultation of Don Sahong Hydropower Project,” 28 January 2015: <http://www.mrcmekong.org/news-and-events/news/mrc-holds-special-session-on-prior-consultation-of-don-sahong-hydropower-project/>.

7 Shaun Turton, “Don Sahong Dam gets Official Approval,” *The Phnom Penh Post*, September 1, 2015: <http://www.phnompenhpost.com/national/don-sahong-dam-gets-official-approval>.

CRITICAL TECHNICAL REVIEWS OF BOTH PROJECTS BY  
MRC EXPERTS HAVE CAUSED THE DEVELOPERS TO SPEND  
**HUNDREDS OF MILLIONS OF DOLLARS**  
TO ATTEMPT TO MITIGATE THE MOST IMPORTANT  
ENVIRONMENTAL AND SOCIOECONOMIC IMPACTS.



*Panorama of Xayaburi Dam site.*



## XAYABURI AND DON SAHONG DAM PROJECTS: SITE VISITS AND FINDINGS

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The decisions by the Lao government and the developers to proceed with these projects despite urgent calls by Vietnam and Cambodia for the study of the full transboundary and cumulative impacts of these projects do not bode well for the cause of cooperative, sustainable development of the river's resources. The two primary issues with dams are their impacts on scores of nutritionally and commercially vital fish species and sediment flows. In addition, the proposed dams inevitably will have numerous other adverse impacts on the river's core hydrology, morphology, the timing of seasonal flows, biodiversity, and water quality.

Before accepting this new “domino” narrative as the river's inevitable future, however, a number of its assumptions need to be questioned and tested, starting with site visits, briefings and questions. Although opponents of the projects have not succeeded in stopping them, critical technical reviews of both projects by MRC experts have caused the developers to spend millions of dollars to attempt to mitigate the most important environmental and socioeconomic impacts.

Unfortunately, the limited amount of data and other publicly-available information about changes made to the designs of both projects in response to MRC technical reviews and recommendations has made it difficult to evaluate their potential to mitigate adverse impacts. The extent and potential impact of additional research and design changes are relevant to assessing the effectiveness of strong and ongoing opposition from CSOs, local civil society and downstream government.

In order to deepen understanding of the impacts and steps that the Lao PDR government and the dam developers have taken to mitigate the impacts of mainstream projects, Senior Associate Richard Cronin and Research Associate Courtney Weatherby traveled to Thailand and Laos from December 11–20, 2014 to meet with local civil society members, conduct site visits of the Xayaburi and Don Sahong projects, engage with developers and consultants, and speak with Lao officials. The visits were made possible through the cooperation of the Lao Ministry of Engineering and Mines and the two developers, the Xayaburi Company and Mega First. Apart from on-site lunches, the site visits were entirely paid for by Stimson's Mekong Policy Project, which in recent years has been supported mainly by generous grants from the John D. and Catherine T. MacArthur Foundation.

Cronin and Weatherby returned to the region during late January and early February 2015 to follow-up on these insights. Cronin attended the fourth working group meeting of the Lower Mekong Initiative (LMI) in Bangkok and the first vice-ministerial level meeting of the Friends of the Lower Mekong. During the same time frame, Weatherby met with civil society and business representatives in Yangon, Kunming, and Beijing on the issues of reconciling development with concerns over the environment and human rights, as well as the financing climate for hydropower projects.

### Xayaburi Dam Site Visit

We visited the Xayaburi project site on December 15, 2014 to obtain more information on the status of construction, engineering, and other design changes to mitigate the impacts of the dam on wild fisheries and sediment flushing, and explore the dam site. At the time of our visit the Xayaburi dam was a little over forty percent complete: the spillway, navigation lock, and the intermediate block that divides the river in two were all nearing the first phase of completion. In January 2015, the developer and Lao government held a ribbon-cutting ceremony to start the second phase of construction, which will divert the river through the spillway to allow construction of the dam's powerhouse on the second half of the river.

Our visit included meetings with the project's lead engineer, a relocation site officer, and a project manager from Poyry (a Finnish engineering firm and the main consultant for the project). All the representatives with whom we met acknowledged that the widespread criticism of the Xayaburi dam's original design for fish passages and sediment flushing, and particularly the recommendations of the MRC's technical review, led the developer to make major engineering changes and some innovations. According to the Poyry representative, parent company CH Karnchang has spent \$200 million on fish research and passage redesign alone – more than any other major project in the region. The lead engineer noted that the changes required substantial modifications to the powerhouse and the dam structure. Xayaburi Power Company Ltd.'s changes include:



*A close-up of construction of the Xayaburi Dam.*

- Switching four of eleven gates in the spillway to low-level outlets designed to more easily flush sediment through the dam.
- Researching and recording fish species, size, volume of migration, and ability to swim upstream in different flow velocities in order to have better data for the fish passage redesign.
- Changing the length of the fish passage to 500 meters and including switchbacks to decrease the gradient of the climb.
- Widening the fish passage channel from ten to fifteen meters to allow for a larger fish mass.
- Adding multiple entry points to the fish passage. Each entry will have a different flow velocity, which will attract different species of fish to the most suitable entrance.
- Designing and incorporating a fish-lift system that will work with the navigation lock to assist fish as they climb the fish passage.
- Introducing a novel bypass system that has been designed with the objective of directing some adult fish species and fry away from the turbines when they migrate back downstream after spawning.



*One of the villages relocated for construction of the Xayaburi Dam.*

While the greatest attention is given to fisheries and sedimentation due to potentially serious transboundary impacts, we also discussed concerns over relocation of local villages for the project and the impact of the project on affected villagers' livelihoods and standards of living. The developers have worked with 15 villages—totaling approximately 3000 people—directly affected: seven villages resettled farther up the banks of the river, and eight relocated to a new location. As of December 2014, there were six villages still waiting for resettlement or relocation, with the relocation officer indicating that all should be moved by the end of 2015.

Xayaburi's relocation officer readily acknowledged that raising living standards has been a challenging goal for many international projects, but emphasized that the dam developer Ch. Karnchang—which is responsible for relocation and training in alternative livelihoods such as chicken raising—took this into account when setting a goal that each family gains an annual income of \$1800. The \$1800 figure is considered a notable improvement given that most families are currently subsistence living and Laos' per capita GDP for 2013 was \$1660.

One exemplar village—which we visited briefly—has already met this goal, with numerous visible indicators of success such as cars, motorbikes, and satellite dishes. One factor that may have led to this village's success is that Ch. Karnchang has trained locals in raising chickens, gathering mushrooms, and growing other produce, and integrated them into a pre-existing supply chain. The second is that sixty percent of the construction workers at Xayaburi are Lao citizens, many of whom were locals whose lives had been disrupted by the project. According to a relocation officer, it takes approximately one year of training and experience before a construction worker can transition to a skilled laborer, and some of the successful villagers are among those who have already made that transition.

Outside observers have indicated skepticism of these claims, indicating that the company provides only 1 year of transitional and training support to villagers. This was disputed by the relocation officer, who said that the success of the effort would continue to be monitored and support would remain available in to the future, although the mechanism for unbiased monitoring and assessment and the actual time line for the commitment were vague.

The relocation officer also admitted that food security concerns among locals were a challenge, with some locals refusing or leaving relatively high-paying construction roles during the rice-planting or harvesting seasons because they feared that it would lead to food insecurity for their families. This highlights the challenges for impacted villagers as well as the practical and cultural importance of local agricultural practices in lowland Laos. Transitioning from traditional labor roles as farmers and fishermen has been a challenge for affected locals from many dam projects in the region, particularly given that there is no clear alternative for unskilled laborers. It also highlights the challenge of stabilizing standards of living: while income may objectively be higher than before relocation/resettlement, the shift from an independent subsistence lifestyle is disruptive and may not result in higher quality of life given the changes in spending needs.





*Mega First fisheries research team inspecting nets.*

### Don Sahong Site Visit

The Don Sahong project is a relatively small 260 MW dam<sup>8</sup> and will be selling electricity domestically to Electricite du Laos, Laos' national utility firm rather than exported abroad, and is still in the preparatory stages versus Xayaburi's 1280 MW and near-half completion. The project's reservoir will remain within the main channel and hold water for only a few hours. However, the Don Sahong dam is more controversial than Xayaburi given its location only two km north of the Laos-Cambodia border, its placement on a channel that acts as a main migration route for fish during the dry season, and its relative nearness to the Tonle Sap in Cambodia, which plays a major role in the life cycle of many fish species vital to the region's food security.

As a result, downstream governments were united in calling for lengthening the MRC's consultation process, with Thailand calling for an additional six months for further study of transnational impacts on fisheries, Vietnam calling for an extension through the end of 2015 to allow for further study and consultation, and Cambodia asking for the same with no explicit time limit.<sup>9</sup> The representative from Laos indicated that the

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8 The International Commission on Large Dams defines a large dam as any dam with a height of more than 15 meters. As Don Sahong is planned to be 25 meters high, it qualifies as a large dam. However, it has minimal storage capacity, does not span the entire river, and is significantly smaller than the other 9 projects planned on the Mekong mainstream.

9 Mekong River Commission, "MRC holds Special Session on Prior Consultation of Don Sahong Hydropower Project," 28 January 2015: <http://www.mrcmekong.org/news-and-events/news/mrc-holds-special-session-on-prior-consultation-of-don-sahong-hydropower-project/>.

Lao government had met all MRC requirements and is ready to move forward with the project<sup>10</sup>—and on March 3, 2015 Electricite du Laos signed an agreement with Mega First Berhad regarding ownership and regulation of the Don Sahong project.<sup>11</sup> As of June 2015, there has been no resolution of the differences over the dam and the decision has officially been referred to the governments to handle through diplomatic channels.<sup>12</sup>

Our visit to the Don Sahong site included meetings with the fisheries research team and site visits to nearby channels of the river that are being modified to help fish find alternate migration routes. Our guide indicated that Mega First hopes to begin construction at the end of 2015, although this timeline could change depending on the final outcome of the diplomatic engagement. Our visit determined:

- Site preparations for the road and bridge that will connect the Don Sahong project to nearby islands and the mainland are ongoing, and the bridge connecting the dam site to the mainland was contracted out to Sinohydro for construction.
- Mega First's fisheries research team has already engaged in fish capture, tagging and study, with daily monitoring along five channels to identify the species, sizes and ages of fish migrating upstream.
- Early results from the on-site research team indicate that at this point in time, at least three channels (Hou Sahong, Hou Sadam, and Hou Xang Pheuak) are to some degree available year-round to migrating fish. One fisheries expert indicated that the team believes this has always been the case; however, this may be a recent development resulting from the operation and consequent water releases from China's Yunnan Cascade and the Lao Nam Theun 2 dam during the last two dry seasons. This appears to challenge previous research that only the Hou Sahong channel was available year round to migrating fish.
- The team's research finds that some species of fish have shown adaptability and will continue searching for a passage upstream when the first passage they try is obstructed.
- The team intends to begin camera and sonar monitoring of fish passageways to track seasonal migration patterns in January 2015. This will continue for at least two years.
- The team is testing sonar and light "warnings" that would help direct fish away from the turbines and guide them toward the best alternative channels for migration.

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10 Ibid.

11 Michael Harris, "Mega First signs agreement for development of Don Sahong hydropower project in Laos," *Hydroworld*, 3 March 2015: <http://www.hydroworld.com/articles/2015/03/mega-first-signs-agreement-for-development-of-don-sahong-hydropower-project-in-laos.html>.

12 Mekong River Commission, "Lower Mekong countries take prior consultation on the Don Sahong project to the governmental level," June 19, 2015: <http://www.mrcmekong.org/news-and-events/news/lower-mekong-countries-take-prior-consultation-on-the-don-sahong-project-to-the-governmental-level/>.

- The fisheries research team is working with sixty local fishermen in the Si Phan Don area to keep daily logs of their fish catches, improve fisheries management, and limit the use of destructive fish-catching techniques.

The fisheries team said they had made significant progress on addressing a lack of information about local fisheries, including new information about the migration and spawning habits of some fish species. They assured us that this would be publicly available on the project's website once they had collected more data and had end results. However, the researchers did admit to limitations to their research: their scope for fisheries research and cooperation is based on the Lao side of the border only, which means the Cambodian communities living relatively close to the dam are not included in their studies, and do not have information about the fish tagging project. Cambodian fishermen close to the dam are not given the same training in fisheries management and are known to cross the border to illegally fish the Lao portion of the river.

**The changes to Xayaburi and research results from Don Sahong are a positive step forward—but they do not mask the fact that major obstacles and concerns remain around both projects.** To date, neither project has undergone either a transboundary or cumulative impact assessment that would account for its influence beyond the immediate project area or the potential damage to fisheries or livelihoods downstream. The changes to Xayaburi are significant, and very well could mitigate some of the concerns raised by dam opponents, if not to the extent hoped for by critics. However, while an individual project's impacts may be mitigated, the most serious threat to the river is the cumulative impact of the 11 proposed dams on the mainstream and the numerous dams built on tributaries.

While there is still significant room for improvement—particularly in the planning and consultation processes—the fact that dam developers and Lao officials are increasingly aware that their reputation is deeply and negatively affected by these criticisms.



WE SEE THE EMERGING NEED FOR A NEW  
NARRATIVE ON THE FUTURE OF DAM BUILDING  
ON THE **MEKONG MAINSTREAM**

*A local villager showing off the morning's  
catch near the Don Sahong Dam site.*



## EMERGING NEED FOR A NEW NARRATIVE

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The changes to Xayaburi's dam design and the ongoing fisheries research being carried out by Mega First are all signs that anti-dam activism has had a positive impact. Engagement from civil society organizations, local communities, scientific experts, and major "development partner" donors—including the United States, several northern European countries, and Australia—has also played an important role.

The actual degree of success of the companies' mitigation of local and transboundary impacts from the two projects will not be known until some years after the dams become operational. Nonetheless, the decision by the Lao government and developers to try to address legitimate concerns without abandoning the projects has delayed the projects and added significant unanticipated costs.

Rather than being the first of two falling "dominos", as has been assumed and widely feared, we see the emerging need for a new narrative on the future of dam building on the Mekong mainstream. The basis for this conclusion is as follows:

First, while the MRC's role has been widely disparaged, the simple fact that the Lao government submitted each project to the PNPCA process and required technical review by MRC experts had the effect of substantiating the criticisms of activists and the fears of downstream countries. The MRC technical report on the Xayaburi dam was highly critical in regard to the sediment-passing capability of the gates. Furthermore, the report was scathing in regard to the inadequacies of the fish pass design and the insufficiency of research on the kind, numbers, and reproductive life-cycles of the fish whose passage would be blocked by the dam. MRC experts suggested engineering changes to address these issues, but expressed skepticism that any previously proposed solution would be effective on mitigating the impacts on fisheries.

Mainly in response to these reviews, the developers carried out additional fisheries research and expensive design changes as detailed in the previous section of this report. Combined with other developments, these delays and added expense have raised the political and financial risks of dam projects, which are multibillion dollar investments that must be amortized over decades.

The issue of political and financial risk has been a visible part of the battle over the Xayaburi project, which is mainly financed by the developer and the four largest state-owned Thai banks. The concerns raised by the PNPCA and the MRC's technical review for Xayaburi resulted in a 1-year delay and the added expenditure of at least \$200 million. In addition, two lawsuits filed against OECD companies—one against Andritz, a supplier of turbine components, and the other against Poyry, the consultant—highlighted that suppliers can also be targeted. Finally, in 2014 the Supreme Administrative Court of Thailand accepted a lawsuit brought by thirty seven Thai villagers from affected communities against the Electrical Generating Authority of Thailand. The villagers charge that the power purchas-



*Villagers and fishermen protesting against the Xayaburi Dam.*

ing agreement with the Xayaburi company failed to meet a constitutional requirement to address environmental and social impacts, has shown that companies involved in controversial projects can face costly legal action when they skirt their responsibilities.

Although civil society in Cambodia is more controlled than in Thailand, Hun Sen's Cambodia People's Party (CPP) regime has faced similar challenges with political instability and legitimacy resulting from the government's mishandling of major dam projects. The proposed Sambor and Stung Treng projects on the mainstream of the Mekong in Cambodia would devastate fisheries and likely cause instability for a large number of the communities dependent on the river for food and livelihoods. Though the projects have been under consideration for years, indications are that the authorities are waiting to see the extent of the impacts from the Lao dams before they make a final decision to move forward with Sambor and Stung Treng.

Though democracy in Cambodia is still limited due to the CPP's control of the military and most public institutions, the CPP was forced to react to concerns over the impacts of major hydropower projects after the opposition Cambodia National Rescue Party (CNRP) made unexpectedly significant gains in the July 2013 elections, largely due to their campaign against land-grabs and destructive and unpopular infrastructure projects like dams. CNRP politicians have been actively raising awareness and lobbying against the Stung Chhay Areng,<sup>13</sup> which would have serious impacts on a biodiversity

13 Hul Reaksmeay, "CNRP Lawmaker to Visit Site of Proposed Dam," *The Cambodia Daily*, November 11, 2014, <https://www.cambodiadaily.com/news/cnrp-lawmaker-to-visit-site-of-proposed-dam-72038/>; Khuon Narim,

hotspot and wilderness area in the Cardamom Mountains. As a result of increasing public criticism of the Areng Dam, Hun Sen reversed course and announced in February 2015 that construction of the project would not start until the next presidential term begins in 2018.<sup>14</sup> Though the controversial Lower Sesan 2 Dam is still moving forward and the political atmosphere in Cambodia is in flux, concern over political repercussions will likely impact decisions on future projects leading up to the 2018 elections.

These unanticipated political and legal risks have already begun to change the behavior of companies involved in mainstream dam projects: the most obvious example is that of Mega First, which responded to negative publicity by committing millions of dollars to additional fisheries research before the Don Sahong project was even brought to the MRC. The company also learned from the lack of transparency surrounding the Xayaburi dam and has responded by publishing documents including the results of fishery studies, updates on fish passage improvement plans, and engineering reports and unveiling these results during presentations given at private conferences.<sup>15</sup>

Just as significant are emerging trends in the financial markets. For instance, Chinese companies and banks that fund or develop hydropower projects are becoming increasingly wary of political and financial risks. Part of this is a response to more accurate data on the actual costs of projects. The World Commission on Dams established as early as 2000 that large dams have tendencies towards schedule delays, cost overruns, and perform below target for both power generation as well as economic performance.<sup>16</sup> A 2014 study on large hydropower projects reiterated these conclusions, indicating that policy-makers systematically underestimate project costs by failing to anticipate inflation, cost overruns, and schedule slippage, and the need to invest more in impact mitigation measures.<sup>17</sup> Governments likewise underestimate the full environmental, ecological, and social costs that will not be covered by the developers, though these externalities usually manifest too late in the project cycle to change the terms of the contracts.

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“Visit Convinces Lawmaker of Dam’s Threat to Areng Valley,” *The Cambodia Daily*, November 19, 2014, <https://www.cambodiadaily.com/news/visit-convinces-lawmaker-of-dams-threat-to-areng-valley-72608/>.

- 14 Associated Press, “Cambodia PM says Work on Mega-Dam Will Not Start Until 2018,” *The New York Times*, February 24, 2015. <http://www.nytimes.com/aponline/2015/02/23/world/asia/ap-as-cambodia-activist-deported.html>; and Pech Sotheary, “PM reiterates stance on Areng Valley dam,” *The Phnom Penh Post*, June 4, 2015, <http://www.phnompenhpost.com/national/pm-reiterates-stance-areng-valley-dam>.
- 15 Information can be found through the homepage for the Don Sahong Power Company and the list of reports: <http://dshpp.com/reports/>.
- 16 World Commission on Dams. *Dams and Development: A New Framework for Decision Making*. Executive Summary. Page xxxi. Earthscan Publications: London and Sterling, VA, 2000. Accessed via International Rivers at [http://www.internationalrivers.org/files/attached-files/world\\_commission\\_on\\_dams\\_final\\_report.pdf](http://www.internationalrivers.org/files/attached-files/world_commission_on_dams_final_report.pdf).
- 17 Atif Ansar, Bent Flyvbjerg, Alexander Budzier, and Daniel Lunn. “Should We Build More Large Dams? The Actual Costs of Hydropower Megaproject Development.” *Energy Policy*. March 2014. [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2406852](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2406852).



THESE LONG-TERM SOURCES OF RISK ARE  
INCREASINGLY RECOGNIZED IN **CHINESE**  
**INSTITUTIONS**



*Sinohydro constructing a bridge  
at the Don Sahong Dam site.*



## THE CHINA FACTOR

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Companies operating in the international sphere are increasingly exposed to criticism when their behavior fails to meet international standards. This exposure can lead to reputational and financial risk. These long-term sources of risk are increasingly recognized in Chinese institutions, particularly China's state-owned enterprises, but the more immediate risks stem from the growing reputational costs of projects that are deeply unpopular at the local level.

At first glance these international factors appear a non-issue—in fact, several of the Lao and proposed Cambodian dams would likely be built by Chinese companies. To date, many Chinese companies operating in Southeast Asia have prioritized their relationships with national governments and treated local concerns as an issue for their government connections to handle. However, this can backfire, as it did in Myanmar in 2011 when the new civilian government decided unexpectedly to suspend the 6,000 MW Myitsone Dam in Kachin State due to significant and continuous public pressure. As a consequence, the China Power Investment Corporation, which had already sunk more than a billion dollars into the project, suddenly found itself with what has essentially become a stranded asset.

While Myanmar is a special case due to political shifts, similar dynamics are already in play in Cambodia as discussed above. Even in Laos, the National Assembly is coming under pressure from communities over the lack of local benefits from large hydropower projects like Xayaburi.<sup>18</sup>

These practical concerns are pushing Chinese hydropower companies that have extensive experience abroad, like Sinohydro, to shift from a build-own-operate-transfer (BOOT) model, which would leave the company responsible for maintaining and operating the project and extracting revenue over decades, towards a sub-contracting model. One expert has estimated that Chinese hydropower companies operating abroad are contracting out design and construction services as much as eighty five percent of the time because, unlike the previously-adopted BOOT model, contracting avoids taking on risk related to expensive problems arising after the projects are built.<sup>19</sup> Chinese companies can thus continue to use Chinese design, procurement, and labor without the long-term risks while relying on others to guarantee financing, face any political risk, hold responsibility for project management over the coming decades. The answer to the question of who will fill these ranks is as-yet unclear.

China's financial institutions, which have significant motivation to ensure long-term return on investments, are responding by raising standards for environmental and social impact assessments and heightening requirements for individual projects. Many of

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18 Interview with Laos analyst, Washington DC, May 2015.

19 Interview with Chinese hydropower expert, Beijing, February 2015.



*Li Phi Waterfalls in the Siphandon area near the Don Sahong Dam.*

China's financial institutions have started to adopt "green credit" strategies and higher standards as a method of long-term risk management,<sup>20</sup> though many remain in name only as enforcement issues pose a serious challenge for all lending institutions. However, political pressure on banks to continue lending to companies backed by powerful political factions even when the borrowers do not recognize or mitigate risks is a major short-term challenge. The suspended Myitsone Dam is an example—lenders would have preferred to avoid backing the high-risk project, but China Power Investment Corporation was a major customer that they couldn't refuse outright without risking a loss of business.<sup>21</sup> Although under Xi Jinping administration China's banks increasingly require higher standards for EIAs early-on in the process, they don't yet have an effective method to address problems discovered after projects have already received funding.<sup>22</sup>

This growing sensitivity to the political and financial risk of BOOT-type projects has important bearing on the future of planned dams on the mainstream both in Laos and Cambodia. To date, all of the signed MOUs are for BOOT model projects. Neither government has the financial strength to borrow from capital markets to fully finance the projects themselves, nor do their respective national electric utilities have financial resources and the human and technical capacity to manage such projects alone. This makes it likely that the BOOT model will still be needed to create a technically and

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20 Interview with environmental activist, Kunming, February 2015.

21 Interview with banking expert, Beijing, February 2015.

22 Ibid.

financially viable project. As a consequence, increased recognition by both developers and lenders of the risks that BOOT projects entail may mean that some of the proposed projects may not be as bankable as previously thought.

Because its dam program is the most advanced and its expectations of large export earnings are such a critical factor, the Lao government is likely to be the first Mekong country to face the aforementioned dilemma. In fact, Laos may already be facing it in regard to the Don Sahong project. While it was long assumed that most of the Don Sahong's 256 MW of electricity would be exported to Thailand, a power industry publication reported in mid-June 2013, that the national utility, Electricite du Lao (EDL) had signed a power purchase agreement directly with the Malaysian developer, Mega First Corporation Berhad.<sup>23</sup> As in the case of the Xayaburi project, signing a PPA in advance of completing the MRC's PNPCA process not only runs counter to its obligations for prior consultation and agreement, but also commits the country to a fixed timeline that could prove costly in two ways. First, Laos is responsible for compensating the project developers for any delays caused by political factors. Second, and more important, some believe the terms of the PPA and changes to allowable Lao tariffs mean that EDL would have to sell the power at a significant loss after the project comes online.<sup>24</sup>

Another China-related factor that may be critical to the viability of dams on the mainstream and major tributaries is the question of future water availability, especially in the northern reaches of the river. As climate change melts Himalayan glaciers and changes seasonal patterns, scientists are questioning the long-term utility of dams that depend on regular flows to operate during the dry season. China plays a major role in regulating water downstream, as the water released from China's massive reservoirs during the dry season are the main factor making the planned mainstream dams economically and technically feasible. Should increasingly water-stressed China prioritize other uses of the water in the Upper Mekong over electricity production, the planned mainstream dams in the Lower Mekong might not receive enough water to operate during the driest three or four months of the year, when flows from China are the most important source of water.

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23 BCEL-KT Securities Company Limited, *Daily Report*, "Don Sahong dam to boost power supply in southern Laos." June 14, 2013. Accessed at <http://www.bcel-kt.com/files/files/Daily%20Report%2014%20June%202013%20E.pdf>.

24 Interview with energy expert, Washington DC, May 2015.



NUMEROUS STUDIES SHOW THAT WHEN IT COMES TO IMPACTS, **IT MATTERS HUGELY** WHICH DAMS OR COMBINATIONS OF DAMS ARE TO BE CONSTRUCTED.



*Mega First researcher showing fish specimen taken during research.*



## RECOMMENDATIONS

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The growing financial, political and other risks suggest a change of trajectory for dam projects on the Lower Mekong mainstream and have the potential to create new opportunities for optimizing the “nexus” tradeoffs throughout the entire Lower Mekong Basin. Some of these projects will move ahead—but compounding questions addressing the underlying assumptions on which project decisions are based make it increasingly unlikely that all eleven of the projects will go forward. If not all of the planned dams are going to be built, then the questions become how many, which ones, and with what cumulative impact will projects move forward. To the extent that some of the nine Lao projects may not be bankable due to high risks and significant social and environmental costs, space is opened for a more balanced, cooperative and equitable approach to cost-benefit tradeoffs on an Lower Mekong Basin-wide scale.

Numerous studies show that when it comes to impacts, it matters hugely which dams or combinations of dams are to be constructed. If all dams are built, the river would effectively become a series of lakes connected by highly variable flows as dams adjust their operations to changing power demands. Biologically, these lakes would be far less productive overall than the free-flowing river, with the negative transboundary impacts falling most heavily on those communities that are already the most dependent on fish for their diets and livelihoods, particularly in Cambodia and Laos.

The 2010 Strategic Environmental Assessment (SEA) report that was commissioned by the MRC analyzed the impacts of varying scenarios on fishery resources in the basin under different development models. Taking into account the previous impacts of the dams upstream in Yunnan and on tributaries, constructing all eleven Lower Mekong dams planned or under consideration would reduce the river’s total productivity by 340,000 tons, while the nine Lao dams alone would reduce losses to 140,000 tons. Limiting development to only the six dams north of Vientiane in Laos would reduce the losses to 60,000 tons.<sup>25</sup> While these are averages based on the findings of one study, the differences are significant enough to illustrate that the impact of dams north of Vientiane would be significantly less devastating to fisheries than those in the middle and lower reaches of the Lower Mekong.

Still, Laos does need more revenue to support development initiatives while Cambodia needs more and cheaper electricity to support the continued development of light industries and electrification. If constructed, the full suite of nine Lao dams could provide as much as \$4.6 billion annually to 2030 minus debt repayment and other infrastructure costs for which the Lao government would be responsible while the project was operating as a BOOT-style concession.<sup>26</sup> Some local experts indicate that these profits are likely to be

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25 Strategic Environmental Assessment, p 15: <http://www.mrcmekong.org/assets/Publications/Consultations/SEA-Hydropower/SEA-FR-summary-13oct.pdf>.

26 SEA. Annex 5: Policy and Guidance Recommendations, p. 162.

smaller than estimated here, as Laos has been forced to borrow from future revenues to maintain required infrastructure like roads and electricity lines for current dam projects.<sup>27</sup>

Of all the reasons to build mainstream dams, the region's fast growing need for energy pales when considered against the loss of biodiversity, the impact on food security and livelihoods, and the cost to regional cooperation and stability. The SEA estimates that if all eleven dams were built, they would together supply no more than six to eight percent of projected electricity needs of the entire Lower Mekong Basin by 2025.<sup>1</sup> The two biggest economies in the region—Thailand and Vietnam—could easily save that much electricity with programs to increase energy efficiency. In other words, in terms of impact on fisheries, replacing uncoordinated commercially opportunistic dam development with a coordinated approach that balances energy development with the environment, food security, and livelihoods could make a very significant difference.

It is vital to optimize these nexus trade-offs on a basin-wide scale, so that the impacts and benefits are shared fairly among all riparian countries and do not increase regional tensions. Accordingly, we recommend that:

- **Mega First should study fisheries near the Don Sahong dam in more detail before construction begins.** Data collected thus far will help establish a baseline and provide useful information for mitigation efforts on the part of Mega First, but if the project begins in late 2015 there will still be only one dry season during which comprehensive data was taken. Given yearly fluctuations in water levels, the changing impacts on water flow due to upstream dams in China and northern Laos, and other factors that vary annually, it is important that more data be collected before starting to construct the Don Sahong dam or any other projects.
- **Host countries and dam developers need gather data and make it publicly available earlier on in the planning and consultation process.** In the case of both Xayaburi and Don Sahong, the developers have gathered information on fish species, migration habits, and volume of fish during migration, yet only limited amounts of data have been made publicly available. In many cases, the lack of previous data means that questions asked by concerned stakeholders – regarding items such as the ability of fish to find and use fish passages, navigate reservoirs upstream from dams, etc. – are not answerable without the data gathered by developers. Making this data publicly available in a timely manner to all stakeholders will help address miscommunication issues and allow for real dialogue based on shared baselines. Discussing these concerns earlier in the process could lead to better decision-making about the project and a better agreement phase of the MRC's PNPCA protocol.
- **Dam developers should prioritize consultative needs assessments and observe land and water use patterns in villages that will be relocated and seek to replicate these in**

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27 Interview with Mekong expert, Bangkok, January 2015.



*Ban Nakaseng port village near Don Sahong.*

**resettlement zones.** Our visit to Xayaburi indicated that while the living standards have risen for some villagers, the transition from subsistence living to a market-based economy and a lack of marketable skills in the villagers' new environment posed challenges for many families that have been relocated. Current and future developers must conduct needs assessments with villages in a consultative manner, observing land and water use patterns of villagers for a significant amount of time before relocation, this could be taken into account when identifying relocation sites and designing support programs that are more localized.

- **The countries bringing projects to the MRC for review must do so prior to the beginning of site preparations and must provide opportunities to address specific concerns earlier in the process.** Xayaburi's redesign was costly partly because major parts of the project needed to be redesigned relatively late in the process. The developers and Laos presented a full project design and begun preparation work for the dam site before the project was even brought to the MRC for consultation, which is the first opportunity that neighboring countries and other stakeholders have to register concerns. This seems counterproductive, particularly given that it would be easier and cheaper to incorporate necessary mitigation components into the original design, and is a major factor in the loss of trust in the consultation process.
- **Laos needs to work with neighboring countries, developers, and ODA development partners to perform a comprehensive cumulative environmental impact assessment (EIA).** Even if an individual project meets international best standards, there are

major challenges to ensuring that these standards will continue to be met on a basin-wide scale once more dams are built. Recently, a high-level contact within the Laos Ministry of Energy and Mines has indicated that Laos plans to do a cumulative EIA for the proposed project at Pak Beng. In order for this EIA to adequately address the concerns of all stakeholders, it's vital that riparian countries clearly define their expectations. For example: What is a cumulative EIA going to include? When in the process does it need to take place? Will a cumulative EIA take into account all proposed projects, or only those currently under construction?

- **Dam developers should integrate a more comprehensive range of stakeholders into the consultation process.** Delays and cost overruns are due in part to a lack of comprehensive identification of potential points of contention early enough in the consultation process to work through them with local communities. Allowing for more extensive feedback at an earlier stage would improve project quality, avoid delays, and reduce risk over the project lifespan.
- **All countries planning to build dams should negotiate a broader, scientifically-based “Mekong Standard” for transboundary EIAs and eventually standards for maximum acceptable transboundary impact.** Thus far, no project's EIA has accounted for the possibly significant transboundary impacts – even in the case of the Don Sahong project, which is only two kilometers north of Laos' border with Cambodia, the developer is only considering the mitigation of impacts on the Lao side of the border. At the moment an agreed-upon standard for the entire Lower Mekong Basin remains visionary, but a bottom-up approach based on the development of national EIAs that meet best practice standards is the most feasible path to arrive at a regional baseline.
- **Thailand should reassess its need for electricity from mainstream dams.** Thailand and other LMB countries are at the high end of the scale for energy intensity in Asia, which means that as their economic models transition to being more service and consumption based, there are various opportunities to improve the ratio of energy consumption to GDP output using technology that is already available. The 11 mainstream dams are expected to contribute an estimated six percent to the country's total energy demand by 2020. It should be possible to shave off this amount through modest conservation and efficiency measures in lieu of building mainstream dams. In fact, Thailand's Ministry of Energy has targeted reductions in energy intensity by 8% by 2015, 15 percent by 2020, and 25 percent by 2030. It is very possible that by increasing its energy efficiency, Thailand simply does not need the electricity from the planned Lao dams.<sup>28</sup>

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28 Department of Alternative Energy Development and Efficiency, Ministry of Energy. “National Priorities for Energy Efficiency and Conservation in Thailand.” Presentation at Fourth Meeting of the Southeast Asia Network of Climate Change Focal Points. (May 4 -5, 2011). Jakarta, Indonesia. p. 11. EE Plan and Target. [http://www.unep.org/climatechange/mitigation/sean-cc/Portals/141/doc\\_resources/4th\\_Regional\\_Network\\_meeting/S6\\_Thailand.pdf](http://www.unep.org/climatechange/mitigation/sean-cc/Portals/141/doc_resources/4th_Regional_Network_meeting/S6_Thailand.pdf).



Moreover, on the demand-side, Thailand has historically had high reserves of power, and its new Power Development Plan from 2015 to 2036 includes some years a power reserve of 39%.<sup>29</sup> This is largely the result of the institutional structure of Thailand's energy planning, generation, and regulation authority, which emphasizes new capacity and has paid little meaningful effort towards managing demand. This is partially due to the fact that the Electrical Generation Authority of Thailand receives a fixed rate of return on new capacity; thus without official, independent auditing and oversight, EGAT has an inherent financial interest in building new capacity. Thailand should address this structural imbalance in order to ensure its resources are used more efficiently and avoid investing in overcapacity which may damage vital natural resources.

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29 Pianporn Deetes, "The hidden cost of Thailand's electricity," *The Bangkok Post*, May 19, 2015: <http://www.bangkokpost.com/opinion/opinion/565867/the-hidden-cost-of-thailand-electricity>.

A satellite night-time photograph of Southeast Asia, showing the glowing city lights of the region against the dark background of the land and sea. The lights are concentrated in the coastal and inland urban areas, creating a complex pattern of bright spots and lines.

THE GMS ELECTRICITY GRID FAILS TO  
**CONSIDER THE IMPACT** THAT A NATIONAL  
GRID IN LAOS COULD HAVE ON THE OPTIMIZATION OF  
RESOURCES IN THE MEKONG BASIN.

## CONCLUSION

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Along with rising political and financial risks and changing global energy prices, the new interest from donor governments and institutions in identifying alternatives to destructive mainstream dams offers conditional hope that the Lower Mekong may not yet be doomed to being, in the words of the “dean” of Mekong studies Milton Osborne, “dammed to destruction.”<sup>30</sup>

In fact, the possibility that not all of the planned dams may go forward opens up a new opportunity for Laos to reconsider its current commitment to all nine of its planned Mekong dams and explore with both ODA donors and commercial developers more environmentally sustainable and less regionally divisive strategies for achieving its revenue and economic development objectives. The more obvious the trends highlighted in our *New Narrative* become, the easier it may be for Laos to consider other, more sustainable approaches to exploiting the value of this shared regional resource.

One such approach could be a Lao national electricity grid, which could allow Laos to potentially to gain more net export revenue with fewer mainstream dams while also reducing or eliminating the current need to import electricity from Thailand. In theory Laos is intended to be integrated into an ADB plan for a regional power grid for the Greater Mekong Subregion (GMS). However, the ADB deems the GMS power grid plan at best of medium term relevance to Laos given the fragmented nature of the Lao electric power sector, the Lao government’s focus on exporting electricity from large hydropower dams, and a very mixed system of local power connections.<sup>31</sup>

The GMS electricity grid does not address the optimization of resources in the Mekong basin. A Lao grid consisting of interlinked micro-grids or a hybrid grid incorporating a north-south trunk line could also facilitate domestic electricity access and power-trading with Cambodia and Vietnam. This could provide Laos with significant financial returns and lead to new economic development potentials, as well as give Cambodia an alternative to moving forward with the Stung Treng and Sambor Rapids projects, which are the highest-impact dams currently under consideration.

A major selling point for this concept is that it directly addresses the Lao government’s focus on exploiting its valuable hydropower potential for large export revenues, which is a major stumbling block towards gaining agreement by the Lao government to cut back the number of mainstream projects or even hold off on construction until further study can be done. A preliminary study by the Asian Development Bank found that if Laos

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30 Milton Osborne, “Mekong being dammed to destruction.” *The Interpreter* (Lowy Institute for International Policy, Sydney, Australia), January 28, 2015. <http://www.lowyinterpreter.org/post/2015/01/28/Mekong-being-dammed-to-destruction.aspx>

31 ADB Independent Evaluation Department, Sector Assistance Program Evaluation for the Energy Sector in Lao People’s Democratic Republic, October 2010, p. ii.



*Boats on Don Khone Island near Don Sahong.*

had a national grid, it could sell a combination of baseload and peaking power from existing and planned dams on Mekong tributaries and receive export revenue on par with that gained from building the nine mainstream dams. This would require upgrading the older dams on the tributaries and linking them into the national grid, but would give Laos the short-term revenues that it desires without further disrupting the river.<sup>32</sup>

This plan would also save Laos money by bringing electricity prices to parity: the lack of a grid means that Laos is selling electricity from its projects in the north to Thailand and then buying some of that energy back in the south at inflated prices. The development of a Lao national electric power grid is a priority energy project on the ADB's development program with Laos, but thus far it has not gained traction with the Lao government due to concerns over financing.

Laos' prioritization of new commercially-financed dam projects over more environmentally sustainable and cooperative alternatives could change if realistic opportunities for financing and technical assistance were made available. In early February 2015, in Pakse, Laos, the FLM held its first-ever meeting at a vice-ministerial level meeting with the Lower Mekong governments, dubbed the Extraordinary Friends of the Lower Mekong (XFLM) meeting, at which discussion centered on the river's future and the importance of balancing energy development with the environment, food security and other uses of water.

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32 Personal conversation with ADB official, Manila, September 2014.



In a joint statement at the conclusion of the XFLM meeting, the United States, other donor countries, the Asian Development Bank, and the World Bank agreed to collaborate “to support development of a national energy grid in Laos.”<sup>33</sup> The statement noted that “When completed, this national energy grid will help provide stable, reliable electricity to millions of people throughout the country.”<sup>34</sup> Left unsaid in the statement was the underlying assumption that a Lao national grid would support nexus tradeoffs on an LMB-scale. The statement also highlighted that the U.S. Department of Energy is working with the Government of Laos to develop a “smart hydro” project that will increase the efficiency and environmental sustainability of its existing small hydropower assets and help build technical capacity in hydropower management.

The “domino” narrative may still occur even in the face of rising political, financial, and diplomatic risks, particularly if additional alternative development trajectory paths are not identified and discussed. The United States and other donor governments with interests in the sustainable development of the Mekong’s water resources and the promotion of regional stability will have to recommit themselves to helping the river’s stewards find better alternatives than large mainstream dams to meet the region’s energy and developmental needs.

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33 Lower Mekong Initiative, “FACT SHEET: Extraordinary Meeting of the Friends of the Lower Mekong,” February 2, 2015: <http://lowermekong.org/news/fact-sheet-extraordinary-meeting-friends-lower-mekong>.

34 Ibid.

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### About Stimson

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## LETTERS FROM THE MEKONG

This is the second in the *Letters from the Mekong* series of issue briefs from the Mekong Policy Project, a long-term initiative at the Stimson Center that focuses on alternative solutions to transboundary environmental and food security and regional stability impacts arising from proposed hydropower dams on the mainstream and major tributaries of the Lower Mekong River. The Mekong Policy Project seeks to promote further awareness about these impacts and the need for a more coordinated development strategy among regional actors, policy-makers in riparian countries, donor governments to the MRC, and civil society actors. Letters from the Mekong will be published following each research trip that the Southeast Asia team makes to the region and will examine changing trends for hydropower development and perceptions among regional actors.

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