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Mekong Turning Point:
Shared River for a Shared Future

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Preface

I am pleased to present *Mekong Turning Point*, by Richard Cronin and Timothy Hamlin. This timely report analyzes the dynamics of the proposed construction of hydropower dams on the mainstream of the Mekong River in Southeast Asia, the water resources of which are being exploited for their near-term economic value rather than being sustainably developed. Economic and energy interests are being pitted against the dependence of millions of people on the existing "environmental services" of the river for their livelihoods.

Yet something is changing. Plans for the construction of dams on the Lao, Lao-Thai, and Cambodian stretches of the river have encountered obstacles that have surprised opponents and proponents of the projects. Pro-dam forces in Mekong governments are facing new realities. The Mekong, which recently was viewed as on the edge of an ecological tipping point, could now be at a turning point toward a fuller and more careful consideration of the risks and uncertainties of mainstream dam construction within a regional framework.

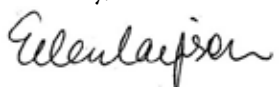
The report provides three main explanations for the turning point, which could enhance prospects for more effective regional water cooperation. Lessons from recent Mekong history potentially have wider significance and support the argument that competition for water resources can be a catalyst for regional cooperation as much as a cause of conflict.

This study is part of Stimson's interest in promoting peace and stability in Southeast Asia, as well as part of our expanding work on transboundary water issues. We explore in this and other projects the rising importance of transnational security challenges in the 21st century.

The research findings and analysis presented here could not have been possible without the interest, insights, and support of numerous individuals and institutions. We are especially grateful to the John D. and Catherine T. MacArthur Foundation whose generous grant supported our "Shared River, Shared Future" workshops in Bangkok and Chiang Mai, and the preparation and publication of this report. We are also deeply appreciative of important and timely financial support from the McKnight Foundation and the Critical Ecosystems Partnership Fund for strengthening local institutions for community involvement in natural resources development and conservation from a regional transboundary perspective.

The synergy among grants was mutually leveraging, especially for research travel and interaction with local partners, international organizations, and regional governments. Finally, I want to underscore our gratitude to the Chino Cienega Foundation, without whose early financial support our Mekong Policy Project would have never gotten off the ground.

Sincerely,



Ellen Laipson, Stimson President and CEO

Acknowledgements

This report and our Mekong Policy Project would not have been possible without the help of many friends and interlocutors from our partner organizations, and others who were generous with their time and insights. We are grateful for the support of Jorgen Thomsen and Chris Holtz of MacArthur Foundation, Jack Tardoff of the Critical Ecosystems Partnership Fund, and Bruce Shoemaker of the McKnight Foundation. Early on, the project received generous and inspired seed funding from the Chino Cienega Foundation, and we continue to thank Sally Benson, Steve Nichols, and Rob Wolcott. Among our regional partners, we especially thank Trinh Le Nguyen and Nguyen Viet Dung (PanNature), Dao Trong Tu (CEWAREC), Nguy Thi Khanh (WARECOD), Pham Thi Lan Anh (Vietnam Rivers Network), Teerapong Pomun (Living River Siam), and Thanapon Piman and Tom Cochrane (University of Canterbury). We are also grateful to Sabrina Kathleen, Mekong Program Coordinator for Earthrights International, for the opportunity to reprise our Bangkok workshop at the Mekong School in Chiang Mai for 12 students from all six Mekong countries.

We benefitted greatly from the experts from international organizations who live and work in the Mekong region, including Taber Hand (Conservation International, CI), David Emmett (CI), Carl Middleton (Chulalongkorn University), Ame Trandem (International Rivers, IR), as well as US-based staff, including Tracey Farrell (CI) and Aviva Imhoff (IR).

One of the most important developments of the past year has been the elevation of the issue of transboundary dams to the highest levels of the four national political and bureaucratic hierarchies. Our analysis benefitted from officials in the ministries of foreign affairs, and other ministries and departments of the governments of Thailand and Vietnam, representatives of these and other Mekong countries' embassies in Washington, DC, and Department of State and USAID officials, including those with the Lower Mekong Initiative.

We greatly value the contribution of our consultants to the Shared River, Shared Future workshop, Linda Yarr and Suzanne Kelly-Lyall of Partnerships for International Strategies in Asia, and their colleagues Andrea Bassi, Karen Mo, and Victoria Reiss.

Finally, we would be remiss in not acknowledging our friends and colleagues at Stimson, including Ellen Laipson, President and CEO, Cheryl Ramp, Executive Vice-President and COO, and Nancy Langer, Director of External Affairs. We could not have done without the editorial advice, formatting assistance, and patience of April Umminger, Crystal Chiu, and Alison Yost. Last, we deeply appreciate the assistance of Nicole Dieker, our Project Management Specialist, who played an indispensable role in efficiently supporting every aspect of our Shared River, Shared Future workshops in Bangkok and Chiang Mai.

– Richard Cronin and Timothy Hamlin

Acronyms

3S Rivers	Sekong, Sesan, Srepok Rivers
ADB	Asian Development Bank
ASEAN	Association of Southeast Asian Nations
BDP2	Basin Development Plan (2nd phase)
EGAT	Electrical Generating Authority of Thailand
EIA	Environmental Impact Assessment
EPPO	Energy Policy and Planning Office (Thailand)
ERC	Energy Regulatory Commission (Thailand)
GDP	Gross Domestic Product
GMS	Greater Mekong Subregion
IWRM	Integrated Water Resources Management
LMB	Lower Mekong Basin
LMI	Lower Mekong Initiative (US)
MDBs	Multilateral Development Banks
MOUs	Memoranda of Understanding
MRC	Mekong River Commission
NEPC	National Energy Policy Committee (Thailand)
PNPCA	Procedures for Notification, Prior Consultation, and Agreement
PPA	Power Purchase Agreement
PSU	Portland State University
SEA	Strategic Environmental Assessment
USAID	US Agency for International Development
VUSTA	Vietnam Union of Science and Technology Associations


Mekong Mainstream Dams
Operational Dams
Planned Dams
as of December 2011
Gongguoqiao
Xiaowan
Manwan
Dachaoshan
Nuozhadu
Jinghong
Ganlanba
Mengsong
China
Myanmar
Pak Beng
Luang Prabang
Laos
Xayabouri
Pak Lay
Sanakham
Pak Chom
Vietnam
Thailand
Ban Koum
Lat Sua
Takho
Don Sahong
Stung Treng
Sambor
Cambodia
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Summary Analysis and Principal Findings

The political economy of the Mekong River Basin shifted in 2011 from policies that exploited this transboundary resource shared by China and five Southeast Asian countries, to potentially more cooperative and sustainable approaches. Whether the effects last remains to be seen, but for once "business as usual" in the construction of environmentally destructive hydropower dams encountered an unforeseen obstacle.

In November 2011, the government of Laos yielded to opposition from Cambodia, Thailand, and Vietnam, and suspended the construction of a 32-meter high dam across the Mekong mainstream in its northern Xayaburi Province for an unspecified period. The first of up to 12 dams planned for the Lao, Lao-Thai, and Cambodian stretches of the river, the future of the Xayaburi dam has huge environmental and socioeconomic consequences for all. Planned dams would block the spawning migration of hundreds of fish species and trap vital silt-borne nutrients, jeopardizing the food security, health, and livelihoods of 60-million people, as well as hard-won regional peace and stability.

The construction of environmentally and socioeconomically destructive dams continues uninterrupted on the upper half of the Mekong River in China's Yunnan Province, and on major tributaries in Laos, Vietnam, and Cambodia. But as of early 2012 three critical factors have stalled the first proposed mainstream dam on the Lower Mekong:

- The **Transboundary Difference** – Growing awareness of transboundary impacts is a game-changer. Governments have begun to consider the regional political consequences of the mainstream projects as more than domestic concerns.
- **Institutions Matter** – The establishment of the Mekong River Commission (MRC) in 1995 and the commitment of the four member governments to a specific protocol for establishing and considering—if not necessarily reconciling—the differing national and societal costs and benefits of mainstream dams.
- The **Empowerment of Civil Society –** Thai civil society organizations injected their opposition to the Xayaburi dam into the national election campaign; the Vietnamese government allowed NGOs to hold anti-dam public meetings and used popular opposition as justification for its refusal to accept the project.

Whether the delay of the Xayaburi project will be a permanent turning point towards cooperative and sustainable water development depends critically on follow-up action by the MRC, its member countries, and the international donor community to fund the studies necessary to support comprehensive analysis of the costs and benefits of proposed dams and water diversions. In the best case, a new norm, a **"Mekong Standard"** for project planning, engineering, and environmental and socioeconomic impact assessments will emerge and be accepted as a basis for regional decision making.

I. Introduction

A Shared River with an Endangered Future

In no part of the world does the increasingly critical nexus of water, food, and energy have more immediate relevance than the Mekong River, a transboundary resource shared by China and five Southeast Asian countries. The Mekong rivals the Amazon as the world's most biologically diverse river, and is the world's largest fresh water fishery. The river is central to the livelihoods and food security of an estimated 65 million people in the lower half of the river in Cambodia, Lao PDR, Thailand, and Vietnam, where wild-caught fish and other aquatic animals provide 40-80 percent of the animal protein in local diets. The highly complex human adaption to its extreme annual cycles of flood and drought have made the Mekong Delta the "rice bowl" of Southeast Asia and a major factor in global food security.

The mainstream and major tributaries of the river also have significant hydroelectric power potential which, in most cases, cannot be exploited without significant transboundary impact on migratory fisheries, sediment-borne nutrients, water quality, and water availability. Because the ecology and biodiversity of the river is highly connected to the monsoon "flood pulse" and other seasonal rhythms, the direct tradeoffs between energy and food security are particularly strong.

Plans for the construction of up to 12 mainstream dams on the Lower Mekong are testing the strength and effectiveness of the 1995 treaty commitment by Cambodia, Laos, Thailand, and Vietnam to cooperative and sustainable water resources development under the framework of the intergovernmental Mekong River Commission (MRC), to which China

and Myanmar (Burma) have only observer status. Several developments provide reasons for cautious optimism that transboundary ecosystems and resources can be more effectively and sustainably managed in the region.

The decision of the government of Laos to give the go-ahead to a highly controversial hydropower dam project in the country's northern Xayaburi Province became the primary trigger for these developments. The regional reaction to the Xayaburi dam project thus far suggests that the seriously skewed distribution of the transboundary costs and benefits of mainstream dams has the potential to be a game-changer, at least as far as the Lower Mekong is concerned.

The Setting

The Mekong River rises on the Tibetan plateau and flows an estimated 4,900 kilometers southward before dividing into the Cuu Long ("Nine-Tailed Dragon") in Vietnam's Mekong Delta and emptying into the South China Sea.[1] The river flows through or forms the borders of six countries – Cambodia, Laos, Myanmar, Thailand, Vietnam, and China (Yunnan).

Geographically the river is commonly divided into upper and lower segments of relatively equal length. The Upper Mekong lies wholly in China and descends steeply from its source on the Tibetan Plateau through the high mountain gorges of Yunnan Province. South of the Chinese border, near the near the "Golden Triangle" intersection of the borders of Myanmar, Laos, and Thailand, the river begins to flow more slowly until it becomes tidal in Vietnam's Mekong Delta.

While the five Southeast Asian countries of the Lower Mekong comparatively are rich in water resources, they all have monsoon climates and consequent extremes of wet and dry During the driest months in the spring the snow melt in Tibet is the single most important source of water in the mainstream of the river. During the rainy season that normally begins in June and peaks in September or October, the Lower Mekong is overwhelmingly the main source of the river's discharge, with the largest contribution coming from the mountains of Laos and Central Highlands of Vietnam.

The key to the river's nearly unrivaled productivity of aquatic life and agriculture is the dynamic interaction of the monsoon "flood pulse" with Cambodia's Tonle Sap River and "Great Lake." The fast-rising flood waters cause the river to reverse and expand the lake to four or more times its dry season area, creating a vast seasonal wetland, and flooding ecologically adapted forests that become the nursery of the next generation of fish and other aquatic life. Exemplifying how the people of the Lower Mekong have adapted to its seasonal cycles, tens of thousands of families live, fish, and even grow vegetables in floating villages and collapsible houses that are moved to higher ground as the lake rises and widens during the flood season.

1 Estimates of the river's length vary. The intergovernmental Mekong River Commission uses 4,909 kilometers. Mekong River Commission (MRC). "Physiography" http://www.mrcmekong.org/the-mekong-basin/physiography/.

The potential of hydropower dams on the mainstream and major tributaries to dampen the seasonal changes is one of the primary concerns of scientists and environmentally minded international organizations and local civil society groups.

Old Schemes, New Threats – Hydropower Dams on the Mekong's Mainstream

Energy-hungry China's construction of a massive cascade of eight dams on the upper half of the Mekong and plans for up to 12 dams on the Lao, Lao-Thai, and Cambodian stretches of Lower Mekong mainstream pose a direct and significant threat to future of the river and tens of millions of people who depend on it for their food and livelihoods. The first four completed Chinese dams are already altering the river's hydrology and impeding the flow of nutrient-rich silt that sustains soil productivity, nurtures fisheries, and keeps the sea at bay in the Mekong Delta. The proposed Lower Mekong dams would block the spawning migration of hundreds of species of important food fish worth potentially billions of dollars a year as well as cause the extinction of several species such as the giant Mekong catfish and the freshwater river dolphin.

All of these threats are compounded by the ongoing and expected future effects of climate change, specifically rising sea levels, shifting rainfall patterns, and more frequent extreme climate events such as drought, flood, and coastal inundation from unusually powerful cyclonic storms. To date, climate change in the Mekong Basin has not been factored into hydropower development plans.

China's Yunnan Dams

China has already constructed four large-to mega-sized dams on what it calls the Lancang Jiang ("Turbulent River"), where it tumbles through the high gorges of the mountainous Yunnan Province; and four more are in various stages of construction or planning. The Chinese dams will irreversibly alter the river's natural hydrology and significantly reduce the flood-borne flow of nutrient-rich sediment to the lowlands and the Mekong Delta (see map, page vi).

China's Lancang Cascade includes two mega-sized dams—the recently completed Xiaowan Dam and the Nuozhadu Dam. These two dams have some of the world's largest reservoirs—15- and 22-million cubic kilometers, respectively—that can store or release enough water to affect the flow of the river as far as the Mekong Delta, more than 2,000 kilometers to the south. Xiaowan and Nuozhadu will each serve as giant cisterns for three lower dams that do not have enough storage capacity to maintain electricity production in exceptionally dry periods. The release of stored water during the dry months will also support year-round navigation by large cargo vessels from Chinese river ports in Yunnan to as far south as Luang Prabang, Laos.

A Strategic Environmental Assessment (SEA) conducted by a team of experts for the MRC estimated that China's Yunnan cascade will give it enough active storage capability—the difference between the dams' wet season high-water level and the dry season low-water

level—to augment the dry season flow by 40-70 percent in northern Laos, and 10 percent in the Mekong Delta. This will shift the timing of the seasonal transition from wet to dry by seven to eight weeks—enough time to disturb the reproductive cycles of many species of fish and other aquatic life.[2] The SEA estimated that even without dams on the mainstream of the Lower Mekong, the impact of the Chinese dams alone will put the livelihoods of nearly a million vulnerable people at risk.[3]

Experts also have expressed serious concern about the extent to which China's Yunnan dams will trap nutrient-rich silt. Because of its steep descent, the upper half of the river in China is the source of more than half of the river's total sediment load even though it provides only about 16 percent of the river's total annual discharge. The SEA estimated that China's Upper Mekong dams would reduce the sediment flow from China to about 22 percent of its natural level.[4]

Lower Mekong Dams Planned by Laos, Cambodia, and Thailand

China's plan to store a vast amount of water during the rainy season and substantially increase the flow during the dry season have given new life to a long-shelved scheme for up to 12 hydropower projects—ten on the river's mainstream in Laos, on the Lao-Thai border, and two in Cambodia. Without China's plan to significantly augment the dry season flow most, if not all, of these proposed dams would not be able to generate power during the driest months of the year.

All of the proposed Lower Mekong dams are commercial projects that would be built, owned, and operated by Thai, Chinese, and other foreign companies. For practical reasons related to geography and large differences in national economic development, most of the power would be exported to Thailand's state-owned electrical authority and, to a lesser extent, its counterpart in Vietnam.

In theory, the substantial revenues earned by the export of electricity would be used to reduce poverty and promote growth, but good governance is essential for this to occur. The effectiveness of this strategy is doubtful because of weak natural resources and the governance capacity in Laos and Cambodia, in particular. Moreover, thus far, consultation with those who are being displaced by dam projects on tributaries has been perfunctory at best, and displaced people who often claim that promised benefits including monetary compensation and training for new livelihoods have not been received.

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2 International Centre for Environmental Management (ICEM). Strategic Environmental Assessment of Hydropower on the Mekong Mainstream: Final Report (Prepared for the Mekong River Commission). (October 2010). p. 66. http://www.mrcmekong.org/assets/Publications/Consultations/SEA-Hydropower/SEA-Main-Final-Report.pdf.

3 Mekong River Commission. Annual Report (2010). p. 9. http://www.mrcmekong.org/assets/Publications/governance/Annual-Report-2010.pdf.

4 International Centre for Environmental Management (ICEM). Strategic Environmental Assessment of Hydropower on the Mekong Mainstream: Final Report (Prepared for the Mekong River Commission). (October 2010). p. 66. http://www.mrcmekong.org/assets/Publications/Consultations/SEA-Hydropower/SEA-Main-Final-Report.pdf.

Laos has signed memoranda of understanding (MOUs) with commercial developers to conduct engineering studies or proceed with construction of as many as nine dams, plus a non-dam diversion on the river's mainstream. Two dams—Pak Chom and Ban Khoum—would span the river where it forms the border between Laos and Thailand, reportedly with Thai government support.[5] Cambodia is considering the construction of two dams on the mainstream, between its border with Laos at Khone Falls and Phnom Penh, the capital.

Familiar Drivers of Unsustainable Development

In broadest terms, threats to the river and the millions who depend on it for their human security and livelihoods are the same ones that have been driving the unsustainable exploitation of natural resources throughout the world. These include:

- Fast-rising global energy demand and prices;
- The pursuit of rapid gross domestic product (GDP) growth by governments of poor countries that are rich in resources;
- Short-sighted development policies;
- The low capacity of governments to wisely engage with powerful commercial interests in the new era of "public-private partnerships;" and
- China's geopolitical ambitions, some contend, and growing thirst for water.

Unfortunately, regional governments and developers have viewed the river as a "free" and untapped resource whose hydropower potential is ripe for exploitation, without an appropriate understanding of the important contributions the river makes to national income and human security. It is questionable whether the governments fully appreciate the potential threat to domestic and regional stability if, as expert studies project, dams on the mainstream and major tributaries seriously undercut rural livelihoods and food security.

The Problem with Mainstream Dams

All dams involve tradeoffs of costs and benefits; large dams are particularly problematical because of their scale.[6] All of China's dams and most of the Lower Mekong dams are "large dams" under the criteria of the International Commission on Large Dams. These are

5 "Gov't urged to scrap Mekong dam plans." *Bangkok Post.* (March 15, 2010). http://www.bangkokpost.com/news/local/34459/govt-urged-to-scrap-mekong-dam-plans.

6 Growing concern about the huge hidden environmental and social costs of large dams led to the creation of the World Commission on Dams (WCM), a multi-stakeholder body that was established under the auspices of the United Nations Environment Program (UNEP) in 1998. The WCM's final report, "Dams and Development: a New Framework for Decision-Making," issued in November 2000, included a series of criteria for more comprehensively evaluating the costs and benefits of large dams, with particular emphasis on previously under-acknowledged human and environmental costs that should be considered and subjected to a decisionmaking process that takes into account the interests of all who benefit or are adversely affected.

generally 15 meters or higher depending on the size of the reservoir.[7] China's Xiaowan Dam, the world's highest of its type, towers 292 meters over the river bed. The dams proposed for the Lower Mekong mainstream range from 22- to 76-meters high.

Such dams alter the river's seasonal flows; inundate forests, agricultural land, and biologically productive wetlands; decimate migratory fisheries; and capture silt needed to maintain soil fertility and sustain river deltas. Two aspects of large dams in the Mekong Basin are particularly troublesome: fish passes and fish ladders are not compatible with the diversity of fish species, and the voltage generated is too high to be practical for local power grids.

The environmental impact of dams of any size is magnified when the free flow of rivers is blocked by multi-dam cascades, as is the case on the mainstream and major tributaries in the Mekong Basin. While one dam alone may have manageable impacts, a series of dams compound negative consequences, such as trapped nutrient-laden silt and blocked fish migrations.

While the proposed Lower Mekong dams still are matters of contention among the MRC countries, China is unlikely to be deterred from completing eight dams in Yunnan Province. Reportedly, it also is building or considering some 14 more dams higher up the river in Tibet.[8] Tellingly, the MRC includes all eight Yunnan dams as part of the "Definite Future" scenario in its hydropower development studies for the Lower Mekong.

Focus of Activism on Lower Mekong Projects

By far the principle focus of activism by opponents of mainstream dams has been on the proposed Lower Mekong dams, not China's Yunnan Cascade, for several reasons. First, China has, thus far, acted unilaterally and has rejected the premise that its downstream neighbors should have any right to interfere with its use of what it treats as a national river. Second, the proposed Lower Mekong dams are still in various stages of consideration by the relevant governments. None have yet been constructed. Third, and most importantly, the four Lower Mekong countries have committed themselves by treaty to a set of "Procedures for Notification, Prior Consultation, and Agreement (PNPCA)" that provides for a six-month public review period before the neighboring governments are given an opportunity to give their acceptance or raise unresolved concerns.

Additonally, in Thailand and Vietnam and, to a lesser extent, in Cambodia and China, a changing mix of stakeholders both within and outside government has opened more space for internal deliberation, press discussion, and civil society activism. The transboundary impacts of the dams have drawn foreign ministries, and in some cases even defense ministries, into the decisionmaking process, while growing concern about environmental and water quality issues have led to the strengthening of laws, though still often honored in the breach, and more open press coverage even in the more authoritarian countries.

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7 "What is the definition of a large dam?" Asian Development Bank (ADB) home page (Water). http://www.adb.org/water/topics/dams/dams0120.asp.

8 Hydropower Projects on Drichu (Yangtze), Zachu (Mekong), and Gyalmo Ngulchu (Salween). Tibetan Plateau Blog. (February 16, 2010). http://tibetanplateau.blogspot.com/2010/02/dams-on-upper-reaches-of-yangtze-mekong.html.

The issue also has drawn the attention and involvement of traditional aid donors, and more recently the United States. The ultimate impact of these developments remains to be seen, but the prospects for decisionmaking about Lower Mekong dams based on a comprehensive and science-based evaluation of costs and benefits, as well as consideration of equity issues that arise from transboundary impacts, appear to have markedly improved during the past year.

Inequitable Distribution of Costs and Benefits

The biggest obstacle to a shared future for the Mekong Basin may be the inevitably inequitable distribution of the costs and benefits of mainstream dams, should they be built, among communities and countries. The negative impacts on food security, livelihoods, water availability, and water quality have the potential to jeopardize the region's hard-won peace and stability.

The 12 proposed mainstream projects could produce up to 14,697 megawatts of electricity. While this is a large amount, it would only constitute about six to eight percent of the total estimated demand in the Lower Mekong Basin (LMB) by 2030. Most of the power would go to the Thai grid.[9]

Not only are the costs and benefits inequitable, but also, for the Lower Mekong as a whole, the tradeoff between the energy benefit and the socioeconomic cost has been judged modestly positive at best, and heavily negative at worst. The SEA calculated that the dams could make a significant contribution to economic development in the *host* [emphasis added] countries, but negatively affect Cambodia and Vietnam. In regard to fishing and agriculture, still mainstay sectors in much of the Lower Mekong, the SEA judged that the losses from the 12 proposed mainstream dams would be "an order of magnitude greater than the realistic benefits."[10]

At the national level, the issue mainly is a function of geography. The upstream countries, China and Laos, have the most mainstream hydropower potential, and are positioned to reap most of the benefits of damming the river. Socioeconomic costs—which under some assumptions could exceed the net benefits at the basin level—will be disproportionately borne by downstream countries, especially Cambodia and Vietnam.

At the individual level, most of the negative impacts of dams on the mainstream of the river and major tributaries will be borne by those who subsist on small-scale fishing and farming. Civil society groups, in particular, are concerned that the projected negative impacts of mainstream dams on the environment, fisheries, and agriculture will disproportionately affect those most in need of the benefits of economic development.

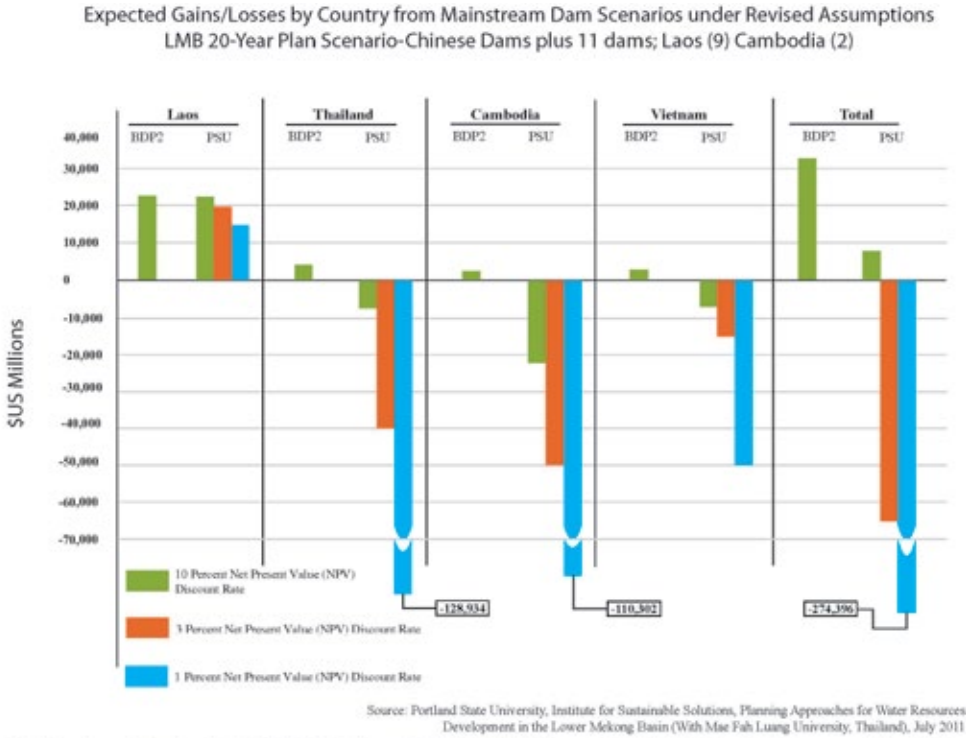
Estimates of costs and benefits of mainstream dams are highly sensitive to different assumptions about key economic variables. For instance, the MRC's basic working

9 MRC Data. See Stimson Center, Mekong Interactive Map. http://www.stimson.org/infographics/interactive-mekong-map/.

10 International Centre for Environmental Management (ICEM). Strategic Environmental Assessment of Hydropower on the Mekong Mainstream: Summary of the Final Report. p. 18. http://www.mrcmekong.org/assets/Publications/Consultations/SEA-Hydropower/SEA-FR-summary-13oct.pdf.

document, the second phase of its Basin Development Plan (BDP2), estimates a cumulative net economic benefit of $33.4 billion for a cascade of 11 dams on the Lower Mekong over a 20-year period (the most recently proposed Takho project predated the estimate).[11]

On the other hand, a study commissioned by the US Agency for International Development (USAID) carried out a "sensitivity" analysis of the data for three scenarios of hydropower development as projected in the BDP2, and came to radically different conclusions. The study carried out by the United States' Institute for Sustainable Solutions at Portland State University (PSU), and Thailand's Mae Fah Luang University took the same BDP2 data and made different assumptions about discount rates, the value of lost capture fisheries, future aquaculture production in the LMB, and the value of lost ecosystem services from wetlands. The revised assumptions in the PSU study generated total economic benefits for 11 dams from a positive $6.6 billion to a staggering negative $274.4 billion depending on the choice of discount rates for the replacement cost of the lost resources.[12] Whereas all four MRC countries had positive total economic benefits under the BDP2's assumptions, with Laos getting the lion's share, only Laos has a net benefit under the assumptions in the PSU study.[13]



11 MRC. Basin Development Plan Programme, Phase 2, Assessment of Basin-wide Development Scenarios Main Report. (April 2011). Table 22: Comparison of economic NPV in each scenario with the Baseline by sector and country. http://www.mrcmekong.org/assets/Other-Documents/BDP/Assessment-of-Basin-wide-dev-Scenarios-MainReport-110420.pdf.

12 Table 3.5: Sensitivity of the total NPV to changing assumptions in each scenario from the 2000 baseline by sector and country, in Planning Approaches for Water Resources Development in the Lower Mekong Basin. Portland State University and Mae Fah Luang University. (July 2011). http://web.pdx.edu/~kub/publicfiles/Mekong/LMB_Report_FullReport.pdf.

13 Ibid.

Media coverage of the growing controversy over mainstream dams and campaigns by international and local civil society have increased public awareness, and even registered with senior regional political and bureaucratic elites. Still, acceptance of the idea of a shared river with a shared, environmentally sustainable future faces formidable obstacles, including:

- Short-sighted nationalism and an inadequate commitment to regional cooperation;
- The attachment of governments to an outdated development model skewed towards traditional, large-scale infrastructure projects; and
- Pressures from politically connected commercial interests.

Setback for Laos' Xayaburi Dam

Despite the strength of these drivers, opposition to the Lower Mekong dam proposals gathered momentum during the past year and culminated with the failure of Laos to win the support of its downstream neighbors for its planned construction of a 32-meters high dam on the mainstream of the river in its northern Xayaburi Province. The 1260-megawatt, $3.5-billion dam is the first of a string of ten dams that Laos wants to build on the Mekong's mainstream.

On April 19, 2011, at a special meeting of the MRC's Joint Committee at the conclusion of a six-month review of the proposed project, Cambodia, Thailand, and Vietnam declined to accept the project as proposed, citing unresolved concerns about the possible transboundary impacts on fisheries, food security and livelihoods issues, and its possible impact on the Mekong Delta.

Two weeks later at an ASEAN summit meeting in Jakarta, the prime minister of Laos assured the prime minister of Vietnam that his government would suspend the Xayaburi project for an indefinite period time, pending further review and research. The widely-circulated photo of the meeting seemed to signal a reframing of the issue that reflected greater consideration for the rights of downstream neighbors.

The importance of the transboundary aspect of mainstream dams to regional relations became even more clear at a meeting in the wings of the ASEAN Summit Meeting in Bali, when the prime ministers of Cambodia, Laos, Thailand, and Vietnam agreed informally to postpone the project pending additional studies of the impact of mainstream hydropower projects. This approach was formally adopted by the MRC's highest consultative body, the Council of Water and Environment Ministers, of the four countries on December 8, 2011, as well as agreement "in principle" to ask the government of Japan and other development partners to support the necessary studies.[14]

14 MRC. "Further study on impact of Mekong mainstream development to be conducted, say Lower Mekong Countries." Press Release. (December 8, 2011). http://www.mrcmekong.org/news-and-events/news/further-study-on-impact-of-mekong-mainstream-development-to-be-conducted-say-lower-mekong-countries/.

Because of the high stakes involved, it remains to be seen how lasting the pause may be, whether the desired support from development partners and leadership from the MRC Secretariat will be forthcoming, and to what ultimate effect. Another important question is what effect, if any, the successful adoption of a more cooperative and sustainable water development regime on the Lower Mekong might have on China's commitment to a shared future for a shared river.

II. The Regional Context

The water-related threats to the environment, human security, and peace and stability in Southeast Asia's Mekong Basin stem from three specific and interrelated factors:

- The environmental and geopolitical threat posed by China's control of Asia's "water tower" in Tibet and adjacent parts of the Himalayas, and its ongoing construction of a cascade of dams in Yunnan to exploit the river's hydropower potential;
- The threat to food security and livelihoods from the planned construction of as many as 12 dams on the mainstream of the river in Southeast Asia, which would decimate migratory fisheries, inundate important agricultural land, and destroy millions of livelihoods; and
- The unpredictable interaction of mainstream hydropower dams with long-term climate change, especially the shrinkage of glaciers and winter snow cap in the Tibetan plateau, and the threat of rising sea levels to the Mekong Delta.

Water Geopolitics – Conflicted and Conflicting National Interests

Vietnam is both an upstream and downstream country in the context of hydropower development in the basin. Its Mekong Delta is vulnerable to damage from actions by any of its five upstream neighbors on the mainstream. Conversely, Vietnamese dams on several tributaries in the Central Highlands have caused serious damage, including the loss of life, in downstream Cambodian villages and blocked the reproductive migrations of fish that are important food sources in the Tonle Sap.

Cambodia is considering two large mainstream dams at Stung Treng and the Sambor Rapids that would decimate fisheries from the Mekong Delta to northern Laos, as well as its own Tonle Sap, where millions depend almost entirely on fishing for their livelihoods and sustenance. Where does Cambodia's "national interest" lie as a country deficient in energy, but with millions of citizens highly dependent on fish for their food and livelihoods? The reality is that national interests in any country are diverse, but they tend to be evaluated in economic terms.

In other words, government perspectives of national interests tend not to reflect the diversity of interests but narrow economic criteria that are biased towards "large infrastructure projects whose environmental and social consequences may in fact be quite disastrous."[15] In addition, because most Mekong countries lack highly developed governance mechanisms for dealing with or fully grasping the interaction of conflicting priorities, it has been further argued, perceived national interests tend to center "on what countries think they can get from the river," a perspective that also "drives their sense of what the MRC should be doing."[16] Worse, because Mekong governments, China included, generally lack the will and/or capacity to avoid the unintended consequences of decisions driven by one priority or powerful domestic actors, they tend to be addressed—if at all—mainly by civil society organizations, whose freedom to raise awkward questions or propose alternative solutions varies from country to country.[17]

Inadequate Institutions for Regional Water Cooperation

Regional institutions for cooperation are inadequate in scope, authority, and political commitment from their constituent governments. The MRC has a mandate to promote cooperative and sustainable development of the LMB, but it is not a decisionmaking organization and has no enforcement power. Nor does it include all of the countries of the Mekong Basin. Thus far, China and Myanmar have accepted only observer status. Although China's Yunnan dams already are having a significant impact on the river's flow and water-borne sediment, it provides very little information about its intentions and activities to its downstream neighbors.

Conversely, the Greater Mekong Subregion (GMS) cooperative development organization that was established under the leadership of the Asian Development Bank (ADB) in 1992 includes all six Mekong countries—Cambodia, China, Laos, Myanmar, Thailand, and Vietnam—but has virtually no role in water cooperation. Instead, the GMS focused on the development of an extensive network of land corridors connecting the Mekong countries of Southeast Asia, China's Yunnan Province, and adjacent Guangxi Zhuang Autonomous Region in the north.

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15 Philip Hirsch and Kurt Mørck Jensen, with Stephen FitzGerald, Ben Boer, Rosemary Lyster, and Naomi Carrard. "National Interests and Transboundary Water Governance in the Mekong." (May 2006). pp. 19-20. (html version). In collaboration with Danish Development Assistance. sydney.edu.au/mekong/documents/mekwatgov_mainreport.pdf.

16 Ellen Bruzelius Backer. "Paper Tiger Meets White Elephant? An Analysis of the Effectiveness of the Mekong River Regime." The Fridtjof Nansen Institute (Norway). (August 2006). pp. 2-3. http://www.fni.no/doc&pdf/FNI-R1506.pdf.

17 Ibid.

The Transboundary Context

The transboundary nature of the Mekong River creates a situation that is far more complex than the simple dynamic of upstream actions with downstream consequences. Apart from Myanmar, which contributes only about two percent of the river's annual flow, interventions in the river by any country can have a significant effect on the others. As the most upstream states, China and Laos have the greatest potential for negatively impacting the other four countries. Actions by Cambodia, Thailand, and Vietnam can also affect their riparian neighbors.

To date, decisions on hydropower projects in the Mekong Basin largely have been driven by domestic considerations. These include a desire for revenue, and the political and other benefits of rewarding powerful stakeholders. Decisions have been made with little regard for those most affected by the projects.

The domestic dynamic of hydropower decisionmaking changes when natural resources or impacts from development cross national boundaries. One country's exercise of its jealously guarded sovereignty on its stretch of a transboundary river may seriously impinge on its neighbors interests and development plans. Dams on shared rivers and extractive industries have negative transboundary impacts that not only affect the well-being of a country and its people, but also may even be viewed as a threat to its national security.

Responses will depend on the seriousness of the impact and relative power of the affected country, and the value assigned to relevant bilateral and international relationships. Foreign policy considerations inevitably involve other competing policy interests and bring additional stakeholders into the picture, whose interests may be contrary to those of the project stakeholders.

In Cambodia, Laos, and Vietnam the political and economic drivers of hydropower development have been so strong that no major dam project has been halted by domestic opposition. Constructing new dams in Thailand is nearly impossible not only because of the existence of a vibrant civil society with a strong history of opposing large dams, but also because most hydropower potential already has been exploited.

Today, Thailand has foreign policy and even regional stability considerations to take into account. At the special joint committee meeting of the MRC to review the Xayaburi project in April 2011, the then-government of Prime Minister Abhisit Vejjajiva joined the other two downstream neighbors in withholding its approval. The final outcome remains to be seen, but in withholding acceptance the Abhisit government essentially went against Thailand's second largest construction company, the powerful state-owned Electrical Generating Authority of Thailand (EGAT), the Ministry of Energy, and four of the country's largest banks—mainly out of consideration for Vietnam's strong opposition to the project.

GDP vs. Livelihoods – Challenges of Balanced Development

The benefits of national GDP growth ranging from five- to seven-percent per annum in most of the region largely have been concentrated in urban areas. Tens of millions of rural inhabitants still live a marginal existence that relies mainly on fishing and farming. Average

incomes in southern Laos and Cambodia's Tonle Sap range from about $1.00 per day in the former and $140 in the latter. Food security and livelihoods in these areas are stressed already by steady declines in fish catches due to over-fishing, pollution from mining and agricultural runoff, and irrigation projects and dams on major tributaries where fish spawn. The MRC's pilot study on social impact and vulnerability estimated that "virtually all of the 61-million inhabitants of the LMB will be vulnerable if there is a major fall in the productivity of the Mekong mainstream and its dependent wetlands."[18]

If the proposed mainstream dams could create sufficient alternative and better paying livelihoods, they would represent positive tradeoffs. In some cases, the decline of local livelihoods and food security caused by dams on tributaries might represent an acceptable development tradeoff at the provincial or national level. However, a dam project has yet to be built in the Mekong Basin that replaces all of the lost livelihoods on a sustainable basis. For example, the direct cost-benefit ratio for Laos alone from its proposed cascade of mainstream dams may be positive, but it is clearly negative for the Lower Mekong as a whole.

The natural functions of the river to food security for tens of millions of people and the vulnerability of the Mekong Delta to climate change makes the free-flow of the Mekong river a more valuable contribution to regional income than the monetary benefits of harnessing its hydropower potential. The final report of a SEA commissioned by the MRC and a follow-up study funded by USAID, which used different economic assumptions and was even more emphatic,[19] made clear that hydropower dams that block the river's mainstream and major tributaries are a poor alternative to other energy options.

True, with high export earnings from selling electricity to Thailand and Vietnam and a comparatively small population, Laos would be better placed to import food and generate new livelihoods. However, both the SEA study on the impact of mainstream dams and the USAID study showed a gain for Laos would come at the expense of a serious cost to Cambodia and Vietnam (see chart, page 8). This mismatch of "winners" and "losers" in the context of a shared transboundary resource is the nub of the issue of future regional stability and peace.

The Cost-Benefit Time Lag

By far the least addressed consequence of the dams planned for the Lower Mekong is the gap in food access between when the river is first closed and when power and/or export revenues begin to generate new industries and jobs. Those who lose their homes and livelihoods in the direct impact area of the dam will be relocated and given alternate employment. But typically the impact areas will be narrowly defined to minimize cost,

18 Mekong River Commission. "Social Impact Monitoring and Vulnerability Assessment: Report on a Regional Pilot Study for the Mekong Corridor." MRC Technical Paper, No. 30. (December 2010). www.mrcmekong.org/assets/Publications/technical/Tech-No30-Social-Impact-monitoring.pdf.

19 "Planning Approaches for Water Resources Development in the Lower Mekong Basin." Portland State University and Mae Fah Luang University. (July 2011). http://web.pdx.edu/~kub/publicfiles/Mekong/LMB_Report_FullReport.pdf.

and many more people will lose their established livelihoods and food security than are identified for compensation.

The livelihood and food security gap will be a far greater problem in the case of transboundary impacts. At present, there is no transboundary organization with responsibility to prepare for the collapse of wild fisheries and impact of upstream dams on existing small-scale irrigation systems, such as in the Mekong Delta. In theory, this could be undertaken by the MRC, but in fact the task would require the involvement of several different line ministries in each country, and would be beyond the capacity of the MRC as currently constituted and staffed.

The time lag between the beginning of construction and the delivery of long-term benefits will not just be a consequence of individual projects. Current plans for Lower Mekong dams have estimated completion dates that could cause the river to be disturbed for as much as a decade. The impact would not only be cumulative but also erratic.

The World Bank and ADB cannot participate directly in mainstream dam projects because of their excessive environmental impact. They might agree to become involved in programs that develop alternative sources of food and livelihoods to forestall a serious human crisis. Unfortunately, their programs respond to requests from governments, which are not likely to solicit help until it is too late, if at all.

Case Study: Vietnam's Civil Society in Action

Environmental non-governmental organizations (NGOs) increasingly have found space to operate constructively and effectively in Vietnam in recent years. These groups have developed important strategies for working with government that, so far, have served to build mutual trust. Central to this trend has been activities that position environmental NGOs as partners to government, helping to fill knowledge, research, and outreach gaps as they strive to help government achieve national goals and protect national interests.

The Vietnam Union of Science and Technology Associations (VUSTA) established in 1983 by the Council of Ministers of the Socialist Republic of Vietnam, currently functions as the umbrella organization for many of the country's environmental NGOs and other scientific and technical groups. Although membership is not mandatory, VUSTA provides an important avenue for access and legitimacy to groups seeking to constructively engage on important environmental or scientific policy challenges. NGOs, academics, and scientific institutions are able to apply their analysis and research through VUSTA, including outreach and engagement activities with policymakers and decision-influencers.

In a number of instances, Vietnamese government officials from all levels have participated in public forums organized by environmental civil society groups. They not only shared the government perspective, whether national, provincial or local, but they also identified and encouraged areas where academia and civil society could

contribute to shared goals and outcomes. At one 2011 roundtable held in Can Tho and organized by Vietnam Rivers Network, government officials actively sought advice and participation from local civil society organizations to help spread information and awareness of upstream hydropower development along the Mekong River. They also encouraged national and international groups to engage with policymakers in Vietnam and upstream countries to promote the interests and concerns of communities in the Mekong Delta.

This informal partnership between government and environmental NGOs so far is an extremely positive development for Vietnam. NGOs can play a constructive role in research, help disseminate important information, and advocate for the protection of national interests. For these reasons especially, the government of Vietnam should continue to partner with national and local civil society groups while seeking their input into infrastructure development and environmental protection decisions. The positive tone of this relationship is by no means assured indefinitely, but it is in the national interest that it is fostered and continues to improve.

III. Hard Drivers – The Political Economy of Hydropower Development

Plans to develop the hydropower potential of the Mekong River are being driven by a diverse set of powerful forces. In broadest terms, the comparatively recent rush to build dams on the Mekong's mainstream and major tributaries has been driven by the pursuit of rapid GDP growth by governments of poor, but resource-rich countries. Specific drivers include short-sighted development policies, the low capacity of governments to wisely engage with powerful commercial interests in the new era of "public/private partnerships," increased integration of the region into the global economy, China's growing thirst for water, and—some contend—its geopolitical ambitions.

The role played by public-private partnerships in the Laos' development strategy has provided an opportunity for well-connected foreign commer ncial developers. On the surface, this would appear to be a win-win situation, where corporate actors plan, finance, build, and operate dams that meet the energy needs of Thailand and provide an important revenue stream for Laos. Dig a little deeper, and cost/benefit gaps emerge that pose a potential for unrest and dislocation at the national and regional levels.

Laos' Ambition to be the "Battery of Southeast Asia"

Laos is a landlocked and relatively lightly populated country. Its manufacturing potential appears limited due to its small population and competition from neighboring countries. However, it is rich in minerals, forest products, and water. Importantly, Laos not only possesses numerous rivers, but also its mountainous geography makes these waterways ideal for hydropower dams. Laos is perhaps the strongest single driver of mainstream

hydropower development in the region with the stated aim of tapping its natural assets to become the "battery of Southeast Asia," or at least the Mekong part of it.

Electricity generated by hydropower dams mostly will be exported for sale to neighboring countries, especially Thailand, though some will feed domestic households and be used for mining and other operations. While the income from energy exports will prove a significant boost to government coffers, it remains unclear how these revenues will be used. The Lao government repeatedly has asserted that these projects will play a pivotal role in alleviating poverty in the country, yet there is no clear plan for how that will happen.

In addition to the sale of electricity to its neighbors, this new generating capacity will be closely tied to other resource exploitation activities. Work is underway on Laos' Boloven Plateau for what is anticipated to be the world's second-largest Alumina mining project.[20] These rich bauxite deposits are an example of both the great opportunities and huge challenges the Lao government will have to manage. A development policy centered on natural resource exploitation is one that requires effective governance capacity to ensure the country is both adequately compensated for its natural wealth and that resources are extracted in the most sustainable and equitable manner.

With its comparatively week governmental capacity, Laos is at risk of the "natural resources curse," in which growth is slow or narrowly based, and while mainly foreign companies and privileged local elites reap the benefits while the bulk of the population remains impoverished. The natural resources curse falls particularly hard on the citizens of poor countries who lose their already-marginal access to forests, artisanal mines, lands, and fisheries to unsustainable resources exploitation, and most of the potential value-added processing takes place outside the country.

The seeming paradox is that many countries with few natural resources achieve higher economic performance and standards of living. One reason for this is that there is far more value-added to be gained from the development of human resources than the exploitation of natural resources. In theory, the development of the hydropower potential of Laos will produce revenues that can be used to income levels though education, infrastructure development, and other means, but whether this happens remains to be seen. Meanwhile, it has yet to be shown convincingly that those who are displaced by natural resources exploitation end up with higher incomes and standards of living.

In the least-developed Mekong countries, the most urgent need is to improve governance and governmental capacity to ensure that the resource extraction or exploitation projects meet international standards for terms of compensation and liability. Especially in regard to so-called public/private partnerships involving Thai, Chinese, and other international investors, the government may not have the capacity to properly value the resources, or bring planning and coordination to separate commercial projects.

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20 "Lao Bauxite Mine Development Reaches New Milestone." *Vientiane Times*, reposted in *Lao Voices*. (Accessed September 1, 2011). http://laovoices.com/lao-bauxite-mine-development-reaches-new-milestone/.

Commercial Opportunism

From a developer's perspective, the Mekong River looms as a vast untapped resource ripe for projects that will fuel the rapid economic growth of the region. The water is "wasted" as it flows unimpeded to the South China Sea. Dams, developers argue, will harness the river's energy potential and provide a source of water for new irrigation schemes aimed at expanding arable land throughout the Mekong Basin. While some of these assertions are true, they are short-sighted and the benefits are narrowly-defined.

The development of a hydropower cascade on the Mekong mainstream is an exercise in commercial opportunism that will potentially have serious diplomatic and strategic implications. Unfortunately many of the corporate and institutional actors largely pushing these commercial projects will not find themselves responsible for many of the anticipated negative consequences. Rather, these impacts—to food and human security and the environment—will remain the responsibilities of governments.

Governments in the region, especially those of Laos and Thailand, have justified their support for these projects in economic terms. Increasingly, however, the anticipated impact identified through scientific research and advanced modeling also is being translated into economic terms. Fundamental to this exercise is the perspective of *Ecological Economics,* which is an "approach to *both* ecology and economics that recognizes the need to make economics more cognizant of ecological impacts and dependencies; the need to make ecology more sensitive to economic forces, incentives, and constraints; and the need to treat integrated economic-ecologic systems with a common (but diverse) set of conceptual and analytical tools."[21]

The question of liability is an important, yet often neglected, element of this trend towards so-called public/private partnerships. The "public" part of these partnerships is usually confined to land concessions and the handover of the project to the host government after an agreed-to period of time—typically around 30 years. Developers and operators must abide by the host country's laws and regulations during this time. In the case of Laos and Cambodia, existing laws not only need strengthening to meet international standards, but there are also even greater challenges applying and enforcing laws that do exist.

Taking the proposed Xayaburi project as an example, the developer has defined the project area for study in the Environmental Impact Assessment (EIA) as only extending ten kilometers downstream from the project.[22] Clearly, the dam's impacts to the natural ecology and hydrology of the river, and those who depend on these functions, will extend much further. However the commercial motivation to limit liability as narrowly as possible appears to have trumped the need for a broader, more holistic study. This necessarily leads one to ask, "if not the developer, then who will be responsible for the potential negative impacts to livelihoods downstream from the project site?"

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21 Robert Costanza. "What is Ecological Economics." Ecological Economics, Vol. 1, Elsevier Science Publishers B.V. Amsterdam (1989). pp. 1-7.

22 Ch. Karnchang Public Company Limited. Environmental Impact Assessment. Xayaburi Hydroelectric Power Project, Lao PDR, Scope of Study, pp. 1-2. http://www.mrcmekong.org/assets/Consultations/2010-Xayaburi/Xayaburi-EIA-August-2010.pdf.

While public/private partnerships provide governments with an option to shift planning, financing, construction, and operation responsibilities to a private company, these arrangements also provide the developers an opportunity to offload responsibility and liability for foreseen or unforeseen negative impacts onto governments. In the current scenario, governments largely are excluded from the project planning phase due to a lack of internal or independent external support, and then find themselves with direct and indirect environmental and socioeconomic costs that are not the responsibility of the developer under the concession agreement. Stronger laws, better enforcement, and greater human and governance capacities would provide governments an avenue towards rebalancing the risks and rewards inherent in infrastructure and resource development.

As Laos, and to a lesser extent Cambodia, increasingly tap their natural resource wealth as a means towards economic development, these challenges and gaps must be addressed to avert many of the worst-case scenarios witnessed elsewhere in the region and the world.

Despite much criticism of dam projects supported in the past by the multilateral development banks (MDBs), their environmental and socioeconomic criteria for projects generally are better than those of commercial developers. In the case of mainstream dams such as the Xayaburi project, the MDBs cannot as a matter of policy, participate. In the words of a senior ADB official, the bank "has no plans to finance any project on the mainstream Mekong River…the potential impacts of such activity on countries in the Mekong region have not been clearly determined and there is a potential for severe and irreversible negative social and environmental consequences."[23]

In the case of the Xayaburi dam, 95 percent of the power will be purchased by the EGAT. The state-owned EGAT is bound by law to observe the same environmental standards whether the projects are in Thailand or other countries. Following the failure of Laos to gain the assent of its neighbors at the April 19 meeting in Vientiane, an EGAT official reportedly told a *Bangkok Post* journalist, "Power plants need EIA approval, no matter whether they are our projects, or those belonging to private developers. Otherwise, we won't sign a power purchase agreement (PPA) with the owner."[24]

Though this statement sounds reassuring, in reality EGAT had given every indication of intending to conclude the purchase agreement even though it reportedly had not yet seen the EIA.[25] Moreover, in the immediate aftermath of the special MRC meeting in April 2010, the Thai energy minister declared that the MRC "had no authority to cancel the project outright."[26]

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23 Comment attributed to Craig Steffensen. Country Director of the ADB's Resident Mission in Thailand in Praiwan, Yuthana, Narrerat Wiriyapong. "Energy Ministry Backs Xayaburi Dam Debate." *Bangkok Post*. (April 24, 2011). http://www.bangkokpost.com/news/local/232902/energy-ministry-backs-xayaburi-dam-debate.

24 Ibid.

25 Ibid.

26 Watcharapong Thongrung, Nalin Viboonchart. "Thailand to pursue purchase plan." *The Nation*. (April 21, 2011). http://www.nationmultimedia.com/2011/04/21/business/Thailand-to-pursue-power-purchase-plan-30153563.html.

Thailand's Electricity Market and EGAT's Structural Incentives to Build Capacity

Now that the Xayaburi issue has been dealt with at the highest political level, the decision would appear—for the time being—to be out of the hands of either EGAT or the Ministry of Energy, but their status as powerful stakeholders within the Thai political system is unlikely to be weakened. Thailand will remain the primary consumer of much of the energy produced in the Lower Mekong, and it is this demand that is driving investment in new generating capacity. This puts Thailand in the exploitative position of reaping the benefits of mainstream hydropower while effectively sidestepping many of the most problematic negative impacts. Those challenges will be borne most heavily by the countries like Laos and Myanmar that allow the construction of hydropower dams that would not meet Thai domestic environmental standards, and those countries' and Thailand's downstream neighbors.

Thailand has the desire and incentive to further diversify its energy mix, both in terms of fuel type and the physical location of power plants. First, it currently relies heavily on natural gas for electricity production, and a majority of this gas comes from or passes through Myanmar. Such single-source reliance would be a reason of concern for any state, but even more so given the political realities of Thailand's western neighbor. Second, Thailand simultaneously is confronted with a general atmosphere of domestic opposition to new power plants. Some of this is garden-variety NIMBY-ism (Not in My Backyard), but opposition to power plants, especially hydropower, has played a central role in the historical development of Thailand's environmental movement. Lastly, the most economically and technically feasible sites for dams inside Thailand have already been developed, forcing national planners to look to their more mountainous neighbors.

The amount of electricity actually needed by Thailand is a different matter. Thailand and the other LMB countries are at the high end for the Asia region in energy intensity—the ratio of energy consumption to GDP output. The 12 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 of eight percent by 2015, 15 percent by 2020, and 25 percent in 2030.[27]

An important part of this story, however, is the institutional structure of Thailand's energy planning, generation, and regulation. This is a structure that has been defined by an emphasis on new capacity with little meaningful effort paid to manage the demand. This may change in the future, but current focus remains on new power plants. Without official, independent auditing and oversight, the entities driving the nation's power planning and

27 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.

development also have an inherent financial and institutional interest in building new capacity.

The state and private companies work closely together in pursuit of Thailand's energy diversification strategy. The Xayaburi dam and other dam projects in neighboring countries receive formidable backing from the country's National Energy Policy Committee (NEPC), which is chaired by the prime minister. The Energy Policy and Planning Office (EPPO) of Thailand's Ministry of Energy, which describes itself as "a pivotal agency in the formulation and administration of energy policies and planning for the national sustainability," has been the lead agency in formulating the country's national energy policy. EGAT is chaired by a permanent secretary of the Energy Ministry.[28]

On December 30, 2010, the National Energy Policy Committee approved the signing of a PPA with the Xayaburi Power Company, of which the dam developer Ch Karnchang is a major shareholder along with PTT Ltd., an integrated energy and petroleum company that holds a 25 percent share. The NEPC approved the purchase of 1.23 gigawatts from Xayaburi Power, some 95 percent of the total designed output.[29]

The pro-dam forces show no indication of walking away from the project. Officials from the Energy Ministry, EGAT, Xayaburi Power, and Ch Karnchang all reacted negatively to the MRC Joint Committee's failure to agree to the Xayaburi project. Absent a decision to the contrary by the prime minister and the Cabinet, they will continue to support the project.

Case Study: Thai Civil Society in Action

Thailand is regarded widely as having the liveliest civil society in the Mekong Basin. Its activities and engagement on the issue of mainstream Mekong hydropower bolsters this perception. In fact, the Thai environmental movement can trace its origins back to the opposition of national dam projects. Emerging from a complex past that included intimidation and violence against NGO activists, its activities ultimately have resulted in legislation for improved local consultation, stronger requirements for environmental and socioeconomic impact analyses, and better enforcement. Still, there exists a gap between the strength of laws and regulations on the books and their application in the real world of big money infrastructure projects.

If Thailand's environmental civil society has served as a promising model for the region, there is more reason for concern. Anecdotal evidence suggests a decline in NGO activities in Thailand. In fact, many environmental groups have shuttered their operations in recent years. This is mostly the result of two related pressures: low wages and thin operating margins make recruiting and retaining qualified people a

28 Energy Policy and Planning Office (EPPO) website. (Accessed September 9, 2011). http://www.eppo.go.th/admin/link_about-E.html.

29 "Thai Construction Giant, Laos Ignore Mekong Concerns: Xayaburi Dam Work Begins on Sly." Special Report, *Bangkok Post*. (April 17, 2011). http://www.bangkokpost.com/news/local/232239/xayaburi-dam-work-begins-on-sly.

challenge, even more so as private-sector opportunities in the growing Thai economy multiply; and limited funding, which relies heavily on international foundations who require complex proposal and reporting requirements, almost always in English, and who rarely provide adequate contributions for overhead or other general operating expenses.

The relationship between Thai civil society and the government also has grown unnecessarily adversarial. Many in government believe that environmental NGOs are unreasonable in, what is perceived as, their blanket opposition to development projects. This perspective reflects headline-grabbing protests and other actions while ignoring productive partnerships between civil society groups and officials. While protest activities often serve important purposes, trust-building partnerships with allies at the district, provincial, and national levels of government likely would lead to better outcomes, and ideally produce the institutional and structural changes necessary to move powerful laws and regulations from paper to reality.

Still, Thai environmental NGOs are playing an important role on challenging issues surrounding mainstream Mekong dam proposals. Organizations like Living River Siam and Towards Ecological Recovery and Regional Alliance (TERRA) serve an important function by raising awareness at multiple levels. Living River Siam, for example, engages in activities that move information in two directions. Their *Thai Baan Research* activities tap local knowledge and first-hand experiences towards the goal of informing national policies that maintain ecosystems healthy enough to sustain local livelihoods. They also work in the other direction by educating and increasing awareness among local communities of provincial and national policies and infrastructure projects that will have local impacts.

EGAT plays a central role in Thailand's national energy planning, generation, and distribution. It owns 47.8 percent of the nation's generating capacity while purchasing additional power from independent power producers and neighboring countries.[30] It is also widely criticized for overestimating future demand, and emphasizing new-generation capacity rather than addressing demand through efficiency gains.

Prior to 2007, Thailand effectively lacked an independent energy regulator, allowing the Ministry of Energy to set policy, and EGAT to pursue its realization, a lucrative endeavor when focused on big new power plants. The Energy Regulatory Commission (ERC) was established in late 2007 with +members appointed in early 2008, with the goal of regulating energy industry operations to establish a system that is "reliable, efficient, and fair for both energy consumers and suppliers…"[31]

30 EGAT Website Homepage. (Accessed August 30, 2011). http://www.egat.co.th/en/.

31 "Vision & Mission." Energy Regulatory Commission of Thailand Website. (Accessed September 6, 2011). http://www.erc.or.th/ERCWeb2/EN/Front/StaticPage/StaticPageEN.aspx?p=3&Tag=Vision&Mission&muid=5&prid=5.

This could be a very positive development for Thailand, but given the ERC's institutional youth there remain questions as to how quickly it will be able to ramp up effective oversight. The ERC itself acknowledged that Thailand had a capacity buffer of 30 percent over peak demand in 2009. When coupled with the global economic slowdown, this figure leads one to question the future capacity estimates as established in the 2010 Power Development Plan.[32]

32 "Thailand Energy Regulatory Developments 2009." Energy Regulatory Commission of Thailand. (Accessed September 14, 2011). http://www.erc.or.th/Doc/thailand.pdf.

IV. The China Factor

China and Thailand are the two most important countries to the development of mainstream dams, with the former playing an indirect, but critical, role. Without China's development of massive storage capacity in the Lancang Jiang there would not be enough water in the river for most, if not all, of the dams to be commercially viable. The character and impact of the eight or more large- to mega-dams that China is building on the upper half of the river and the dams proposed for the lower half of the river in Southeast Asia are different in important respects.

The upstream-downstream issues generated by China's dams take the potential threat to regional peace and stability to a higher level. The extent to which the proposed Lower Mekong dams may be connected to some larger Chinese geopolitical strategy cannot be determined. Political and business interests in Kunming, Yunnan's booming capital, and state-owned engineering and construction companies seem more interested in the Lower Mekong than Beijing.

Chinese and Hong Kong companies are involved in four or five of the proposed projects, but it is not clear whether, and to what extent, this should be viewed as a matter of official Chinese policy or just profit-driven business opportunities. Moreover, Thailand is a bigger factor than China in the Lower Mekong projects. Most of the proposed Lao dams are to be built wholly or in part with Thai money by Thai contractors, and the electricity will be purchased by Thailand's state-owned electric authority.

This issue of China's dams is a sensitive one for Vietnam, which is already locked in a dispute with China over competing maritime territorial claims in the South China Sea. From Hanoi's perspective, Beijing's ability to regulate the river, the ecological and environmental impact

of China's dams, and those planned by its upstream Southeast Asian neighbors hangs like a sword of Damocles over the Mekong Delta, a region whose agriculture and aquaculture production contributed as much as 16 percent to national GDP in Vietnam, and more than half of its export earnings.[33]

Regardless of China's intentions, its construction of enough storage capacity in Yunnan creates both the "logic" for the Lower Mekong dams, as well as a potentially destabilizing source of dependency.[34] The size of most of the reservoirs that would be created by the proposed Lower Mekong dams strains the credibility of their "run-of-the-river" designation, but in fact none of them can store enough water for more than a few days or weeks of operation without replenishment. A number of the planned dams would not be able to operate efficiently, if at all, during the frequent periods of extreme drought, when the river becomes hardly more than a rivulet.

Earlier schemes for damming the mainstream required a large storage dam that was not practical or politically feasible due to the area that would have to be flooded. China now is supplying the storage capacity, but outside any regime of basin-wide cooperative water management. Whether China planned its Yunnan dams with the possibility of facilitating mainstream dams on the Lower Mekong cannot be determined.

The catch is that these projects will depend on China releasing the right amount of water at the right time. Due to ongoing dam construction in Yunnan, a prolonged period of severe drought, and a lack of useful data from China, downstream countries have no way of knowing how China will operate its dams, and can only make assumptions based on the known physical characteristics and configurations of the dams.

Even more troubling are the potential political and geopolitical ramifications of China's Yunnan cascade. China rightly is concerned that many citizens and officials in the downstream countries blamed its dams for the 2010 dry season's extreme drought, the worst in 50 years. The drought was broken only when the monsoon rains returned this summer. China protested that it was also suffering from the same drought but, because it provided no data about the operation of its dam, it was never certain whether the Chinese dams were spilling, filling, or passing along as much water as entered the reservoirs upstream.

Persuading the Chinese government to stop building dams on the Mekong or any of the major rivers flowing out of Tibet appears most unlikely because of the array of forces and interests behind dam building—both national and regional. Beijing's attitude towards hydropower is being shaped by a variety of factors, starting with a commitment to obtain 15 percent of its energy from non-fossil fuels by 2020, and the high priority attached to dealing with China's fast-growing water crisis. The priority attached to the Mekong dams is second only to a stupendous $60 billion project to construct three huge canals to move Yangtze water to the North and replenish water in the Yellow River.

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33 United Nations Food and Agriculture Organization (FAO) Corporate Documentary Repository. Status and Potential of Fisheries and Aquaculture in Asia and the Pacific. 2010.

34 Philip Hirsch. "China and the Cascading Geopolitics of Lower Mekong Dams." *The Asia-Pacific Journal/ Japan Focus*. http://www.japanfocus.org/-Philip-Hirsch/3529#.

Particularly in the context of climate change, which currently is being blamed for the shrinking of the Tibetan snow cap and the retreat of glaciers, the Lower Mekong countries have stronger reasons to worry about future flows from Yunnan. While there is a body of scientific opinion that anticipates more rainfall and extreme weather events in parts of the Lower Mekong, the same studies project a significant reduction of water flowing from Tibet during the dry season, which corresponds to the spring and summer snow melt in Tibet. The SEA also notes, "if not fully accounted for in dam designs and safety measures, the increased likelihood of extreme events with climate change would increase the risk of dam break and failure of key hydraulic components (e.g. spill way gates)."[35]

For now, China has prioritized the generation of electricity and, to a lesser extent, navigation in its use of the Mekong's water. However, induced reductions in the Mekong's flow from Tibet due to climate change could re-prioritize its regional water policy to emphasize storage and/or irrigation. Reduced dry season releases of water from China's dams could result in reduced power output from the Lower Mekong dams.

There is not much that the four lower Mekong countries of the MRC can do about China's dams except to present a more unified stance to demand greater transparency and consideration of downstream interests in how they operate them. If the Lower Mekong countries can forge a genuine, regional approach to cooperative and sustainable water management among each other, they will be much better placed to engage with China on how it operates its Mekong cascade. This will require a degree of solidarity that is not yet in evidence as each Lower Mekong country continues to pursue its own *perceived* national interest.

35 ICEM. SEA Summary op. cit., p 12.

V. Changing Calculus of Mainstream Dams – Regional Opposition to the Xayaburi Dam

The important new element in the hydropower equation is that, in the case of mainstream dams, domestic considerations must compete with cross-cutting foreign policy and national security concerns due to downstream impacts. Because projects themselves are not susceptible to significant mitigation of their main adverse impacts, considerations of the effect on bilateral relations and geopolitical issues will create a uniquely complex calculus.

Laos precipitated the first test of the PNPCA process in October 2011, when it formally announced its intention to proceed with a dam on the mainstream in its northern Xayaburi Province, the first of ten mainstream dams under consideration. The Xayaburi dam has become the biggest test of the MRC since its establishment in terms of both its procedures and the commitment of its member countries to cooperative, sustainable, and mutually beneficial water management.

The $3.5-billion project would generate 1260-megawatts of electricity, 95 percent of which would be purchased by Thailand's state-owned EGAT. The dam would tower more than 32 meters (105 feet) above the river. The project has been highly controversial. The developer's own engineering study cast doubt on the practicality of the proposed, but not yet designed, fish passage, and the required EIA did not address the dam's transboundary impact.

Observers are still grappling with the significance of the agreement of the four governments to delay the project until more studies are carried out pursue their economic development goals without jeopardizing the sustainability of the river's ecology and current livelihoods. In his statement at the MRC Council meeting of December 8, the host, Cambodia's Minister of Water Resources and Meteorology, emphasized that further study would enable the

member countries to have a more complete and informed basis from which to "discuss the development and management of their shared resources."[36]

Encouragingly, the reasons for the unwillingness of the three governments to accept the Xayaburi project included all of the key arguments being made by environmental organizations and local civil society groups: a grossly inadequate EIA, serious, unresolved concerns about the impact of the dam on fisheries and livelihoods, inadequate consultation with affected stakeholders, and concerns about the cumulative impacts of a total of 12 dams proposed for the mainstream—if not the Xayaburi project alone—on the viability of the Mekong Delta.

Vietnam, in particular, has risked straining its important political relationship with Laos out of concern about the impact of upstream dams on the Mekong Delta, and its judgment that if the first dam goes forward, the rest will be impossible to prevent.

One of the most serious criticisms of the project is the developer's intention to begin construction of the dam even before the final design for a fish way or fish pass has been decided. A Prior Consultation Review Report prepared by the MRC Secretariat could fairly be described as politely scathing in its assessment of the fish passage design contained in the developer's engineering study. The report by MRC fisheries experts noted that some 23-100 species would be put at risk by the dam, including five highly endangered "red list" species as designated by the International Union for Conservation of Nature, including the giant Mekong catfish. The MRC experts made a number of suggestions for improving the design, but in the end offered little hope that any of the changes would avoid serious fish loss. In addition, the review called attention to the serious inadequacy of the data collected on the relevant fish species and their socioeconomic importance to people who depend on them for food and livelihoods, as well as a failure to address the transboundary migration issues.[37]

While many critics of the MRC and the dam proposals may still see the postponement as only a temporary reprieve, the leaders' stated rationale shows that they have absorbed the main arguments against mainstream dams. In fact, numerous discussions with both officials and civil society representatives in the region during the past year have indicated they are becoming more engaged and more aware of the risks and uncertainties of mainstream dams.

Several developments in particular give cause for hope:

- The refusal thus far of Cambodia, Thailand, and Vietnam to accept the Xayaburi dam illustrates that mainstream hydropower projects invoke a different set of national priorities, namely food security, livelihoods, foreign relations, and regional peace and stability. In the case of Thailand, Vietnam's anxiety about the impact of upstream hydropower projects on the Mekong Delta appeared to trump powerful domestic

36 MRC. "Further study on impact of Mekong mainstream development to be conducted, say Lower Mekong Countries; Water and environment ministers agreed in principle to approach Japan to assist with the study." Press Release. (December 8, 2011). http://www.mrcmekong.org/news-and-events/news/further-study-on-impact-of-mekong-mainstream-development-to-be-conducted-say-lower-mekong-countries/.

37 MRC. "Proposed Xayaburi Dam Project: MRCS Prior Consultation Project Review Report." (March 24, 2011). pp. 23-33, 39-42, 83-90. http://www.mrcmekong.org/assets/Publications/Reports/PC-Proj-Review-Report-Xaiyaburi-24-3-11.pdf.

constituencies in the eyes of the then-Abhisit government. A vocal campaign against the Xayaburi Dam in the midst of a hard-fought national election campaign also played an important role.

- Transboundary impact concerns that have influenced national political leaders have also created a more open environment for civil society organization. In the case of Vietnam, civil society groups are now able to have open meetings about the threats of mainstream dams to the Mekong Delta, and in many cases, with the enthusiastic participation of local party and administrative officials.

VI. Shared River, Shared Future – The Emerging Geopolitical Dimension of Mainstream Hydropower Development

Conversely, the people from whom the resources are taken—often politically marginalized ethnic minorities and other depressed social classes—are weak and powerless. Perversely, those whose lives are based on traditional resources-based livelihoods tend also to be the poorest. There are many ways their standard of living could be improved without displacing them from their forests, farms, and fisheries, but in less-developed countries with weak economic and administrative institutions, governments can only extract revenue by commodifying resources. In the short-term, granting concessions to private developers is the most efficient means of gaining revenue streams, especially when the governments have scant resources of their own.

The consequence is that opposition to hydropower and other resource-extracting projects almost never succeed until there is a development of a middle class and extensive civil society, usually within some kind of representative political system. By that time, as in the case of Thailand, which has no rivers left to dam or forests to cut, it is too late.

Multidimensional Calculus of Regional Hydropower Decisionmaking

From the point of view of hydropower decisionmaking on the mainstream and major tributaries, the calculus mainly involves the four MRC countries. China gives such high importance to hydropower dams to meet its soaring energy needs that there is little

possibility of dissuading it from completing a massive cascade of eight large-to mega-sized dams on the mainstream of the Lancang Jiang and another four dams on major tributaries in Yunnan Province. Scenarios developed by hydrologists and other scientific experts to study the likely impact of proposed dams on the mainstream of the Lower Mekong in Laos and Cambodia now assume the full complement of Chinese dams as the definite future "baseline."

While China's plans are unlikely to change, there is still time to avoid an environmental and human security catastrophe on the Lower Mekong, and for downstream countries to gain greater transparency from China and how it operates its Yunnan dams. To date, China has not shared enough data with its neighbors or the MRC Secretariat on the critical design characteristics of its Yunnan dams, disruptions of the flow of water, sediment that can be expected from construction activities, and how those dams will be operated when they are finished. It makes a significant difference, whether the dams are operated to meet changing loads or managed to maintain more predictable flows, and also whether the sluice gates are opened periodically to maximize the passage of nutrient-laden silt.

Assessing how a country might balance domestic versus foreign policy considerations is difficult, all the more so because the *perceptions* of the policymakers will guide their decisions, which are not necessarily based on:

- An adequate understanding of the full transboundary impacts of their decisions;
- The weight assigned to the impacts against the value that the neighboring country assigns to its bilateral and multilateral relationships; or
- The neighbor's likely response.

Growing, and well-argued and documented opposition to mainstream dams, as well as a wealth of negative findings in studies conducted by or for the MRC and by other independent experts have been impossible for regional political leaders to ignore. During April 2-5, 2010, Thailand hosted the first MRC Summit and International Conference at Hua Hin, a beach resort city. Not coincidentally, the leader's summit took place during one of the worst droughts to hit the Mekong Basin in decades, and amidst significant public and media concern about the abnormally low water levels in the mainstream and tributaries, a situation that many linked to China's recent completion of its massive Xiaowan dam. The leaders recommitted their countries to support the MRC and especially its Integrated Water Resources Management (IWRM)-based Basin Development Strategy.

Vietnam's Calculus

The greatest potential for regional instability arising out of mainstream dams comes from the impact of hydrological changes, a substantial decrease in annual silt deposits, and upstream water pollution on the Mekong Delta. The Vietnamese government has been the most vocal opponent of the Xayaburi dam, but it has other important equities with Laos that could be at risk if the leaders in Hanoi lean too hard on their former Lao comrades in arms. Among other considerations is the growing importance of Chinese infrastructure development and commercial penetration in northern Laos.

Likewise, the passage of time has eroded the party-to-party and military-to-military ties between Hanoi and Vientiane. Vietnam is trying to compensate for these trends by becoming more actively involved in Laos via investment, and taking advantage of improved road transport in the East-West Economic Corridor of the ADB's GMS cooperative development project, which would give Laos better access to the Vietnamese port of Danang.

Still, the influence Hanoi retains is not clear as China increasingly becomes Laos' main economic partner. Interestingly, China has been silent thus far on the PNPCA and the Xayaburi dam controversy.

In fact, Vietnam appears willing to consider one or more dams in northern Laos, but only after gaining a commitment from Laos that Xayaburi would not be the first of ten Lao dominos to fall. Vietnam has called for a ten-year moratorium along the lines of that recommended by the SEA, during which additional research and a cumulative impact assessment of all of the proposed dams could be carried out. For now, the questions remain: who would carry out the study; what counties, international banks, or consortia would fund it; and how long is Laos prepared to wait?

Vietnam is adamant on one point—it will not consider paying compensation to Laos or to Cambodia if it should go ahead with the Stung Treng and Sambor dams. One tack that Vietnam could consider would be to raise the issue of damages that may result from the Lao dams. This could at least be a bargaining chip to gain greater Lao consideration for Vietnam's concerns.

Thailand's Conflicting Interests

As the most developed country and the most dependent on foreign sources of energy, Thailand is the key player in dam construction in the LMB. While Thailand's civil society has been successful in stopping new domestic dam construction, until recently, the Thai government was little interested in the activities of EGAT, and Thai construction companies in Laos and Myanmar. For instance, the Thai government paid little attention to opposition to the construction of the Nam Theun II dam in Laos. Despite the direct involvement of Thai interests in the construction of the Xayaburi dam, Vietnam's and Cambodia's objections to the project and the possible negative implications of the controversy for the future of the MRC changed this picture.

Both at the Ministry of Foreign Affairs and at the highest political level in the former Abhisit administration, Vietnam's strong opposition to the Xayaburi dam pitted domestic interests against important foreign policy and regional stability interests. Members of the Thai House of Representatives and the Senate also weighed in on the issue, expressing concern about the dam's impact on the environment, fisheries, and the lives of people who depend on the river for their income and food security.

Whether the government headed by Prime Minister Yingluck Shinawatra might take a different view of the Xayaburi project and Thai participation in other mainstream dams remains to be seen. When he was prime minister, Thaksin Shinawatra was a strong

supporter of regional economic integration, with Thailand at the core, including a proposed diversion of Mekong water to the dry northeast, his main political stronghold.

In early October 2011, in the face of some of Thailand's worst flooding, the former Prime Minister Thaksin reportedly opined from Dubai that what the country needed was a 400-billion baht (about US $13 billion) integrated water management project for the Chao Phraya river system.[38] While the Chao Phraya is not transboundary and is considered as Thailand's national river, Thaksin and other political, bureaucratic and business interests have long voiced support for diverting water from the Mekong.

How Thailand seeks to address the issues raised by the Chao Phraya floods, whether through massive new dam and canal projects or by measures to restore natural flood plains and other approaches that work with, rather than against, nature remains to be seen. Likewise, how the current or former prime ministers would balance Thai commercial and energy interests in the case of the proposed Mekong mainstream dams is impossible to predict.

Cambodia's Dilemma

Cambodia's decision not to agree to the Xayaburi dam at the Joint Committee meeting in April appears to reflect a revived concern on the part of Prime Minister Hun Sen about upstream dams. As recently as June 2010, at a summit meeting of the Ayeyawady (Irrawaddy)–Chao Phraya–Mekong Economic Cooperation Strategy forum, the Cambodian leader took up the cudgels for China over widespread suspicion that the severe drought experienced in the Mekong Basin that spring was caused by China's filling of the newly completed Xiaowan dam. Instead, he reportedly told reporters that the historically low levels of the river during the dry season as well as recent floods were caused by climate change. China, he said, was also experiencing drought at the same time.[39] This also was the conclusion of the then-CEO of the MRC, Jeremy Bird, but no other regional leaders sought to defend China, which had only belatedly provided some limited data under the pressure of public criticism.

No one will have more influence on Cambodia's stance on Xayaburi or its own hydropower dams than Hun Sen. At a groundbreaking of a $495-billion dam in remote Koh Kong Province, one of three being built by Chinese companies in protected forest areas of the Cardamom Mountains, the prime minister reportedly asked in language not normally used in polite conversation whether there could be any development project that did not have an environmental cost. The dam, one of the largest Chinese investments in Cambodia, will be leased to the developer, the Huadian Corporation, for 38 years under a build-operate-transfer agreement. Huadian Corporation and another Chinese state-owned company also are conducting feasibility studies for two dams in Stung Treng Province and the proposed dam across the mainstream at the Sambor Rapids.[40]

38 "Thaksin Proposes B400bn Solution." *Bangkok Post.* (October 11, 2011). http://www.bangkokpost.com/news/politics/260678/thaksin-proposes-b400bn-solution/page-4/.

39 "Chinese dams not to blame for low Mekong levels: Cambodia PM." *Agence France Presse*. Reprinted in *Terra Daily*. (November 17, 2010). http://www.terradaily.com/reports/Chinese_dams_not_to_blame_for_low_Mekong_levels_Cambodia_PM_999.html.

40 Sam Rith, Cheang Sokha. "PM Lashes Out at Environmental Activists." *Phnom Penh Post*, reprinted in *The Mekong River.* (December 29, 2010). http://mouthtosource.org/rivers/mekong/2010/12/29/pm-lashes-out-at-environmental-activists/.

Whether Prime Minister Hun Sen will adopt the same attitude in the case of Xayaburi or the Cambodian dams under consideration at Stung Treng and Sambor remains to be seen.

There is no doubt that the prime minister understands the importance and vulnerability of the Tonle Sap to environmental degradation affecting the 30 percent of its water that flows from rivers not connected to the Mekong's mainstream. He has played a leading role in calling attention to threats posed by the destruction of forests to expand rice-farming and other environmentally destructive development activities.

In 2008, with support from the ADB, the Cambodian government responded to such concerns by expanding the reach of an existing Tonle Sap Basin Authority to cover all of the provinces that constitute its watershed as well as Phnom Penh.[41] In August, he personally demanded the closing of 35 illegal fishing lots on the periphery of the Tonle Sap that he said undercut efforts to restore the lake, telling officials and fishery lot owners that they were lucky "not to be arrested."[42]

Some local observers also see signs that Hun Sen's decision about the Sambor Dam may be contingent on whether Laos builds dams upstream that decimate the migratory fish species that inhabit the Tonle Sap. This is why, one argument goes, Cambodia has opposed the Xayaburi project. Hun Sen criticized the project in a meeting with Vietnam's Prime Minister Nguyen Tan Dung on April 30, 2011, in which they expressed hope that the four LMB countries and MRC would consider the issue together before any country built a hydropower project.[43] In the words of the "Dean" of Mekong studies, Milton Osborne, "it is far from clear whether Hun Sen's opposition to Xayaburi will be matched by a readiness to review, and possibly abandon, his own plans for Mekong dams, particularly one at Sambor, which he has previously firmly supported."[44]

Laos' Options

The Lao government has a limited set of options if its downstream neighbors do not accept the Xayaburi project. The government has the sovereign right to go ahead with the project, but it cannot do so without a signed contract with EGAT and the necessary financing from Thai banks. Presumably the government indefinitely can postpone or cancel the project without legal repercussions involving the lead contractor, Ch Karnchang.

The Portland State/Mae Fah Luang University study demonstrated that Laos still comes out a multi-billion dollar "winner" though the already anticipated losses to its downstream neighbors rise sharply under alternative scenarios. Under the most adverse revised assumptions for an 11-dam scenario, Laos is a $15.5-billion winner after 20 years, while

41 Peter Starr. "Tonle Sap Basin Authority Takes Shape." *Catch and Culture* (MRC publication). Volume 14, No. 3. (December 2008).

42 Phorn Bopha. "Hun Sen Orders Closure of 35 Tonle Sap Fishing Lots." *The Cambodia Daily*. (August 17, 2011). http://sahrika.files.wordpress.com/2011/08/42.jpg.

43 "Vietnam, Cambodia Affirm Cooperation." *Tuoi Tre*. (April 24, 2011). http://en.baomoi.com/Home/society/www.tuoitrenews.vn/Vietnam-Cambodia-affirm-cooperation/135756.epi.

44 Milton Osborne. "Laos Mekong Dam On Hold for Now." *The Interpreter*. Lowy Institute for International Policy. Sydney, Australia. (May 11, 2011). http://www.lowyinterpreter.org/post/2011/05/11/Laos-Mekong-dam-on-hold-for-now.aspx.

Thailand, Cambodia, and Vietnam are respectively losers by $129.9, $110.3, and $50.7 billion (see chart, page 8). Laos still comes out a multi-billion dollar "winner" though the already-anticipated losses to its downstream neighbors rise sharply under alternative scenarios. Under the most adverse revised assumptions for an 11-dam scenario, Laos is a $15.5-billion winner after 20 years, while Thailand, Cambodia, and Vietnam are respectively losers by $129.9, $110.3, and $50.7 billion.[45]

The Lao government shows no readiness to accept this argument, but the Xayaburi dam and other dams are commercial projects subject to financing and, in most cases, subject to legal requirements in the countries to which the power is to be exported, Thailand being the most important country in this respect. In the case of the Xayaburi dam, Laos may continue to maintain that it completed its obligations under the PNPCA process. However, if downstream countries remain dissatisfied with the quality of the EIA, under Thai law the issue could be taken to the courts if the developer, EGAT, or the Ministry of Energy shirked relevant regulations.

The Lao Dilemma – And that of its Neighbors

From a transboundary perspective, the identifiable cumulative costs and benefits of mainstream dams argue strongly against them, even without taking into account numerous risks and uncertainties. The biggest obstacle to a shared future for the Lower Mekong mainstream is the fact that the revenue benefits to Laos appear to be positive and wildly more so than any other development strategy the government could pursue. The question becomes how much weight does the Lao government give to the interests of its downstream neighbors?

In reality, most of the concerns raised by civil society critics and Laos' neighbors cannot be satisfactorily addressed through engineering or operational changes. For instance, the engineering study carried out by a group of Thai consultants for the developer itself raised questions about the feasibility of the planned "fishway" for the Xayaburi dam, and noted that the challenge would be magnified if additional dams are built on this stretch of the river, as planned.[46]

Some have suggested that the downstream governments should compensate Laos in exchange for not building the mainstream dams along the lines of Norway's offer to pay Indonesia $1 billion for curtailing deforestation and the burning of peat bogs. That idea seems not to have worked very well,[47] but forgoing the construction of a dam is much more within the power of the Lao government. Vietnamese officials strongly reject this approach, while Cambodia doesn't have the financial resources to play any significant role. Thailand would

45 Table 3.5: Sensitivity of the total NPV to changing assumptions in each scenario from the 2000 baseline by sector and country, in Planning Approaches for Water Resources Development in the Lower Mekong Basin. Portland State University and Mae Fah Luang University (July 2011). http://web.pdx.edu/~kub/publicfiles/Mekong/LMB_Report_FullReport.pdf.

46 Ch. Karnchang Public Company Limited, Environmental Impact Assessment, Xayaburi Hydroelectric Power Project, Lao PDR, Scope of Study, pp. 1-2. http://www.mrcmekong.org/assets/Consultations/2010-Xayaburi/Xayaburi-EIA-August-2010.pdf.

47 Banyan. "The finitude of forests: A scheme to save the world's rainforests still seems too good to be true." *The Economist*. (April 14, 2011). http://www.economist.com/node/18560277.

have the very awkward domestic political problem of compensating another government to forego projects that would feed the Thai electrical grid.

A different way of looking at the issue is to ask, what right does Laos have to decimate fisheries and livelihoods in downstream countries? Under aegis of the 1995 Mekong Agreement, all four countries committed to "optimize the multiple-use and mutual benefits" of water resources, and to "minimize the harmful effects that might result from natural occurrences and man-made activities." Precisely in support of these considerations, the work of the MRC in recent years has been aimed at a "more holistic" determination of "the risks and opportunities of hydropower development" in the LMB.[48]

The Lao government thus far has made clear that is does not want to be seen as ignoring the concerns of its neighbors, especially Vietnam, and likely would not go ahead with the Xayaburi dam without carefully considering the impact on its overall foreign policy situation. One consideration for Lao leaders is whether they have a "China option." Chinese aid and investment already plays a major role in Laos, especially in the north. If their downstream neighbors remain a united front against their dams, would Laos hitch its future development to China? A major problem with a "China option" is that the five northernmost dams are all sited much closer to Thailand and Vietnam than to China. Perhaps more important is growing concern in Laos and throughout the Lower Mekong about how to strike the balance between China's embrace and the prudence of maintaining diversified foreign relationships.

3S Rivers Development – A Microcosm of Mainstream Challenges

One of the Mekong's most important tributary systems is found where the borders of Cambodia, Laos, and Vietnam meet. The 3S Rivers area, as it is known, is comprised of the Sekong, Sesan, and Srepok River Basins, and is divided nearly in thirds between the three countries. With some dams already operating, mostly in Vietnam, and a number in development, the 3S Rivers serves as an example of the challenges of transboundary water management as well as an important part of the mainstream Mekong story.

Unlike the Mekong, which benefits from the multilateral MRC to conduct research, provide information and analysis, and serve as a dialogue forum, the 3S Rivers lack such an institution. In 2006, the three countries requested aid from the ADB to develop mechanisms for improved water management and infrastructure planning in the 3S region. While this capacity is being developed, there is reason for concern that such an organization cannot be developed and empowered quickly enough to play a meaningful role in the commercial exploitation of these important resources.

48 MRC website. "Hydropower and the 1995 Mekong Agreement." (Accessed September 17, 2011). http://ns1.mrcmekong.org/ISH/hydro-n-1995-agreement.htm.

Tapping the hydropower potential of these rivers is an important part of the energy development plans of all three countries. Proposed dams in the area, especially on Lao territory, also are integral to developing major mineral deposits including bauxite, copper, gold, iron, manganese, tin, tungsten, and rare earth elements. The connection of 3S hydropower to mining operations also presents another layer of water quality challenges that differs slightly from those confronting mainstream dams.

While mainstream Mekong dams may lead to a deterioration of downstream water quality, this is more likely to be a result of an increased agricultural reliance on artificial fertilizers and population growth around the newly created reservoirs. The connection between mining and mainstream dams is not nearly as strong as that between projects on the Sekong, Sesan, and Srepok Rivers.

Importantly though, the 3S Rivers provide an important example for the mainstream of the need for improved communication and coordination mechanisms between the countries that share the resource. Projects already operating upstream in Vietnam, notably the Yali Falls dam on a major tributary to the Sesan River, have led to property damages, and losses of livestock and human lives. Apart from the inevitability of transboundary environmental impacts, these instances have been the result of poor communication between the dam operators and downstream communities. Unannounced releases from upstream hydropower projects can result in unexpectedly rapid rising water levels, thereby not providing communities in the river's path the opportunity to prepare or adjust their activities as necessary.

VII. The United States and the Lower Mekong Initiative (LMI)

The Obama administration is concerned both about China's growing influence as well as the threat to food security and fisheries posed by mainstream dams in the Mekong Delta. It has made the future of the Mekong region the focal point of its broader "reengagement" strategy with Southeast Asia. The centerpiece of the administration's policy is a State Department led multi-agency LMI involving the MRC and its four constituent countries, Cambodia, Laos, Thailand, and Vietnam.

The renewed interest and involvement by the United States via the LMI has started to affect the regional dynamics and call attention to the underlying geopolitical issues at stake. All of the MRC countries welcomed the proposed LMI, and each of them agreed to accept responsibility to co-chair with the United States one of four working groups and the creation of a virtual secretariat. Secretary of State Clinton has personally championed the issues of fisheries, food security, education, and climate change adaption. The direction of the LMI has been consolidated through four ministerial meetings with the four ministers of foreign affairs. Even Myanmar has become an observer at the ministerial-level meetings.

The administration has also taken the lead in the formation of a "Friends of the Mekong" group composed of bilateral aid donors, the ADB, and the World Bank.

Thus far, the LMI has been a successful combination of both "soft" and "smart" power.

Even though it is still short on substance, American "reengagement" with the Mekong countries and ASEAN more broadly have had a salutary effect of causing China to pay

more attention to the concerns of the people of the Lower Mekong countries, if not their governments.

Secretary Clinton, Senator James Webb, and other US officials welcomed the decision to postpone the Xayaburi dam. The extent to which the Obama administration is interested in or has the necessary budgetary resources for supporting further research on fisheries and/or the cumulative impact assessment of the proposed dams that Vietnam is calling for remains to be seen. US officials have made it amply clear that while their commitment to playing a larger role in the Mekong is real, the overall resources for development assistance and related purposes are shrinking.

VIII. Alternative Approaches to a Regional Institutional Architecture for Environmentally Sustainable Cooperative Water Management

The ideal approach to regional cooperation for environmentally sustainable water management, including the hydropower sector, would directly involve all of the six countries of the Mekong Basin. Unfortunately, current political realities make this ideal approach unachievable for the foreseeable future.

Most international water sharing agreements, such as the 1959 Nile Agreement between Egypt and Sudan, and the 1960 Indus Waters Treaty, assign specific quantities of water to the parties. In the Mekong, irrigation is not extensive enough to strongly affect the river's flow; eventually even the biggest dam must release the water in its reservoir.

In the case of the Mekong, the timing of hydrological changes, like the monsoon flood pulse and the silt content of the water, are as important as the quantity. In fact, MRC countries have already agreed to maintain specific minimum and maximum seasonal flows into the Tonle Sap. China is not a part of that agreement and, depending on how it operates its Yunnan dams, the issue could become moot.

Water Dialogue

At a minimum, the countries of the Mekong River region could hold periodic dialogue meetings to discuss common problems, and promote the maximum exchange of data. Thailand made a good start by hosting the first MRC Summit and International Conference at Hua Hin, a beach resort city in early April 2010.

The easiest way to enable communication between countries would be for high level meetings to take place within or in the wings of the existing ASEAN Plus One (ASEAN+1) meeting with China. This venue has the added advantage of getting ASEAN engaged on the issue, thereby adding leverage to the Lower Mekong countries.

Nothing underscores the significance of high-level political involvement more than the fact that the decision to postpone the project indefinitely pending further study of the larger issue of cooperative and sustainable water development was taken by the four prime ministers in their November 28, 2011 meeting in the wings of the ASEAN Summit.

Promoting Mekong River Basin and Sub-regional Development Cooperation is already included in the Plan of Action to Implement the Joint Declaration on ASEAN-China Strategic Partnership for Peace and Prosperity (2011-2015), but well down an extensive list. Taking up Mekong issues with China in the ASEAN+1 framework should be a priority on the level of promoting cooperation and avoiding conflict in the South China Sea.

China can be expected to oppose this approach, but there is no reason why the United States and other interested members of the ADB board of directors cannot raise the issue as individual project loans come up for a vote. Senator Webb has held hearings, written to the Secretary of State, and sponsored a resolution calling on the Obama administration to use its "voice and vote" in the multilateral development banks "to support strict adherence to international environmental standards for any financial assistance to hydropower dam projects on the mainstream of the Mekong River."[49]

The Future of the MRC

The MRC has played, and should continue to play, a constructive research and advisory role for its member governments. Its mandate, as defined in the 1995 Mekong Agreement, is to provide member states with the institutional framework and scientific knowledge necessary to make sustainable development decisions. While the MRC should be lauded for the role it has played in helping Cambodia, Laos, Thailand, and Vietnam navigate the pivotal Xayaburi challenge, the conclusion of this process will likely spell out the nature of the role and responsibilities of the MRC in the longer term.

Several years ago, under the leadership of then-CEO Jeremy Bird, the MRC responded to an increasing number of proposals and MOUs for mainstream dams by focusing its research and institutional capacities on the risks posed by these projects. Not only was this an important effort towards fulfilling the MRC's mission to provide research and guidance for sustainable development of the river, but it was also an important decision to engage on the most important challenge yet to its institutional authority. If the MRC hadn't taken the initiative, including the commissioning of the SEA, the combination of commercial and governmental pressures behind the project could have left it bypassed completely, and pushed towards irrelevance.

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49 Senate Res. 227. "A resolution calling for the protection of the Mekong River Basin and increased United States support for delaying the construction of mainstream dams along the Mekong River." (July 7, 2011). http://www.govtrack.us/congress/bill.xpd?bill=sr112-227.

To understand the role the MRC is playing in the Xayaburi decision-process, it is important to understand its legal authority. The MRC does not have the power to make or overrule the policies of its member states. While these states have made several commitments to each other by signing the 1995 Mekong Agreement, such as maintenance of water flows and freedom of navigation, these obligations themselves do not give national governments the right to veto over unilateral decisions regarding infrastructure development on the Mekong.

How it manages the first invocation of the PNPCA process likely is to determine the fate of the Mekong as well as the future of the MRC. Throughout the six-month period for consultation and review, Laos subtly has suggested it is not legally obligated to seek permission from its fellow MRC members for the project, but that it was participating in the process largely out of respect for its members and the MRC.

When Vietnam, Cambodia, and Thailand failed to give their assent to the project in April 2011, leaked documents and some public statements suggest that elements of the Lao government believed they had the authority to proceed anyway, with what they viewed as a sovereign decision on a project planned for a part of the Mekong wholly within Lao territory.[50] The fact that they do not speaks volumes not only to the bilateral diplomatic efforts exerted by its neighbors, especially Vietnam, but also to the efforts of the MRC Secretariat, which made available its expertise and good offices for further discussion and negotiations.

What the final decision on Xayaburi will mean for the MRC is difficult to predict, but the organization should continue to position itself for life after the Xayaburi PNPCA. There are essentially three alternatives for the MRC to chart its future path following the decision of the Xayaburi dam project. A conservative approach would see the MRC continuing on its politically ambiguous but scientifically important role as a research and advisory body. There certainly remain significant gaps in scientific knowledge and understanding of the Mekong's productivity and biodiversity. The sheer numbers of communities that depend on these resources and their importance to the regional economy demand further study and better understanding.

Alternatively, the prospect for a deadlock of competing national interests could lead the member governments to seek a regional approach that empowers the MRC to launch a bold effort to redesign and redefine its mission. The most ambitious outcome would be a new agreement or treaty that effectively and resolutely positions the MRC as an authoritative coordinating body. National interests would be presented, advocated, and defended at the MRC through more politically empowered National Mekong Committees. A process whereby standards for infrastructure or other development projects—from environmental and social impact studies to technical engineering requirements—that would be negotiated and established by the member countries, and then entrusted to the MRC for enforcement would have a more lasting and effective means of protecting this shared river and its diverse resources.

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50 "Laos defies neighbours on dam project-environmentalists." *Reuters*. (June 23, 2011). http://www.reuters.com/article/2011/06/23/laos-dam-idUSL3E7HN1L320110623

A middle and more realistic path would be for the MRC to move quickly to act on the agreement by the four prime ministers on the need to undertake the further studies needed to better assess the risks and uncertainties posed by dams on the mainstream as well as major tributaries, notably the 3S river system. Vietnam has embraced the recommendation of the SEA for a ten-year moratorium on mainstream dams pending additional research on their costs and benefits. The other governments have agreed, albeit with varying degrees of enthusiasm. The MRC Secretariat should respond pro-actively to seek the needed resources and initiate the work internally or by commissioning another team of outside consultants.

In the longer term, the regional politics of transboundary projects have also opened the possibility for turning the concept of IWRM and the BDP2 from a passive compilation of national plans into a more active coordinating body. Ultimately, however, the most ambitious approaches to achieving a shared future for the shared river will depend on strong leadership within the MRC and the political support of the four governments.

The most significant obstacle to such a redefinition of the MRC is the political will, or more accurately, the lack thereof, of its member countries. In reality, such an approach could help to better protect all countries' fully considered national interests. An empowered and authoritative MRC would not necessarily be an impediment to hydropower, irrigation, or other development. Rather, it simply could play the role of an impartial referee: ensuring that international best practices are followed on a level playing field previously agreed to by all its members. This actually could remove some of the delicate diplomatic maneuvering that has stressed relationships throughout the Xayaburi PNPCA process.

A strengthened MRC also would better ensure the common good as regional relations continue to evolve and develop in new ways in response to the impact of transboundary economic integration and in some cases domestic political change. Already these shifts in the regional division of economic labor, including China's rising role and competition for foreign investment between Thailand and Vietnam are changing traditional bilateral relationships. Strengthening regional cooperation on the sustainable development of shared water resources could reduce zero-sum tendencies in bilateral relations as well as strengthen the ability of the MRC countries to engage with China—including the operation of its Yunnan dams—from a stronger collective position.

Whatever future political or coordinating roles the MRC may play, its research mandate will only grow in importance as economic and other pressures continue to push developers and governments to view the resources of the Mekong Basin as untapped opportunities.

IX. Urgent Need for Donor Engagement

The MRC and three of its member governments, Cambodia, Laos, and Vietnam, depend heavily on financial support from a wide variety of donors, including governments and the multilateral development banks, and in this case, the ADB and the World Bank. In all, the MRC received varying levels of financial and capacity-building support from 17 countries and organizations as of the end of 2010. Not all of the partners share the same objectives, and a few countries provide aid to both the MRC and support to hydropower dams and electrical power grids through their bilateral aid programs.

Despite the appearance of sometimes being on both sides of the issues, the development partners have collectively and individually expressed serious concern about the risk side of mainstream dams, especially for fisheries, livelihoods, and the twin threats to the Mekong Delta posed by the sediment trapping dams and climate change.

At the April 2010 MRC Summit in Hua Hin, Thailand, the Development Partners group statement called attention to the inadequate information on the risk side of hydropower development, noting "the Development Partners believe hydropower development should be concentrated in carefully selected parts of the Basin, and designed and managed to ensure that existing values and qualities are not compromised." The statement expressed concern that "whole-of-basin approaches are not yet evident" on potential risks, such as sediment trapping on the viability of wetlands and the impact on the productivity of fresh-water and ocean fisheries, and agriculture."[51]

51 Mekong River Commission Summit. Development Partners Group Statement. Hua Hin, Thailand. (April 5, 2010). http://www.mrcsummit2010.org/Joint-DP-Statement-MRC-Summit-5-Ap-10.pdf.

While important, expressions of the concerns of development partners are not enough. Despite some countries' support for hydropower projects, none of them are mainstream dams. It is also notable that the Hua Hin statement calls attention to the issue of sediment retention by dams and the need for cumulative impact studies, as the MRC at this time does not have a significant sediment program. The donors need to make clear to the MRC that cumulative studies of sediment and the impact of mainstream dams on capture fisheries should be its highest priorities. Regrettably, ADB, World Bank, and other donor involvement in projects on the 3S rivers is likely to continue. These dams also are an important component of transboundary sediment trapping and impacts on migratory species, but no donors could have any legitimate objections to cumulative impact studies. The United States should seek to promote these priorities in its efforts to promote the "Friends of the Mekong" group of donors.

X. Can the Mekong Have a Shared Future?

Findings of a Stimson Multinational Interactive Workshop

The Stimson Center's Mekong Policy Project held a workshop in Bangkok on July 17-19, 2011, entitled *Shared River, Shared Future: Interactive Workshop on Mekong River Development*. This two-day program created a valuable opportunity for 20 participants with a diverse range of professional backgrounds from Cambodia, China, Laos, Thailand, and Vietnam to broaden their understanding of the regional dynamics of mainstream dams, the benefits and challenges of regional cooperation, and alternative futures for the region's most important shared economic resource. The workshop also provided an opportunity for participants to expand their personal networks across professions and national boundaries.

Participants were drawn from government, international organizations, and non-governmental organizations, as well as civil society, industry, the scientific community, and academia. Interactive exercises organized participants into mixed teams that were tasked with roles and responsibilities for addressing different, but interconnected, elements of local, national, and regional river management and development policies.

All of the participants had a deep interest and impressive experience working on the environmental, economic, and human security challenges surrounding transboundary water use and infrastructure development. The workshop sessions were informal, free flowing, and off-the-record to maximize the potential to learn about current developments and their implications, and actively engage with a diverse group of participants on possible policy alternatives in a friendly and cooperative atmosphere.

An interesting aspect from the workshop was the prevalence of an enthusiastic attitude towards engagement on the issue and hopefulness about having an impact. This was juxtaposed with a mainly unspoken sense that the forces behind the construction of hydropower dams were too powerful to stop. While these attitudes may appear contradictory, they are encouraging because of the willingness of the participants to engage across the government-civil society divide to find the best outcomes, based on information and analysis of the costs and benefits of hydropower projects on the Mekong River.

In general, we, as the organizers, viewed the participants' comments as largely influenced by their personal experiences, with the overwhelming power of the traditional domestic drivers of environmentally and socially destructive infrastructure development. As a consequence, they tended to be skeptical of the potential impact of regional political considerations on national decisionmaking. In truth, this attitude reflects most Southeast Asians' experiences with regional politics, and probably also is colored by traditions such as the "ASEAN Way" of non-interference in the internal politics of member countries. In the case of mainstream dams we argue that the transboundary impacts on the "loser" countries of Cambodia and Vietnam, and arguably the strength of civil society in Thai politics, ultimately have the potential to trump the domestic drivers.

Participants Roadmap Statement

The participants of the Shared River, Shared Future conference reached a consensus on the following statement:

> *The Mekong River basin faces complex challenges at present and in the foreseeable future related to water resources management, sustainable economic development, preservation of ecosystem functions, food and energy security, livelihoods, and regional peace and stability. To address these challenges, all the participants of the Shared River, Shared Future workshop call for:*
>
> *i. Creation and promotion of opportunities for dialogue among key stakeholders concerned with the development and conservation of the Mekong River basin, including government agencies, private sectors, civil society, and local communities;*
>
> *ii. Development and utilization of effective mechanisms supported by adequate funding for building trust, leading to cooperation and collaborative decision making among the key stakeholders; and*
>
> *iii. Identification of synergies among various existing cooperation frameworks, including the MRC, the Greater Mekong Sub-region, ASEAN-plus fora etc., to achieve an integrated and coordinated plan for sustainable development of the Mekong River basin.*

Finally, one idea proposed by the workshop participants that received enthusiastic support was the creation of a "Mekong Fund," which would support third-party research, outreach, and other activities. One important purpose of the fund would be to improve the MRC's engagement with stakeholders, communities, and local NGOs. In theory, groups could apply to the fund for grants or other support, and serve as an effective force multiplier for

the Commission, which could help the MRC reach a wider audience and better fulfill its goals of stakeholder consultation and outreach.

Simultaneously, it was argued, the Mekong Fund could provide a valuable conduit for local knowledge and understanding of the river and its ecosystem functions to inform and guide the MRC's own research activities. Groups such as Living River Siam, a Chiang Mai-based NGO, are already engaged in this *Thai Baan* research, which taps local knowledge and encourages communities to gather important data that can be used for higher-level scientific analysis. Lastly, such a fund might appeal to international donors who have been dissatisfied with the limited scope of MRC stakeholder consultation.

XI. Conclusions

Policy Agenda for a Shared Future: Progress and Remaining Obstacles

The past year has been an eventful one for the Mekong River, its environment, and the millions who depend on it for their livelihoods and food security. Following the Lao government's formal notification of its intention to authorize the construction of the Xayaburi dam in October 2010, the MRC initiated and managed a six-month process of prior consultation and agreement with its Lower Mekong neighbors. The process was widely criticized as hasty and inadequate by environmental and civil society critics, as well as officials from several governments, but it had a surprising conclusion. At an informal meeting in the wings of the ASEAN Summit in Bali, Indonesia, in late November 2011, the prime ministers of Cambodia, Laos, Thailand, and Vietnam met and agreed on "the need for conducting further study for the sustainable management and development of the Mekong River and its related resources."[52]

The December 2011 announcement that the project would be delayed underscored that the biggest threat of mainstream dams—their transboundary environmental impact—may be the river's saving grace. Until Xayaburi, with the exception of Laos' Nam Theun II dam, all of the large dams built on tributaries of the Lower Mekong had been treated as purely domestic projects even when they had transboundary impact. The fact that mainstream

52 "Further Study on Impact of Mekong Mainstream Development to be Conducted, Say Lower Mekong Countries." MRC Press Release. (December 8, 2011). http://www.mrcmekong.org/news-and-events/news/further-study-on-impact-of-mekong-mainstream-development-to-be-conducted-say-lower-mekong-countries/.

dams have major transboundary impacts and fall under the MRC's PNPCA process inevitably has drawn in new actors and additional national policy considerations.

The transboundary difference has not yet shown any effect in the case of China's Yunnan dam cascade, but it could in the future influence how the northern giant operates its mainstream dams, if not its decisions about constructing them. Recognized friends of China and some Chinese policy advisors have long warned Beijing about the potential negative downstream political consequences if its projects turn the Mekong into another Yangtze or Yellow River. China may pay more attention to these warnings after being stunned by the surprise decision of the new civilian government of Myanmar to suspend indefinitely construction by Chinese developers of the highly controversial Myitsone dam at the headwaters of the Irrawaddy, a national river with comparable symbolic influence to the Mekong. In one of his first significant actions, Thein Sein, Myanmar's new president, justified the decision as respecting "the will of the people."[53]

The transboundary difference gave a major boost to civil society in the region as well as spawning a global "Save the Mekong" coalition that collected tens of thousands of signatures. It was in response to a petition from the Save the Mekong coalition that then-Thai Prime Minister Abhisit proposed to a group of Thai civil society representatives the idea for a uniform standard for EIA "based on data obtained from surveys that conform to international standards and are acceptable to all parties involved."[54] The Xayaburi PNPCA process energized Thai civil society groups to the point of campaigning for or opposing candidates in the 2010 national parliamentary election campaign.[55]

Concerns about the transboundary consequences of the Xayaburi project as well as the Chinese dams perhaps had its greatest domestic political impact in Vietnam, where the government found it useful to loosen restraints on civil society activism in regard to the threat posed to the Mekong Delta by upstream projects. Vietnamese NGOs held numerous open meetings on the threat of mainstream dams not just with the consent of the government but with the attendance and active participation of local and provincial officials, and in some cases National Assembly representatives. In its formal response to the MRC at the conclusion of the six-month PNPCA review, the Vietnamese government called for at least a ten-year moratorium, "as overwhelmingly recommended by social committees, national and regional NGOs, and many development partners."[56]

Finally, developments since the invocation of the PNPCA process strongly have underscored that institutions matter, especially the MRC. Despite much initial criticism of the MRC for not taking a firm stand on controversial projects, the Secretariat led by then-CEO Jeremy Bird pushed at the limits of its status and powers. However narrow their scope, the numerous consultation meetings organized by the MRC in all four countries constituted an impressive

53 "Burma Suspends Dam Project after Rare Outcry." *Bangkok Post*. (September 30, 2011). http://www.bangkokpost.com/news/asia/259117/burma-suspends-dam-project-after-rare-outcry.

54 Songrit Pongern. "Thai Prime Minister to Discuss Dam Construction on Mekong River." *Voice of America*. (June 19, 2009). http://www.voanews.com/lao/news/a-52-2009-06-24-voa3-90698784.html.

55 Author Interviews. Bangkok and Chiang Mai, Thailand. (July 2011).

56 Mekong River Commission. "Procedures for Notification, Prior Consultation and Agreement, Form for Formal Reply to Prior Consultation, The Socialist Republic of Vietnam." Annex IIB (April 15, 2011). p. 3. http://www.mrcmekong.org/assets/Consultations/2010-Xayaburi/Viet-Nam-Reply-Form.pdf.

logistical and administrative achievement given the few months allowed by the process. The MRC commissioned an impressive SEA that evaluated the impact both of individual dam projects and the cumulative impacts of alternative scenarios based on available data, and starkly delineated numerous risks and uncertainties regarding fisheries, sedimentation, livelihoods, the serious disparity in national costs and benefits, and the highly negative impact of mainstream dams on the poorest inhabitants of the region. Most important, the SEA recommended a moratorium of at least ten years during which further research could be carried out to better understand the risks and uncertainties of mainstream dams.

Despite the array of powerful political and commercial pressures, the possibility of cooperative and sustainable development of the Lower Mekong mainstream has been kept open by a fortuitous set of circumstances. These include, especially, the prior commitment of the four MRC countries to a rules-based process under the 1995 Mekong Agreement, the documentation of serious concerns about the impact on the environment and human security, and a major disparity of national interests among the upstream and downstream countries.

The critical requirement for the immediate future is to maintain the momentum gained in the past year and quickly respond to the window of opportunity created by the postponement of the Xayaburi project. The Lao government and the powerful Thai forces behind the dam have a reasonable expectation that "delay" does not mean "never" unless the inadequacy of their assessments and dubious interpretation of the MRC's Preliminary Design Guidance for mainstream dams are rejected as a consequence of additional scientific research and study.

New and more comprehensive research on the cummulative impact of the proposed Lower Mekong dams needs to be undertaken expeditiously. It is critically important that the results of this research be judged against an agreed "Mekong Standard" for individual project environmental and socioeconomic assessments, project planning, and operations. Ideally this Mekong Standard should conform to international best practice as in the recommendations of the World Commission on Dams. The onus is on outright opponents of mainstream dams as well as those who may be prepared to accept adequately documented tradeoffs between energy development and the environment, human security, and livelihoods to take up the challenge. In the first instance, primary responsibility for insisting on action should rest with the governments most concerned about the impacts and the donor community. Given the possibility that the planned projects will create greater impoverishment rather than rising incomes, the ADB and the World Bank would appear to have a strong institutional rationale for helping with this work, and the MRC is the most legitimate and appropriate institution to manage such a process.

Appendix

Pragmatic Steps: A Progress Report

Stimson's 2010 report, *Mekong Tipping Point: Hydropower Dams, Human Security and Regional Stability*, laid out a list of "pragmatic steps" needed to insure that the full costs of mainstream dams are fully understood and measured against the tradeoff benefits of energy and export earnings. The recommended steps provide a useful benchmark for evaluating the state of play regarding hydropower dams on the mainstream and major tributaries, such as the 3S Rivers (Sesan, Srepok, and Sekong).

1. Moratorium on New Mainstream Dams Until:

a. Agreed basin-wide standard for environmental and socioeconomic impact studies

b. Full cost-benefit analysis (e.g. fisheries, agriculture, tourism, etc.)

c. Effective planning for alternative livelihoods and food security

Progress Made:

The publication of two important MRC reports since Spring 2010 has contributed greatly to a better understanding of the full costs and benefits of mainstream Mekong hydropower. The MRC commissioned the International Centre for Environmental Management to conduct a comprehensive SEA in 2009-2010. That report made an important "first approximation" start on appraising the full costs and benefits of mainstream hydropower development,

and recommended, among other things, a ten-year moratorium on mainstream projects to allow for further research and study.

More recently, Portland State University's Institute for Sustainable Solutions collaborated with Mae Fah Luang University in Thailand on the report: "Planning Approaches for Water Resources Development in the Lower Mekong Basin." This report incorporated new approaches to cost-benefit analysis while building on the SEA and MRC's own Basin Development Plan, and ultimately recommended a more comprehensive study of the impacts of planned Mekong dams.[57]

These studies contribute greatly to general understanding of what is at stake in efforts to permanently alter the Mekong's flow. They also explore the financial and other benefits of infrastructure development on the mainstream. Ultimately, they suggest that the Mekong is too complex, and far too little is known or understood to suggest that anticipated negative impacts can be effectively mitigated through technological fixes. The Mekong is one of the most productive ecosystems in the world, yet the key to that productivity is not fully known. Although a long time in the rushed and pressure-filled environment of economic development, ten years is a modest period for serious scientific research of the natural mysteries of the Mekong.

Vietnam has publicly supported the moratorium, as has Secretary Clinton, who called for a "pause," if not a ten-year moratorium. One major hurdle to such a pause is the concern from developers, the Lao government, aid donors, and civil society as to how this time should be used. A ten-year moratorium will not be adopted without a plan of action, lest it be viewed as a stalling effort aimed at stymieing the goals of the pro-development camp.

To this end, Stimson reiterates its call for an agreed basin-wide standard for environmental and socioeconomic impact studies, and for leadership by the United States within the LMI, Friends of the Mekong group, and in the multilateral development banks to direct adequate funding to carry out the task. This process necessarily requires greater understanding of the Mekong's natural functions, which differ along its 4,900 km length. At present, little is known about the lifecycles and reproduction patterns of some of the most important food fish species. Furthermore, if mainstream hydropower is going to proceed, and impacts to the region's fisheries are even a fraction of what the scientific community estimates, political leaders in the Mekong Basin MUST begin tackling the food and livelihood gap that will emerge quickly when construction gets underway.

2. Full Membership of China and Myanmar/Burma in the MRC

Progress Made:

China and Myanmar have been "dialogue partners" with the MRC since 1996. China has provided additional hydrological information with the MRC under a 2002 agreement, yet extremely low water levels in 2010 led to wider calls in downstream countries for China to provide additional information on its upstream dam operations. China finally relinquished

57 "Planning Approaches for Water Resources Development in the Lower Mekong Basin." Portland State University and Mae Fah Luang University. (July 2011). http://www.pdx.edu/sustainability/lower-mekong-report.

some data on dry season flows, while simultaneously reasserting that upstream dam development in the longer run is more likely to prevent drought conditions for downstream neighbors, not create them.[58]

China continues to deny that major augmentations of the dry season flow that it plans will have negative effects on fisheries, or that any of its projects will have significant downstream impact. Beijing continues to deflect demands that it provide the results of its own hydrological studies of the downstream effects of its dams.

The MRC annual report for 2010 prominently featured the assessment that the extreme drought that began about February 2010, the worst since 1991-1992, was wholly due to weather and not China's dams. Even if the statement is taken at face value, it begs the question of how China will operate its dams once the Xiaoawan dam accumulates enough water in its reservoir to regulate the river to augment the dry season flow. The 2010 Annual Report contains one positive note – that the invited visit of a MRC delegation to China's Yunnan dams, a gesture of reassurance by Beijing, "also triggered a discussion of setting threshold water levels."[59] In general, China's plans for substantially augmenting the dry season flow are a negative for the river and its ecology except in the case of severe drought. A commitment to release a certain minimum amount of water would be reassuring to those who fear that China totally will operate its Lancang Cascade to suit its own needs.

China also has continued to resist full membership in the MRC, though it also remains unclear how the four MRC members currently feel about full Chinese membership. Despite rumors that Myanmar would join the MRC, no such announcement has yet been made. To the extent that the LMI may foster closer political and line ministry cooperation among the four MRC countries, they may have more to gain from engaging with China collectively than if China were to join the MRC.

3. Greater Regional "Ownership" and Support of MRC

The MRC is at a critical point. Jeremy Bird, who provided exceptional leadership on the issue of mainstream dams and their impact on fisheries in particular, has retired, and Mr. Hans Guttman, a Swedish national with a wealth of experience managing the tensions between development and aquatic resources in the Mekong region, has been appointed to succeed him. Vietnam's Minister for Natural Resources and the Environment, Dr. Phan Koi Nguyen, is Chair of the Joint Committee, the highest decisionmaking authority, for 2011-2012. The direct participation of senior officials and national leaders in discussions about the Xayaburi dam suggests that governments are committed to a collective, consultative process, not unilateral actions or bilateral deal-making. This is encouraging but the governments have not yet shown their committment by increasing their contributions to the MRC or upgrading the status of the National Mekong Committees.

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58 Grant Peck. "Mekong summit issues declaration of cooperation." *Bloomberg Businessweek.* (April 5, 2010). (Accessed November 11, 2011). http://www.businessweek.com/ap/financialnews/D9ESVGS01.htm.

59 MRC. Annual Report (2010). p. 8. http://www.mrcmekong.org/assets/Publications/governance/Annual-Report-2010.pdf.

4. Empower MRC to:

a. Integrate Chinese data into Lower Mekong studies and planning

b. Publicly release all impact studies

c. Advance best practices through international engagement

The MRC has been somewhat more able to integrate Chinese data into its Lower Mekong analysis and planning, yet this has come slowly and entirely at the whim of Chinese authorities. A more robust mechanism for data sharing is required and should include operational data for all hydropower projects on the Mekong mainstream, in China as well as in Southeast Asia. This will prove only more important if and when projects are built and begin operating in Laos and Cambodia, as they will be controlled by different companies who can, to some degree, operate them to meet their commercial needs and contractual requirements. Sharing operational data is an important step towards meaningful coordination of mainstream hydropower, and irrigation planning and operation.

The public release by the developer of the Xayaburi dam of the feasibility study conducted by a private consultant company and the EIA were important developments in that they provided ample reasons for rejecting the project. Equally important was the publication by the MRC of a critical Prior Consultation Project Review Report on March 24, 2011, three weeks before the Special Joint Committee Meeting on the Xayaburi dam, and the Lao government's response,[60] which, as of mid-October 2011, the MRC Secretariat was still reviewing.[61] The MRC Secretariat review was devastating regarding the impact on fisheries, including 23 to 100 species—five of which are already threatened—and the probable extinction of the Mekong giant catfish. The Lao response weakened its own case by noting that the MRC Secreteriat's recommendation for a wider, more natural fish pass would be "extremely expensive because of the site morphology" and would "be ineffective for most of the year."[62]

On the negative side, the Xayaburi documents were released slowly, and at dates far beyond the point that they could have a meaningful impact on public dialogues or stakeholder consultations. It is not enough to simply release this important information. These studies must be released with ample time for dissemination and feedback, especially when so many meetings and consultations are planned by the MRC and national governments. Stakeholders must first be informed if they are to be consulted.

Increased international engagement with the MRC has helped that institution apply and advocate for accepted best practices. This long process has only just begun though, and further international engagement and support is required not only to bolster the substantive quality of MRC research and analysis, but also to improve the legitimacy and political capital of the institution at the highest policy levels of its member countries.

60 MRC Secretariat. "Prior Consultation Review Report." (March 24, 2011). http://www.mrcmekong.org/assets/Consultations/2010-Xayaburi/2011-03-24-Report-on-Stakeholder-Consultation-on-Xayaburi.pdf.

61 "Comments by Lao PDR on the MRCS Technical Review Report on the Proposed Xayaburi Dam Project." http://www.mrcmekong.org/assets/Consultations/2010-Xayaburi/Lao-Comments-on-MRCS-PC-Review-Report-on-Xayaburi.pdf.

62 Ibid. pp. 1-2.

5. Increase Support for Climate Change Study and Adaptation

The MRC as well as the donor community have made clear that certain aspects of mainstream dams are particularly troubling in the context of climate change. These include, in particular, the capture of sediment by dams that is needed to renew the Mekong Delta as well as the possibility that changing rainfall patterns could affect the efficiency of dams or, more important, that mainstream and major tributary dams could make the effects of changing rainfall patterns and rising sea levels more severe.

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