

Averting Crisis on the Mekong River

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Source: Khmer News Today

The future of the Mekong, one of the world's greatest and resource-rich rivers which flows through China and mainland Southeast Asia, is in peril. A string of hydropower projects by riparian nations, coupled with strong development and demographic pressures and gloomy climate change scenarios, threatens to alter the river. These trends have the potential to trigger a serious crisis characterized by water shortages, forced migration, food insecurity, prolonged floods and droughts, thereby affecting the livelihoods of tens of millions of people, undermining the economies of riparian states, and stoking bilateral tensions. Such a scenario is not only damaging to the immediate countries themselves, but inimical to the interests of outside actors like the United States, which seek a peaceful, stable and prosperous Asia. In order to avert serious crisis along the Mekong, the six nations through which the river flows and external actors must undertake serious measures on both an individual and regional basis.

The Mekong River is one of the world's greatest and resource-rich rivers. Flowing for 4,880 kilometers from Tibet into southern China and then into Myanmar as well as Laos, Cambodia, Vietnam, and Thailand (the latter five also collectively make up the Lower Mekong Basin, LMB), it is the world's 12th longest river and 10th largest in terms of volume. More significantly, the Mekong plays a vital role in the countries of the LMB, providing over 60 million people with water, food, and transportation.¹ About 80 percent of the rice production in the LMB – widely regarded as a world rice bowl – depends on the water, silt, and nutrients from Mekong flooding, part of the river's annual pattern of rise and fall with wet and dry seasons.² In particular, Vietnam's Mekong Delta accounts for over half of agriculture's total value as a proportion of the entire country's GDP.³ The Mekong also houses one of the world's most diverse fisheries, and the hundreds of mostly migratory fish species rake in annual catches valued at over nine billion dollars, in addition to

providing a major, even dominant source of animal protein for country populations (more than 70 percent in the case of Cambodia).⁴ The Mekong is also one of the world's richest areas of biodiversity, housing everything from the Mekong giant catfish to the rare Irrawaddy dolphin.

Although the Mekong River Commission (MRC) was founded in 1995 to promote and coordinate sustainable management and development of the Mekong, countries have been largely unable to overcome their individual national interests and progress on multilateral cooperation remains slow.⁵ Dam building in the region began in China's Yunnan province in the 1980s and it is poised to proliferate. Coupled with other development, demographic and climate-change pressures, such trends and activities could combine to create a serious regional security crisis with the potential to exacerbate existing tensions.

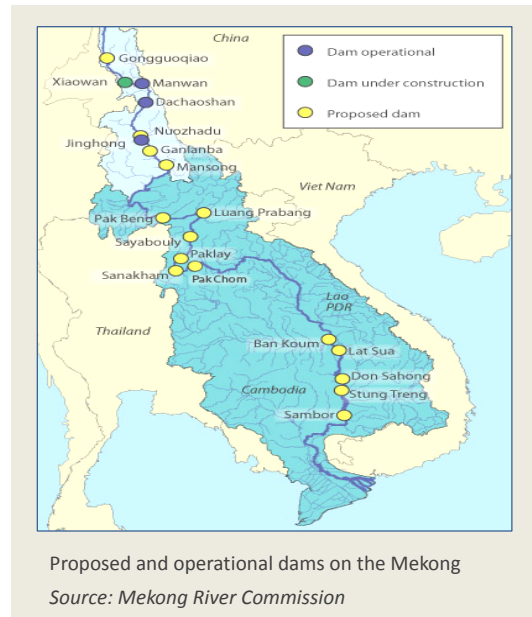
A Murky Future...

The main threat to the natural flow of the Mekong River is hydropower. With aggregate power generation requirements for the Greater Mekong Subregion or GMS (Cambodia, China, Laos, Myanmar, Thailand and Vietnam) projected to grow annually at 6.9 percent and increase to around 616 trillion watts per hour by 2020⁶, nations are flocking to hydropower to meet their mushrooming energy needs as well as bolster economic growth. China plans to complete a 'cascade' of eight dams in Yunnan (of which four have been completed), while Cambodia, Laos, Thailand are planning to build up to 13 dams on the lower half of the Mekong.

Previous studies have forecasted that the construction of these dams could alter the river's flow volume and timing, damage its water quality, decrease sedimentation critical to the Mekong's wetlands and floodplain system, and adversely affect its rich biodiversity, including the spawning migration of 70 percent or more of the most important fish species.⁷ As a result, the food and water security of tens of millions of people dependent on the river will be at risk.

Furthermore, there are also geopolitical risks for the LMB countries. The fact that most of the dam projects in the lower Mekong depend on China releasing the right amount of water upstream, and that several dams planned by Laos and Cambodia are to be financed by Chinese state-owned banks and companies, both creates "an inherent and unhealthy geostrategic advantage for Beijing" as well as leaves downstream nations bearing the costs (such as riverbank erosion) while Beijing reaps the benefits.⁸

Demographic and development pressures are expected to further increase demand on the river's already threatened resources. According to projections by the United Nations Environment Program (UNEP), the population along the Lower Mekong is expected to swell to 100 million by 2025, with over a third living in urban areas.⁹ Total irrigation water requirements for the Lower Mekong River Basin (LMRB), which stood at about 43,700 million cubic meters in 2002, are also projected to rise to about 56,700 cubic meters by the end of this year.



This population and economic growth will trigger more industrial and agricultural development, as well as the rise of human settlements, deforestation, and land clearance. That will in turn lead to more pollution and freshwater shortages due to increased surface run-off and erosion as well as modified river flow. More population and fewer resources could also exacerbate socioeconomic conditions in the underdeveloped MRB, where a large majority of the population remains poor.¹⁰

Potential climate change-related threats also hover over the horizon in the longer term. The Mekong River Commission has pointed to a range of potentially significant climate change impacts possible by 2030 that may exacerbate poverty levels and retard development.¹¹ Annual precipitation could increase by 13.5 percent in some areas, and may lead to more severe flooding, a particularly alarming statistic since the LMB has extensive coastlines and major deltas that are barely above sea level.¹² Meanwhile, decreases in dry season precipitation in other areas, accompanied by increases in the mean temperature of approximately 0.8 degrees Celsius and glacial melting in the Himalayas – the river's source – could make parts of the basin more drought-prone.¹³ In 2007, the Intergovernmental Panel on Climate Change (IPCC) also stated with a medium to high degree of confidence that climate change in Southeast Asia is likely to decrease crop yields by as

much as 20 percent by 2050, increase water stress and hunger, exacerbate threats to biodiversity, and increase endemic morbidity and mortality from diseases.¹⁴ Similarly, the global conservation group World Wildlife Fund (WWF) predicts intense floods and droughts, coastal erosion, higher seas, heat waves for the Mekong Delta, which could in turn cause severe migration and displacement.¹⁵

Navigating Past Future Challenges

While the grave threats to the Mekong's future are clear, the course that the riparian nations will choose is not.

If Mekong nations believe that regional cooperation and state-based proactive measures (like adopting rigorous cost-benefit models to assess hydropower projects) are undesirable or impossible, they will still have to mitigate the effects of climate change, demographic and development pressures, and hydropower projects. Since agriculture (the largest user of water in all GMS countries), urban centers, and industry will likely increasingly compete for the diminishing water supply in the future, and given that crop yields may be reduced by climate change, any reactive approach must include efforts to enhance food production and increase water efficiency.

On the food production side, the focus should be on reducing post-harvest losses¹⁶ (which now comprise 10 to 40 percent of yields) through measures like better controlling pests and diseases and efficiently managing land by managing erosion, rotating crops, and using conservation farming techniques.¹⁷ Water management, as the International Water Management Institute (IWMI) has noted, is equally critical, and countries must pioneer efforts like those aimed at improving the performance of public irrigation schemes, prioritizing techniques like harvesting and storing rainwater and runoff, and comprehensively assessing groundwater potential and use in the region.¹⁸

There is also no better way to build a resilient agricultural system in the Mekong which can weather development and climate change pressures than to improve the livelihoods of small-scale farmers and fishermen who still remain highly vulnerable to them. According to available data from the United Nations Environment Program (UNEP), the residents of the Mekong still fare quite poorly in several basic quality of life indicators despite improvements over the last few decades. Infant child and maternal mortality rates are still high, almost 38 percent of the population lacks access to safe drinking water, and 29 million lack access to sanitation, particularly in Laos, Cambodia and Myanmar.¹⁹ Greater stresses on available resources and destabilizing weather events could turn this distressing situation into an alarming humanitarian crisis resulting in death, disease, and displacement. Hence, at the very least, governments should undertake concerted efforts to prevent this scenario by helping these communities secure land rights, encouraging them to diversify production and supplement their agricultural jobs with off-farm work to spread risk, providing them with financial safety nets, and developing emergency and disaster-planning contingencies with these risk factors in mind.²⁰



Rice cultivation in the Mekong Delta, Vietnam
Source: TravelPod

If riparian countries elect to be more proactive in their approach, they will go beyond these limited measures and try to practice sustainable and broad-based development at the state level. That means at least involving affected communities in the Mekong in discussions about dams and other development projects, instead of limiting the decision-making process to the top echelons of government at the central or provincial level.²¹

Beyond this, they should also ensure that comprehensive cost-benefit assessments or studies are conducted before these projects begin so that they are fully aware of the trade-offs they will be making. At present, the fact that some projects have been linked to political elites or patrons appears to be hindering this process.²² Compounding this obstacle is the lack of technical knowledge to carry out these studies and

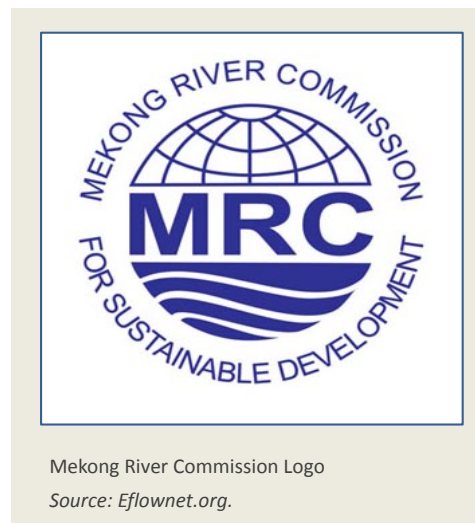
the entrenchment of several misconceptions about development, including the fact that fishing is “old-fashioned” compared to “modern” hydropower, or that hydropower is ‘clean’ despite the greenhouse gases that it emits.²³

Yet, getting these assessments right will be crucial to balancing development and environmental imperatives, particularly since the environmental toll and economic dislocation is likely to be immediate while the alternative employment opportunities could take years to crystallize. With the projected decline of fish catches, for instance, how will this impact the traditional Cambodian diet given that it now constitutes 70 percent of the population’s protein consumption? Some assessments have indicated that there is not enough suitable grazing land for a larger cattle production in the Mekong countries in order to compensate for the loss, while importing fish or other protein sources from abroad would be significantly more costly.²⁴

Ideally, riparian nations would also be able to pursue trans-boundary river cooperation to avert these threats in addition to the reactive and proactive policies at the state level. In order for these regional steps to materialize, however, they will have to take bold, and, in some cases, unprecedented steps in collaboration with outside actors.

First, all parties will have to put aside their historical animosities and political differences in recognition of these grave challenges and share more information about their individual development projects on the Mekong as stipulated in the 1995 Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin.²⁵ In particular, they should attempt to come up with a common set of guidelines or standards with which to conduct environmental impact studies for dam projects. While this may seem idealistic, there have been signs that a few countries have been willing to ‘think regionally’ about the Mekong. For instance, in a July 2009 meeting with a group of NGOs, Thai Prime Minister Abhisit Vejjajiva said that Thailand alone could not “agree or disagree” to projects proposed for the Mekong, and indicated that dam construction could only take place after “consultation...based on data obtained from surveys that conform to international standards and are acceptable to all parties involved”.²⁶ Though the effort has

thus far only gained traction from Vietnam, it is a laudable step forward nonetheless. In addition, at the first ever Mekong River Commission (MRC) summit held in April this year, Laos, Vietnam, Cambodia and Thailand managed to issue a declaration highlighting nine common areas for “priority action”, including researching and addressing the impact of climate change and intensifying flood and drought management.²⁷



Mekong River Commission Logo
Source: *Eflownet.org*.

Second, China and Myanmar will have to join the MRC as full members, rather than just dialogue partners. No regional Mekong management plan can be complete or effective without the inclusion of all riparian nations.²⁸ China in particular should agree to certain guidelines about ensuring that its dams will not radically alter natural, predictable water levels. Even if it opts not to join, China must release, at the very least, all relevant hydrological data on the downstream impact of its dams for integration into MRC data and assessments about the Lower Mekong, as opposed to just the limited information it provides now.²⁹ Informed decisions about river management cannot be made without complete data. For LMB nations, this is no mere academic exercise: in 2000, severe and sudden flooding killed 800 Cambodians and Vietnamese, affected 8 million lives, and cost the two countries 430 million dollars in damages.³⁰ More reports about water levels more regularly will provide officials in these countries more time to broadcast rapid changes in river death to farmers along the Mekong, thereby preventing the loss of life and dousing suspicion about China’s alleged lack of concern for what occurs downstream.

It is worth emphasizing here that it is also in China's own interest to release this information now. During the dry spell in East Asia earlier this year, where the Mekong's water levels were the lowest in nearly two decades, environmental groups and governments alike immediately pointed the finger at China's damming practices, when in fact several experts (including the MRC) had concluded that unusual climatic conditions was the root cause.³¹ Beijing flatly rejected the accusations, but suspicion would not have arisen had China been more transparent about its hydrological data in the first place. China's transparency can thus not just help countries downstream, but, arguably, its own image as well.



Leaders at the first Mekong River Summit held in Hua Hin, Thailand in April 2010.

Source: *CRIEnglish.com*

Third, riparian states, as well as outside actors like the United States, World Bank and Asian Development Bank³², must help encourage an empowered MRC and foster a climate favorable to greater trans-boundary cooperation. The commission must

be able to not only carry out studies, but either release all of them publicly or share it among all six countries in the spirit of truly cooperative sustainable development. Also, as others have noted, efforts must be made to ensure that the successor to current MRC CEO Jeremy Bird, who completes his three-year term in March 2011, is equally focused on the question of dams and sustainable development, since there are worries that the fact that the new CEO will be picked out of the four LMB countries may constrain the MRC's independence.³³ The United States should also use its leverage to steer Mekong nations in the direction of sustainability by providing the necessary technology and human capacity-building support. The Lower Mekong Initiative (LMI) signed by the Obama administration last year³⁴ was a positive step in this direction, but it needs more substantive elements and the resources for implementation. A stronger role by Washington on this issue would likely be appreciated by LMB countries, both as a counterweight to Chinese influence and as a provider of technical expertise.³⁵

Conclusion

If riparian nations choose to continue on their current course, the Mekong River, a crucial part of their economic growth and a source of livelihood for tens of millions of people, will be in peril during the coming decades. But if they fully grasp the extent of this threat and muster both their individual will and collective spirits, they can collaborate with outside actors not just to mitigate, but avert a potentially devastating regional security crisis with far-reaching implications. Nothing less than the future of one of the world's greatest rivers is in their hands.

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- ³ Milton Osborne. "The Mekong: River Under Threat." Lowy Institute for International Policy, 2009.
- ⁴ Ibid.
- ⁵ Milton Osborne. "The Mekong: River Under Threat." Lowy Institute for International Policy, 2009.
- ⁶ Mukand S. Babel and Shahriar M. Wahid. "Freshwater Under Threat: Vulnerability Assessment of Freshwater Resources to Environmental Change (Mekong River Basin)." United Nations Environment Program, March 2009.
- ⁷ See, for instance: M. Kummu et al (eds.). "Assessing Impacts of the Mekong Development in the Tonle Sap Lake." International Symposium of Role of Water Sciences in Transboundary River Basin Management, March 2005. 87 percent of the hundreds of fish species in the river are migratory. See also: Patrick Dugan. "Mainstream Dams As Barriers To Fish Migration: International Learning and Implications for the Mekong", *Catch and Culture*, Vol. 14, No. 3, Mekong River Commission, December 2008.
- ⁸ Richard Cronin and Timothy Hamlin. "Mekong Tipping Point: Hydropower Dams, Human Security, and Regional Stability." The Henry L. Stimson Center, 2010.
- ⁹ James Borton. "Mekong Sunset Part 1: River of Controversy". *Asia Times Online*, 9 August 2002.
- ¹⁰ Mukand S. Babel and Shahriar M. Wahid. "Freshwater Under Threat: Vulnerability Assessment of Freshwater Resources to Environmental Change (Mekong River Basin)." United Nations Environment Program, March 2009.
- ¹¹ Mekong River Commission. "Understanding Climate Change in the Lower Mekong Basin." 2010.
- ¹² For instance, Vietnam's own Ministry of Natural Resources and Environment has calculated that if sea levels rise merely by 30 inches, 20 percent of the delta and 10 percent of Ho Chi Minh City could be swamped. John Ruwitch. "Mekong Delta May Be Inundated By Rising Sea." *Reuters*, 20 August 2009.
- ¹³ The effect of the warming Tibetan Plateau on the Mekong is contested. Some accounts maintain that it will dramatically decrease runoff volumes and affect seasonal distribution of flow, while others argue that it will only affect runoff volumes. For an example of the latter view, see: V.K. Arora and G.J. Boer. "The Effect of Simulated Climate Change on the Hydrology of Large River Basins." *Journal of Geophysical Research*, Vol. 106, pg. 335-3348. Dwindling water volumes, in addition to perhaps leading to longer droughts, also have the potential to aggravate sea water intrusion and salination in the Mekong Delta. See: Michael Richardson. "Dams in China Turn the Mekong Into A River of Discord," *YaleGlobal Online*, 16 July 2009.
- ¹⁴ R.V. Cruz et al. *Climate Change 2007: Impacts, Adaptation and Vulnerability: Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change.* (Cambridge University Press, United Kingdom, 2007), pg. 469-506.
- ¹⁵ World Wildlife Fund. "The Greater Mekong and Climate Change: Biodiversity, Ecosystem Services and Development at Risk." October 2009.
- ¹⁶ This refers to losses incurred as a result of factors like processing, spoilage, pests, storage, and distribution.
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- ²³ See, for instance: David Biello. "The Dam Building Boom: Right Path to Clean Energy?" *Yale Environment 360*, 23 February 2009.
- ²⁴ Richard Cronin and Timothy Hamlin. "Mekong Tipping Point: Hydropower Dams, Human Security, and Regional Stability." The Stimson Center, 2010.
- ²⁵ CAWaterInfo. "1995 Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin." CAWaterInfo.net. Available online: <http://www.cawater-info.net/library/eng/1/mekong.pdf>. In it, the parties agree "to cooperate in all fields of sustainable development, utilization, management and conservation of the water and related resources of the Mekong River Basin including, but not limited to irrigation, hydro-power, navigation, flood control, fisheries, timber floating, recreation and tourism, in a manner to optimize the multiple-use and mutual benefits of all riparians and to minimize the harmful effects that might result from natural occurrences and man-made activities."
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²⁷ Mekong River Commission. "Mekong Prime Ministers Agree to Prioritize Climate Change as Summit Ends", 5 April 2010.

²⁸ While it would be ideal for both Myanmar and China to join, the focus here is on China due to its upstream status.

²⁹ In 2002, China agreed to provide daily data on upper Mekong water levels during the flood season, but only from two monitoring stations. China also agreed to share more data earlier this year, though this is also far from comprehensive. Mekong River Commission. "China Ready to Share Data on Mekong Water Levels Ahead of Regional River Summit." 26 March 2010.

³⁰ James Borton. "Mekong Sunset: Part 2: The Challenge of China." *Asia Times Online*, 16 August 2002.

³¹ Brian McCartan. "When the Mekong Runs Dry." *Asia Times Online*, 13 March 2010. For an analysis of the dry spell in Southeast Asia, see: Prashanth Parameswaran. "Southeast Asia's Dry Spell." *AsiaEye*, 31 March 2010.

³² The ADB has promoted its own Greater Mekong Subregion (GMS) program of economic development, but it is not discussed extensively here since trans-boundary river management has yet to be placed on the agenda. Some say China, which has been more than happy to discuss rail or road linkages to maximize economic benefits, has been less enthusiastic about regional river management, and may have blocked attempts to include it. See for instance: Brian McCartan. "China Damned Over Floods." *Asia Times Online*, 23 August 2008; and; Thanh Nien. "Dams Portend Grim Future for Mekong Delta: Experts." 9 April 2010.

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