WWF

BRIEF

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THE MEKONG RIVER AT RISK

In 2008, 11 Memorandums of Understanding were signed for the construction of hydropower dams on the lower sections of the Mekong River. Now, in 2012, the clock ticks as each of these dams goes through procedures for consultation and approval. Critical decisions will likely be made before the end of 2012. If any one of these dams is constructed, according to their current design and environmental and social impact mitigation plans, the Mekong River will be changed forever. More thorough assessments are needed to demonstrate whether these dam projects are compatible with the other uses of the river and if they can preserve the integrity of the Mekong ecosystems for future generations.

The values of the Mekong River

The Mekong River Basin is the richest river basin by area for fish biodiversity on the planet. The river holds three times more fish species per catchment unit area than the Amazon river, and hosts an estimated 1,000 fish species, including the Mekong giant catfish, one of the world's largest freshwater fish. Of these species, 165 are long distance swimmers and require different habitats throughout their migration and lifecycle.

The Mekong provides food security and livelihoods for at least 60 million people. Fish and other aquatic animals are the main source of protein for people living in the Lower Mekong Basin. The Mekong produces an estimated 2.6 million tons of fish and other aquatic products per year, making it the largest inland fishery in the world, and accounting for 19-25% of global inland catches. This fishery is also heavily dependent on wild capture; aquaculture accounts for only 10-12% of the production and it too depends on wild fish as feed for the farmed fish.

At the mouth of this mighty Mekong, sediment and nutrients accumulate and the delta explodes with productivity. Vietnam's part of the Mekong Delta hosts 17 million people, and contributes more than 50% of country's staple food crops. It is the source for 60% of the fish production in Vietnam, providing food for 40 million people and contributing 27% of the GDP of Vietnam.

A region on the move

The Greater Mekong Subregion[1] (GMS) is one of the fastest growing regions in the world, and the demand for energy, particularly in China, Thailand and Vietnam is expanding. This fast course of development is driving hydropower development in the Mekong Basin, including the proposed mainstem dams.

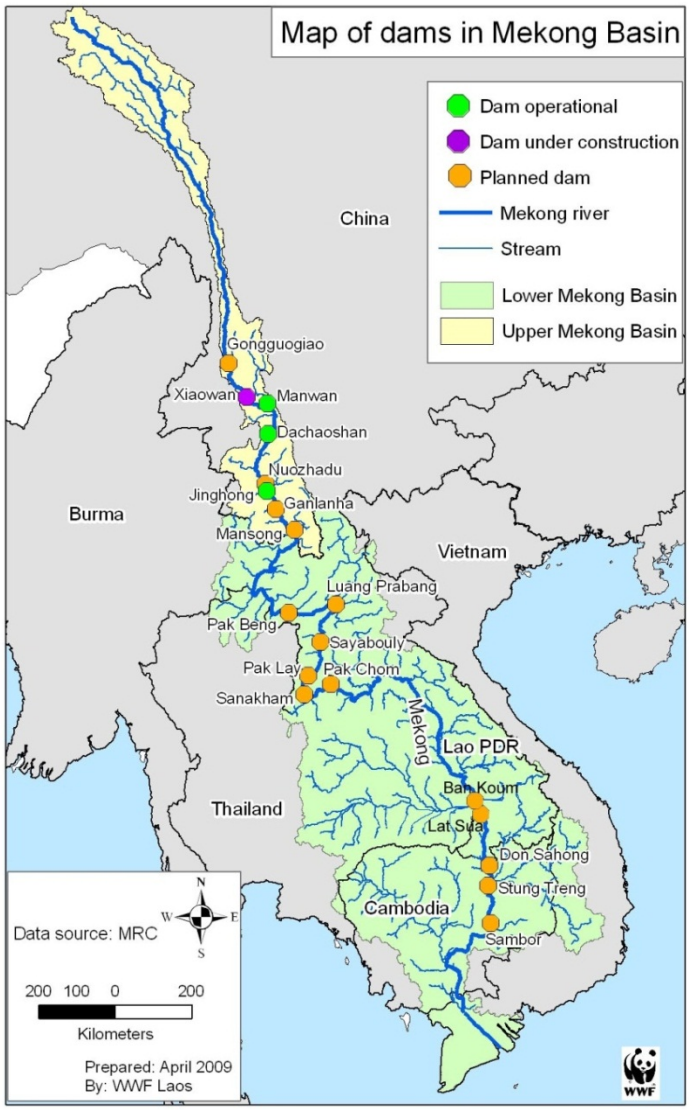
[1] The GMS comprises Cambodia, Laos, Myanmar, Thailand, Vietnam, Yunnan Province and the Guangxi Autonomous Region of China

In addition to fueling the fastest growing countries, hydropower development is seen as an avenue for poverty alleviation for Cambodia, Laos and Myanmar. GMS governments face the challenge of developing their economies while ensuring the livelihoods of their people are secure and the ecosystems of the Mekong Basin remain healthy and productive.

The undoing of the Mekong

The benefits of hydropower, electricity and poverty alleviation are not without costs. Hydropower dams fundamentally alter river ecosystems, often with negative impacts to livelihoods and biodiversity.

Over 75% of rural households in the Lower Mekong Basin are involved in fisheries, both for their own consumption and for generating income. Any impact on the ecological balance of the river also threatens the sustainability of these aquatic resources that millions of people depend on. There are at least 50 commercially important migratory fish species in the Mekong River, representing 37% of the total catch (about 900 million tons/year).



Dams on the Mekong mainstem will impede migration of fish, potentially causing a significant reduction in the productivity of the fisheries and compromising the livelihoods of millions of people. Technologies to allow fish to bypass dams are inadequate and cannot cope with the massive fish migrations and high species biodiversity found in the Mekong[2].

The greatest impacts of the mainstem dams will be felt in the Mekong Delta. The International Panel for Climate Change identified the Mekong Delta as one of the 3 most vulnerable deltas on the planet. Recent studies conducted by WWF and the Mekong River Commission[3] established that the 2 main channels of the delta significantly deepened between 1998 and 2008 and that 75% of the coastline is eroding at an average rate of 8 meters every year. Significant reduction in the quantities of sand, silt and clay deposits is destabilizing the ecosystem. Sediment trapped by mainstem dams will likely decrease the capacity of the delta to replenish itself, thus making it more vulnerable to sea level rise, saline intrusion and coastal erosion. Given that more than 22% of Vietnam's population is located in the Mekong Delta, adding the impacts of mainstem dams to the already serious threats of climate change will pose significant social and economic challenges.

Initial work has already begun on the Xayaburi dam--**the most advanced of the 11 proposed hydropower projects--but** these preparations remain reversible as investment-to-date totals only 1 % of total USD 3.5 billion budget (accounting for movable assets). A decision on the future of the Mekong cannot be considered definitive until the end of November 2012, when Ch Karachang, the Thai developer, will begin major work on the river bed.

[2] This conclusion was reached in September 2008, by a team of fish migration experts organized by the Mekong River Commission.
[3] The Mekong River Commission is an inter-governmental agency working with the governments of Cambodia, Laos, Thailand and Vietnam on the joint management of shared water resources and sustainable development of the Mekong River.

A sustainable course for the Mekong Basin

In 1995, the four lower Mekong countries signed an agreement that committed them to the sustainable development of the Mekong River. The proposed mainstream dams challenge this commitment. The decision to construct a dam on the mainstem of the Mekong River will have permanent consequences and should be carefully considered. A comprehensive assessment of the full economic, social and environmental costs and benefits of hydropower development in the Mekong Basin should be conducted.

Recommendations for the way forward

1. The 1995 agreement of the Mekong River Commission should be fully recognized and endorsed; in particular the procedures for notification, prior consultation and agreement.

2. A 10-year delay in the approval of the mainstream dams should be agreed upon to fully consider the costs, impacts and benefits of their construction and operation. This delay should remain in place until peer-reviewed studies can demonstrate that key attributes of the Mekong ecosystem integrity, and associated livelihoods, are compatible with Lower Mekong mainstem hydropower development. WWF is committed to collaborating with governmental agencies throughout the study phase. The agreement to conduct further studies secured during the MRC Council meeting in Siem Reap, Cambodia in December 2011 is a step in the right direction.

3. Mekong Basin governments can meet their immediate energy needs from multiple hydropower projects on select Mekong tributaries. These must also be assessed for their overall costs and benefits. To ensure the overall ecological integrity of the Mekong Basin, some tributaries will need to remain free flowing to preserve the values of connectivity of the river from headwaters to the sea.

WWF solutions

WWF is collaborating with the MRC and various international experts and research partners on several projects aimed at better understanding the key attributes of the Mekong River system. These include:

1. Series of rapid assessments and studies on the impact of sediment transport and discharges in relation to fluvial geomorphology, to detect the impact of large-scale hydropower projects in the Mekong River Basin:

   i. Bathymetry evolution – Designed to gain an understanding of the functional dynamics of the two main channels of the delta system in Cambodia and Vietnam, with a focus on the changes in the depth of the channel due to erosion of the bottom of the bed or deposition, and its vulnerability to changes in sediment flows.
   ii. Geomorphological stability and impact on habitats – Focused on understanding the role of clay, silt, sand and gravel in the morphology of the Mekong system from the mountains to the delta, its continuities and discontinuities, and re-evaluate the amount of sand transiting from the Upper Mekong in China to the delta.
   iii. Sand and gravel in-channel mining – Aimed at estimating the quantity and quality of in-channel mining on the mainstem of the Lower Mekong River, and its cumulative impact on hydropower.
   iv. Nutrient measurements in the Mekong delta – Designed to examine biogeochemical information on the surface waters of the Mekong estuary and surrounding coastal areas from satellite observations to detect seasonal and inter-annual trends and nutrient fluxes.
   v. Delta stability – Focused on establishing basic principles of delta dynamics, identifying sensitive coastal areas, and quantifying delta retreat due to decreasing sediment input.

2. Flow alteration and fragmentation tool that can be used to provide a rapid assessment of the impact of all the hydropower projects in the MRC hydropower database on the two environmental dimensions: how the project will change the natural flow of water downstream, and how many ecosystems and how much length of river it will disconnect from the sea.

3. Rapid Basin-wide Hydropower Sustainability Assessment Tool (RSAT), a project with the MRC and Asian Development Bank,that guides towards the most sustainable sites, design and operation rules for hydropower development, and creates a platform for constructive engagement and cooperation among a range of stakeholders, including government agencies, developers and civil society.

4. Explore new approaches and technologies in hydropower that could help maximize the economic, energy and broader developmental benefits of hydropower while minimizing the social, environmental, and economic risks. The Thakho hydropower project, as an example, has no dam or reservoir and will divert water from the Mekong's mainstem. This means it will not change the flow of water, sediment and nutrients downstream nor will it obstruct the movement of fish and other aquatic organisms.