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The issue: There are threats to the sustainability of development

The Mekong River rises on the Tibetan plateau and flows nearly 5,000 kilometres southwards before sub-dividing into multiple channels as it enters the South China Sea in Vietnam. The river flows through or forms the borders of six countries: Cambodia, the Lao PDR, Myanmar, Thailand, Vietnam and the Yunnan province of China.

Geographically it is usually sub-divided into upper and lower basins of relatively equal length. The Upper Mekong lies wholly in China and descends steeply through the high mountain ravines and gorges of Yunnan province. South of the Chinese border entering the Lower Mekong basin (LMB) the gradient declines and the river begins to flow more slowly until it becomes tidal in Vietnam's Mekong Delta.

- The 10th largest river in the world
- The 2nd highest biodiversity (after the Amazon)
- Over 60 million people live in the Lower Mekong Basin (LMB)
- 85% of the population live in rural areas
- Over 1/3 live on less than US\$2 a day
- 60% of the economically active are reliant on climatically sensitive environments
- Aggregate wealth has grown in the LMB regions and attracted investment in development projects

Country	Land area (10 ³ km ²)	Land area within Mekong River Basin (MRB)			Population within MRB		
		Area (10 ³ km ²)	% of country in MRB	% of MRB	Population (10 ⁶)	% of country's population	% of population of MRB
China (Yunnan)	395.0	147.0	37	22	10.1	25	14
Myanmar	676.6	24.0	4	3	1.4	2	<1
Thailand	513.3	184.2	36	23	23.9	37	34
Lao (PDR)	236.8	202.4	85	25	5.5	94	8
Cambodia	181.0	154.7	85	19	10.6	80	15
Vietnam	331.7	65.2	20	8	17.5	22	25
Total	2334.2	795.5	n/a	100	70	n/a	n/a

Figure 1 – Land areas and populations of the six Mekong Basin countries and provinces

While the five South East Asian countries of the Lower Mekong are all comparatively rich in water resources, they all have monsoon climates and consequentially extremes of wet and dry during the year. During the driest months in the spring the snow melt in Tibet is the single most important source of water in the main stream of the Mekong. 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 Lao PDR and the Central Highlands of Vietnam.

More than 70 million people live in the Mekong Basin region, and this population is expected to increase by about 65% thus rising to about 120 million by 2025. Along with such a growth in population comes a significant growth in demand for food and water all year round. The inhabitants of the Mekong Basin are some of the poorest in the world, and it is estimated that nine out of ten rely on the river for their livelihood largely from the rice produced on flooded land and the fish in its waters. In addition the Mekong is one of the world's most vital food supply regions with exports providing the staple diet of a further 200 million people - a number that is also expected to increase significantly by 2025.

However, the region is changing, not just as population grows but also as the economies grow, and both economic and social progress is made, albeit very unevenly.

Country	GDP per capita (average 2010–2014 in US\$ PPP)	Growth in GDP per annum (average % 2010–2014)	Human Development Index	Human Development Index – rank /187
China (Yunnan)	6807	7.7	0.73	91st
Myanmar	No data available	No data available	0.52	150th
Thailand	5779	1.8	0.72	89th
Lao (PDR)	1646	8.1	0.57	139th
Cambodia	1008	7.5	0.57	136th
Vietnam	1911	5.4	0.63	121st

Figure 2 – The Economy of the Mekong River Basin countries

All this takes place against a background of climate change. In this region the south-west Monsoon dictates the wet and dry seasons; the wet season generally lasting from May through to September. The extreme differences in precipitation caused by the south-west Monsoon coupled with severe tropical storms can lead to disastrous floods, the frequency of which may very well be increasing. The most significant result of these floods is the loss of life since such a large population lives on the banks of the river. However, these floods can also significantly alter the biology of the area, which can affect people's source of food as well as income. Floods are a serious risk year to year, and the devastation of these events will increase along with the population. Of course one way of controlling river flooding is to build dams.



(Source: The Mekong River Commission)

Figure 3 – The Mekong River Basin

The issue – Development projects in one country can threaten development in others

'Big dams' have a long and complicated history in economic development. One of the most successful development projects of the 20th century was the Tennessee Valley Authority (TVA) established to bring economic growth to one of the poorest regions of the southern United States. In 1933 President Franklin Roosevelt signed the legislation that created the Tennessee Valley Authority. As the most ambitious part of his 'New Deal' it was the first and one of the most successful of all regional projects. At that time fewer than 3% of the households in the Tennessee Valley had electricity. Malaria afflicted up to 30% of the population in some areas, and the average expenditure per child for education was about one third of that of the United States as a whole. The average income in the valley was \$639, about a third of the national average. The periodic flooding of the Tennessee River prevented the development of cities along the river's banks, leaving small and isolated towns. Unchecked fires burned 10% of the woodlands every year, and because of soil depletion with upwards of 3 million hectares under threat the agricultural base of the region was threatened. The TVA changed all of that. The idea was simple.

- Provide power for agriculture and industry
- Provide water for agriculture and industry
- Improve navigation
- Flood control

The provision of power allowed farmers to save on labour. Meanwhile the provision of huge reserves of power allowed industry, particularly the aluminium industry to develop at the dams. During World War II, the United States needed aluminium to build bombs and aeroplanes, and aluminium plants required electricity. To provide power for such critical war industries, the TVA engaged in one of the largest hydropower construction programmes ever undertaken in the United States. The TVA changed the valley dramatically. In the eight years after the establishment of the TVA, the number of households with electricity went from 6,000 to almost half a million. In its first 20 years, the TVA built 20 dams. Nearly 200,000 men and women were employed by the TVA during its two-decade period of dam construction. At that time, the TVA was the largest construction project in the world and did much to bring the USA out of the depression.

The instigators of the TVA knew that electricity would be the most important factor in improving the standard of living of the people in the valley. With electricity came the possibility of eliminating much of the labour intensive work in farming which, before the TVA, was conducted with 19th century technology. Once electricity and fertilizer factories were available, agricultural productivity in the valley tripled.

The TVA was the first of many development projects centred on providing hydro-electric power, the best known of which is probably the Three Gorges project in China.

Harnessing the enormous potential of the Mekong has been a relatively recent development but has accelerated very rapidly in recent years.



Figure 4 – Dams on the Mekong

The Chinese began building dams in remote Yunnan province as early as the 1940s. The narrow gorges, remote location with low population density and the huge demand for power in the rapidly growing Chinese economy were major stimuli for further developments. Obviously building a dam in the Upper Mekong Basin (UMB) impacts on the river in the Lower Mekong Basin (LMB). Building dams and creating reservoirs has almost always had two incompatible targets. The first is to create power in which case water levels in reservoirs are kept as high as possible to create more power as water is forced through the generators. On the other hand flood control requires reservoir levels to be kept low so as to allow storage of water in high discharge periods.

Controlling the Mekong is especially complex given that in the LMB the flooding of the Mekong is often very productive and is essential to the economy of many countries that are reliant on both rice as a staple crop and fish for protein. Flooding is not always negative.

Source A – Chinese dams blamed as Mekong dries up.

BANGKOK, Mar 17 2010 (IPS) – As the water level in the Mekong River dips to a record 50-year low, a familiar pattern of fault-finding has risen to the surface. China, the regional giant through which parts of South East Asia's largest waterway flow, is again at the receiving end of verbal salvos from its neighbours.

Environmentalists and sections of the regional media are blaming the Chinese dams being built or operating on the upper reaches of the Mekong for contributing to the dramatic drop in water levels that are affecting communities in Burma (Myanmar), Cambodia, the Lao PDR, Thailand and Vietnam, the lower Mekong countries.

"Changes to the Mekong River's daily hydrology and sediment load since the early 1990s have already been linked to the operation of the (Chinese) dam cascade by academics," states the Save the Mekong Coalition, a Bangkok-based network of activists and grassroots groups. "Communities downstream in northern Thailand, Burma and the Lao PDR have suffered loss of fish and aquatic plant resources impacting local economies and livelihoods."

Stung by this latest barrage of criticism, China has taken the unusual step of breaking its silence to mount its own defence, placing the blame for the drop in the Mekong River's levels to the unusually harsh drought across this region.

As part of this shift in diplomacy to engage with the lower Mekong countries, one of Beijing's envoys reminded critics that the water from China's portion of the Mekong, which it calls the Lancang, accounts for less than a fifth of the volume of water in the river.

Therefore, his argument goes, what China does upstream cannot have such a big impact on water levels downstream.

"The average annual runoff volume of the Mekong River at the outbound point (of China) is approximately 64 billion cubic metres, accounting for only 13.5% of Mekong's runoff volume at the (South China) sea outlet," Chen Dehai of the Chinese embassy in Bangkok said at a press conference.

Beijing's attribution of low water levels to the drought, instead of its dams, has been endorsed by the Mekong River Commission (MRC), an inter-governmental body that manages the river basin. "At this point we have no direct evidence that the drop in water levels is caused by the Chinese dams," said Damian Kean, communications adviser to the MRC.

"There was very low rainfall during the wet season, which ended four weeks earlier than normal, in October," Kean added during a telephone interview from Vientiane, the Lao capital, where the MRC is based. "MRC analysis has concluded that the current dry period and subsequent low water levels in the Mekong Basin were caused by some of the lowest rainfall in the region in over 50 years."

But this does not wash with environmentalists like Carl Middleton, who argue that China's lack of transparency about the volume of water it lets flow south has fed the suspicion that its dams are making the current crisis worse. "If the dams are not contributing to loss of water level in the Mekong, then China should publicly release information of water level flows," he told IPS.

"The Chinese have not disclosed information about the operations of its dams on the Mekong," added Middleton, the Mekong programme coordinator of International Rivers, a U.S.-based environmental lobby. "You need proper information and data to manage a river basin."

Although China does not supply information to the MRC about dry-season water flows, it has, after years of silence, been more forthcoming about hydrological information during the wet season, when there are floods. This followed the first agreement Beijing signed with the MRC in 2002.

China's reluctance to cooperate with the MRC stems from it being an observer, rather than a member of the body, and therefore not bound by its agreements. Military-ruled Myanmar is the other observer in the commission, which consists of Cambodia, the Lao PDR, Thailand and Vietnam.

China has already completed four of a cascade of eight dams, with the Xiaowan Dam, whose reservoir began harnessing the Mekong's waters in October 2009, being described as "the world's highest arch dam."

But disquiet about the dams and their impact on the Mekong River's ecosystem and fish catch has been rising since the first of these dams, the Manwan, came on line in 1992. Fishing is the main source of livelihood for the 70 million people living in the Mekong Basin, and the annual income from fisheries in the lower Mekong is between two and three billion U.S. dollars.

(Source: IPS news 2010)

Source B: Facing Limited Economic Options, Lao PDR Turns to Dams

Lao PDR is vying to become the battery of Southeast Asia via development of the first hydro-electric dam on the mainstream of the Mekong River. With the political will and finance capacity to carry out large-scale dam development on the Mekong, the Lao PDR strives to become the major hydropower producer on the lower Mekong — with the aim of developing power related revenue for the nation to advance economic development. The issue of Lao's imminent hydro development on the mainstream of the Mekong forces examination of 21st century plans for the region — the crossroads of modernization in a traditionally low development zone.

A range of issues have arisen around the proposed dam development. In this post I explore the question of why the Lao PDR is the designated "battery of southeast Asia" and how cooperation along the lower Mekong will result in sustainable dam development on the Mekong. I also examine the role of Western environmental organizations in the recent halt to development of the Xayaboury Dam in Lao PDR.

The Nature of the Planning Problem

The Thais want more water; the Laotians want capital and expertise to develop hydropower for export to Thailand and Vietnam; the Khmers (Cambodians) need capital and infrastructure to secure sustainable fishery resources in the Tonle Sap (Great Lake); and the Vietnamese, while in need of capital for the management of resources, do not want any upstream development to exacerbate salt water intrusion in the Mekong delta during the dry season. These issues help to set the stage for a basin-wide management strategy. The four countries mentioned above (Thailand, Cambodia, Vietnam and the Lao PDR) recognized the need to cooperate to put in place the best management practice for peaceful governance of the Mekong and thus in 1995 formed the Mekong River Commission (MRC) to manage the transboundary river issues and ensure cooperative planning frameworks.

Issues to be addressed by the MRC:

- Water scarcity is not severe, but floods are a serious problem, and rapid population and economic growth threaten water-dependent ecosystems
- Incomes in the basin areas are very low; the most vulnerable groups including farmers and fisherman are the most vulnerable to dam development scenarios
- Effects of wet and dry seasonal changes are significant for agriculture and fisheries
- Water flooding in LMB area affects the economies of each lower Mekong River Basin country.

Why the Lao PDR? Another British anti-dam activist

The Lao PDR has limited options for economic development and views its hydro-electric development potential as key to economic development for its people. With an estimated (theoretical) potential of 18000MW, and a willing buyer of power in neighbouring Thailand, the Lao PDR is determined to exploit its position on the Mekong to expand its GDP and become the "battery for Southeast Asia."

Recent assessments of the potential impacts from hydro-development, to no big surprise, find that the potential risks and negative outcomes outweigh the potential economic benefits of a high dam development scenario on the lower Mekong. In fact, very few dam

projects assessed through economic analyses ever produce net positive impacts, and this fact has curtailed World Bank funding for dam development across its client nations. As nations throughout Europe and North America sit back and enjoy the cheap, clean and abundant power from hydro, the same nations continue to create roadblocks to large-scale infrastructure development throughout the developing world. Such hypocrisy has not gone unnoticed.

I would assert that economic analyses should be one consideration for dam development, and yes, environmental concerns should be taken into account, among other negative impacts such as forced relocation, harm to wildlife and cultural heritage losses. Yet, the imperatives of economic development via infrastructure development in nations as abjectly poor as the Lao PDR should be given considerable weight in the same decision-making processes. As I watched the video on recent environmental protests against the Xayabouri dam in the Lao PDR, the sight of another British environmentalist advocating a non-development approach in one of Asia's poorest nations made me cringe at the irony of which the environmentalist is blatantly unaware.

For us in the West as advocates of sustainability in our own homes, and in Asia, perhaps it's best to let Vietnam, the Lao PDR and Thailand work this one out on their own, as they have proven quite capable of doing, and save our own ideological advocacy for the host of issues in our own backyards.

(Source : Asia news September 26th, 2011 by Christine E. Boyle)

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