



Lower Mekong Basin hydropower development and the trade-off between the traditional and modern sectors: 'Out with the old, in with the new'

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The Lower Mekong Basin (LMB) denotes the geographical area that drains into the Mekong River and its tributaries within the Lao PDR, Thailand, Cambodia and Viet Nam. Hydropower development of the LMB's water resources is proceeding at a rapid pace (Friend, Arthur, & Keskinen, 2009). In addition to 124 hydropower projects at various stages of development, up to twelve mainstream dams are planned for the LMB (ICEM, 2010; MRC, 2010). This large-scale hydro-development involves countless trade-offs of interests, creating clear winners and losers. One of the most significant trade-offs is that between the 'traditional' and 'modern' sectors.

The traditional and the modern

The 'traditional' sector is generally subsistence based, and reliant on natural resources as the basis of livelihood. It is largely rural, involving small-scale fishing and agriculture, as well as the gathering of other natural supplies. These livelihood activities are dubbed 'traditional' as they have changed little over the centuries. The vast majority of the LMB's sixty million inhabitants are involved in this sector, where fishing and agriculture continue to form the foundation of economic and food security (Sarkkula et al., 2009). Agriculture is the most common occupation and primary source of income throughout the LMB. Small-scale fishing is also near-universally practiced throughout the basin, providing a crucial source of nutrition, as well as supplementary income.



Fishing on the Mekong River, Luang Prabang, Lao PDR (Photo: Author)

The 'modern' sector is the industry-based, emerging modern economy. Occupation in the modern sector is generally wage employment, in contrast to the subsistence-based activities of the traditional sector. While it is generally more urbanised, the modern sector does still involve rural activities such as commercial fishing and cash crop agriculture. The most basic distinction between the modern and traditional sectors is that the former 'is driven by money', while the latter 'uses very little or no money' (MRC/WUP-FIN, 2007: 95).

The trade-off

One of the most significant disparities between the traditional and modern sectors is the way they perceive and use natural resources. The traditional sector views natural resources as invaluable livelihood supplies that must be preserved so that people can continue to 'supply themselves with basic commodities such as food, water and firewood' (MRC/WUP-FIN, 2007: 95). In contrast, the modern sector views natural resources as inputs to production and sources of economic growth, which are primarily valued according to their tradable value. This polarity puts the traditional and modern sectors squarely at odds with each other.

In each of the LMB states, the 'economic imperative enjoys remarkable primacy' (Goh, 2004: 7). Modernisation is seen as a key component of economic

development, thus it too is strongly promoted. Where they are in competition, therefore, the modern sector is nearly always prioritised over the traditional sector by the LMB states. In line with this preference for the development of the modern sector, the riparian states have adopted the perspective that natural resources are exploitable in the pursuit of economic growth (Lang, 2004; Goh, 2004; Foran & Manom, 2009).

Hydropower development and modernisation

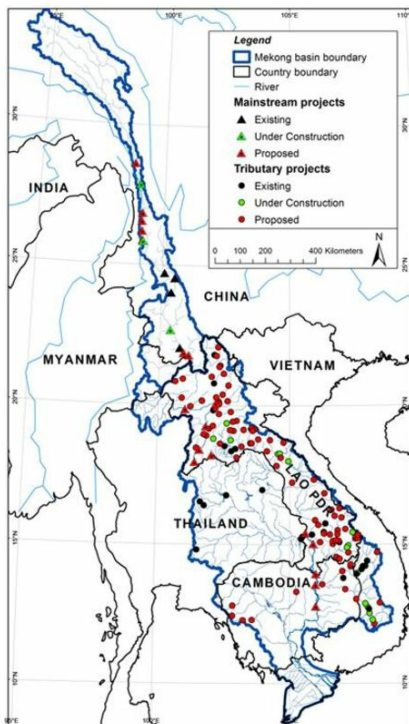
Nothing typifies the overriding priority of modernisation and rapid economic development better than hydropower development. The ways in which states have chosen to utilise their water resources is very telling of their priorities and motives. At its heart, the decision to pursue hydropower development is a decision to trade off production in the traditional sector to increase production in the modern sector. The productivity of fisheries and agriculture are sacrificed in order to increase the production of electricity to fuel growth in the modern sector. The costs are borne by the rural poor, while the benefits are disproportionately reaped by urban consumers and industrialists (Mitchell, 1998). The hydropower development of water resources is the quintessential modernisation venture. Large dams serve as highly visible monuments to modernity, human dominance over nature, and to the political leaders and elites who commission them (Baghel & Nüsser, 2010).

Each of the LMB nations is involved in some way in the development of large-scale hydropower projects, whether by hosting them, or helping to develop them. For host countries such as the Lao PDR and Cambodia, hydropower development represents a much-needed source of government revenue. For the countries that are jointly developing the projects, such as Thailand and Viet Nam, the projects provide an additional supply of power, which is required to fuel industrial growth and underpin their economic development agendas (King, Bird, & Haas, 2007). In short, for the riparian states, the modernisation of water resources through hydropower development is an expedient source of economic growth.

The economic benefits accruing to each of the LMB states explains why there has been relatively limited interstate criticism of hydropower projects that pose a threat to the integrity of the natural environment on which so many of their constituents rely. For every one of the additional twelve mainstream projects and ninety-nine tributary projects planned for the Mekong basin, there will be significant consequences for local livelihoods (Pearse-Smith, 2012). Hydropower development alters the natural hydrology of the Mekong ecosystem, to which many activities – both natural and human – are tuned (ICEM, 2010). It decimates fish stocks, prevents the natural fertilisation of floodplains, promotes saline intrusion into the soils of the Mekong delta, and inundates agricultural and forested land. These losses to the traditional sector, however, are viewed by Mekong states as a worthwhile trade-off for the growth in the modern sector they help facilitate (Hirsch et al., 2006).

Cambodia's hydropower agenda represents a particularly remarkable example of the willingness of LMB states to sacrifice the traditional sector for the benefit of the modern sector. Of all the riparian nations, Cambodia is arguably the most dependent on the traditional sector and the natural resources that support it. The Mekong floodplains cover almost the entire country, and provide agricultural and fishing livelihoods to the vast majority of the Cambodian population (Goh, 2007). Nevertheless, Cambodia has plans to construct two hydropower projects on the mainstream Mekong that would devastate Cambodia's all-important fisheries. As suggested by (Osborne, 2010: para. 10), this may be in part due to 'a belief or conviction that fishing is "old-fashioned" whereas the production of hydroelectricity is "modern".'

Also involving Cambodia is the case of the Yali Falls dam. Yali Falls is a Vietnamese hydropower dam located on the Se San Mekong tributary, seventy



Map of the Mekong Basin showing some of the hydropower projects at various stages of development (Map design: www.mekongflows.org - Mekong Flows team, University of Canterbury. Data source: Mekong River Commission)

kilometres upstream from the Viet Nam-Cambodia border. Since its completion in 2001, it has had a severe impact on downstream Cambodian villages, causing unpredictable flooding and damaging traditional livelihood activities (Lauridsen, 2004). Fish stocks have declined, and productive assets such as boats and fishing gear have been swept away by irregular flooding. Despite the destruction, however, the Cambodian government remains reluctant to 'make an issue out of Yali Falls' with the Vietnamese government (Hirsch & Wyatt, 2004: 65). Again, this demonstrates a general proclivity to ignore the importance of traditional livelihood sources. It is seen as more important to preserve foreign relations, which are of greater interest to the modern sector and the pursuit of rapid economic growth.

Cambodia, however, is not the only Mekong nation to prioritise its drive for modernisation and economic growth over the livelihood concerns of those in the traditional sector. When Thailand, Lao PDR and Myanmar signed a navigational clearing agreement with China in 2000, they made the same trade-off. Navigational clearing poses significant concerns for the LMB population, as it involves the destruction of fish habitats and further alteration of the Mekong's hydrology (IRN, 2002; UNEP, 2006). For the Lower Mekong states, however, it was an opportunity to modernise their use of the river to increase riverine trade with China. This represents not just the neglect of the traditional sector, but an active decision to sacrifice the health of the traditional sector in order to grow the modern sector in pursuit of rapid economic growth (Hirsch, 2004).

Counting the cost

Progressive modernisation is undoubtedly important to long-term economic development. However, reckless modernisation, at the expense the traditional sector, may actually hinder economic development in the long run. Rapid modernisation that is facilitated by sacrificing the traditional sector is an unsustainable means of pursuing long-term economic growth.

As such, the large-scale hydropower development plans proposed for the Mekong are short sighted (Cronin, 2010; Cronin & Hamlin, 2010). The productive life expectancy of hydropower projects is limited, while the impacts on the natural and human environments will in many cases be 'permanent and irreversible' (ICEM, 2010: 21). The life expectancy of most Mekong dams was projected to be between 50 and 100 years, yet many existing Mekong dams are silting up faster than anticipated. For example, China's Manwan Dam – located on the upper Mekong mainstream – is reportedly silting up twice as fast as expected (Cronin, 2010). A recent study calculated that by changing some key assumptions in the basin development plan, the forecasted net benefit of up to US\$33 billion could become a net loss of as much as US\$274 billion in the overall development scenario (Costanza et al., 2011). This illustrates the level of uncertainty as to exactly how high the costs will be.

Difficulties in measuring the value of the traditional sector have seen it constantly undervalued (MRC/WUP-FIN, 2007). Consequently, the size of the sacrifice may not be fully understood. Given the importance of subsistence production in the traditional sector, much of its output never enters the marketplace, and thus goes unmeasured. In monetary terms, the value of the Mekong's natural resources is estimated at up to US\$3 billion annually (Keskinen et al., 2008), with its fisheries alone valued at more than US\$2 billion (Middleton, Garcia, & Foran, 2009). Most of this value is realised through small-scale activities, and goes largely unrecognised in hydropower development plans. Policymakers therefore consider the Mekong's natural resources to be underutilised and unharnessed due to the lack of large-scale hydro-development projects relative to the Mekong's potential for exploitation. However, when examined more closely, the Mekong's natural resources are extensively utilised, simply on a smaller scale than macro-level analyses reveal (Keskinen et al., 2008; Sarkkula et al., 2009).

The range and extent of these small-scale uses are vast. The river system distributes natural nutrients to the Mekong floodplains, limiting the need for synthetic fertiliser and irrigation; allows the cultivation of riverbank gardens; provides fish for both subsistence and commercial uses; and provides generally clean freshwater for drinking and bathing (Pearse-Smith, 2012). Riparian forests, which are frequently inundated by hydropower projects, provide a variety of natural resources to local people, including fruit and wild game (ICEM, 2010). In addition to its economic value, the Mekong river system also has significant

religious, social and cultural value (Friend, Arthur, & Keskinen 2009).

In light of this, the LMB states should reconsider whether such a hasty dismissal of the traditional sector in favour of the modern sector is the best way to pursue their drive for economic development. Given that the overwhelming majority of the basin population still rely on the traditional sector for their livelihoods, pulling the rug out from underneath them and hoping they adapt to the modern sector may not produce the desired result. Evidence from the Pak Mun dam in Thailand clearly illustrates that, 'far from disappearing under agricultural modernization', dependence upon natural resources persists (Foran & Manorom, 2009: 76). If this is the case in Thailand, which is by far the most 'modern' of the LMB nations, the impact of hydropower development on traditional livelihoods can be expected to be even more devastating elsewhere in the LMB.

Social implications

Sacrificing the traditional sector in favour of the modern sector will have a number of adverse social consequences. For one, existing inequalities between rural and urban areas will be exacerbated 'as natural resource bases upon which rural livelihoods depend are increasingly exploited as a source of inputs to the industrial sector.' (ICEM, 2010: 57) As was seen in the case of Pak Mun, this can result in major changes in lifestyle and the breaking apart of family units as household breadwinners are drawn to urban areas as day labourers (Jenkins, McGauhey, & Mills, 2008). Most participants in the traditional sector have no alternative livelihood options that are not dependent on natural resources (ICEM, 2010); therefore, increased competition and conflict among various resource user-groups can be expected.

Mekong states are likely to find themselves under increasing pressure from millions of constituents in the traditional sector whose livelihoods have been eliminated. People, who were formerly able to support themselves thanks to their access to a wealth of natural resources, will struggle to achieve a similar standard of life in the modern sector (Lang, 2004). As witnessed in the cases of the Yali Falls and Pak Mun tributary dams, the highly uneven distribution of costs and benefits of hydropower development can generate grievances and protests from those adversely affected. As hydropower development can be seen to reflect a wider political environment in which costs and benefits are unequally shared, the LMB states should be concerned about the impact of their drive for modernisation on social stability.

A more balanced approach

Developing the modern sector is undoubtedly important for the Mekong economies. However, in order to do so in an informed and sustainable way, the continued importance of the traditional sector must be recognised and taken into account. Failure to carefully consider the traditional sector, and the central role it plays in the lives of the Mekong people, could have catastrophic consequences for millions. A more balanced approach – in which the importance of the

traditional sector is acknowledged and weighed carefully against the desire for growth in the modern sector – is therefore required.

Whether there is a place for hydropower development in this more balanced future is unclear. This crucial decision will require comprehensive cost-benefit analysis, which fully accounts for the value of the traditional sector's extensive small-scale utilisation of the Mekong's water resources. Conceivably, there may be instances of well-planned hydropower projects where the cost to the traditional sector is limited, relative to the benefit to the modern sector. After all, ten well-planned hydropower projects can have a similar environmental and social cost to one badly-planned project (Keskinen et al., 2008). However, the key point is that in order to be able to make informed development decisions, a full set of facts is required. This means further study into the value of the Mekong's water resources in their current state, as well as a more sober assessment of the benefits that hydropower will bring. Only then can legitimate decisions be made about trading off the traditional sector for the modern sector. The guiding principle must surely be: 'measure twice, cut once'.

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