Exploring the third pole

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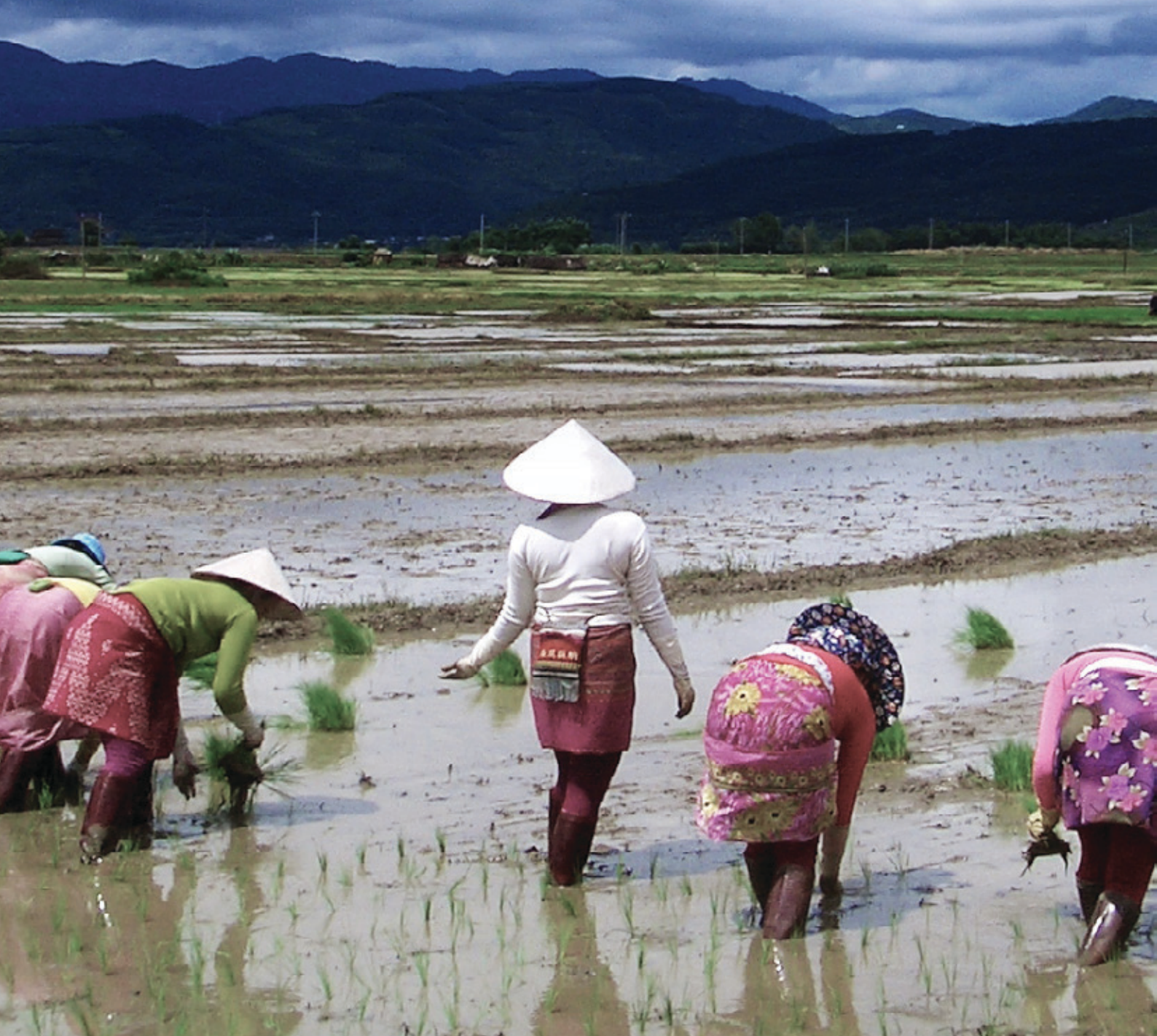
PART 7: DOWNSTREAM IN SOUTH-EAST ASIA



Exploring the third pole
Editor's note

Welcome to thethirdpole.net reader

Since its launch in 2009, thethirdpole.net has provided a unique platform for information, reporting and discussion on the ecology, environment and climate of the Hindu Kush-Himalayas, the Qinghai-Tibet Plateau and the rivers that originate there. We aim to facilitate the free flow of accurate information and analysis and thereby support well informed policymaking in this region. Good governance is crucial to protecting ecosystems on which around 1.3 billion people depend directly or indirectly for their food, water and other vital services.

Using thethirdpole.net's unique reach across the region, we have been able to publish articles by journalists and experts from the various countries that share the benefits and risks of the world's highest mountain range and plateau, from Tibet to Bangladesh. Recognising the continued and pressing need for a regional perspective in a part of the world where access to accurate information is problematic, we are launching the first of a series of thethirdpole.net readers. These special publications will offer invaluable background material to policymakers, academics and other stakeholders.

Important articles are classified by theme and this reader is free to download. We hope that you find it useful and we encourage you to circulate the link. Please also help us to improve and develop this resource by sending your comments and feedback to joydeep.gupta@thethirdpole.net or beth.walker@thethirdpole.net.

Isabel Hilton and thethirdpole.net editorial team

June, 2012

Part 7: Downstream in south-east Asia

The major rivers of south-east Asia – the Mekong, Irrawaddy and the Salween – all originate on the Tibetan Plateau. Dam building on the upper reaches of the Mekong in China has sparked popular outrage. Similarly, mega projects planned on the Mekong in Laos and on the Irrawaddy in Myanmar downstream have provoked similar fury.

This section presents a few highlights from our coverage of the growing challenges facing south-east Asian rivers. Historian Qin Hui argues that China's lack of openness in relation to river management is attracting unnecessary suspicion. Philip Hirsch writes that China has triggered a revival in hydropower ambitions downstream. And Yang Meng describes how China's state-owned energy firms have entwined themselves in Myanmar's internal struggles.

Cover image shows rice farmers in Xishuangbanna by Joe Orton

Downstream in south-east Asia
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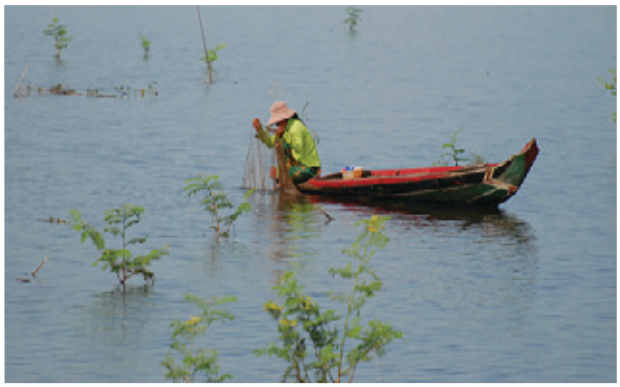
December 30, 2010

On the Mekong, a better way

Dam-building in south-west China has provoked fury downstream. Historian Qin Hui criticises Beijing's response.



The Cambodian prime minister is in China's good books. In a recent – and friendly – speech, Hun Sen said that this year's record low water levels on the Mekong River have been caused by irregular rainfall triggered by climate change and that linking it to the construction of Chinese hydropower dams is misguided.

On November 18, when reporters asked China's Ministry of Foreign Affairs spokesperson Hong Lei what he thought of Hun Sen's remarks, he said: "China and downstream countries are good neighbours and our development in water resources exploitation on the Lancang-Mekong River is fully consistent with the interests of those countries along the Mekong River. As a responsible upstream country, China has always attached great importance to environmental and ecological protection during the development of water resources on Lancang River and fully considered the concerns of downstream countries."

Two days later, however, the Washington Post published an article saying experts are predicting China's dam construction on the Mekong will devastate the lives of millions of people who rely on eating fish from Cambodia's inland lake, Tonlé Sap – something Cambodia has not criticised Beijing over. The article says: "The perennial question about China's rise is: when will Beijing be able to translate its cash into power. In Cambodia, it already has."

Whatever the Cambodian president says, international concerns about China's dam-building activities on transboundary rivers have clearly not gone away. And Chinese scholars continue to debate the issue. Here, in an in-depth, three-part essay, professor Qin Hui of Tsinghua University offers his views.

China's hydropower development on the Lancang River (known as the Mekong once it leaves China's borders) has prompted criticism from countries downstream in south-east Asia. In particular, extremely low water levels seen on stretches of the river during this year's drought in south-west China, triggered intense media scrutiny in countries including Thailand and Laos.

> *"It is impossible for a large reservoir to have 'no impact' downstream. The right question is: what kind of impact?"*

Speaking at a press conference in March, an official from China's Thai embassy responded to the outcry by repeating the usual refrain that "outflow from China into the Mekong only accounts for 13.5% of the volume at the river mouth". He pointed out that the surface area of the reservoirs behind China's three dams on the river – at Manwan, Dachaoshan andJinghong – is very small and results in negligible evaporation, while hydropower generation does not actually consume any water and therefore has virtually no impact on the river. And so on.

On a recent research trip to south-east Asia, I heard frequent complaints that China's hydropower development is causing all sorts of environmental

problems downstream. There was no – or at least not enough – evidence for many of these claims, a point I constantly put forward. But I still find China's official response inappropriate, not to mention ineffective atclarifying the true situation. In fact, this stance could easily be used against China, as it gives the impression the country is trying to pull the wool over the eyes of its critics – particularly given that the statement made in Thailand was written not by the embassy, but by China's hydropower authorities.

First, let's deal with the claim that outflow from China accounts for only 13.5% (some say 14% or 16%) of the Mekong's flow when it reaches the sea. This has been a catchphrase for Chinese officials in the past few years and has some validity in relation to problems occurring far downstream, particularly near the river's mouth. Vietnam's complaints about seawater intrusion in the Mekong Delta are one example. The bulk of the water in that part of the river does not come from China and so we can legitimatelyargue there is no reason to point the finger in that direction.

However, for most of the length of the river outside of China's borders, outflow from China accounts for a much larger proportion of overall volume. For example, at Luang Prabgang in Laos, on average two thirds of the river water has come from China. So we cannot claim that the problems in these places have nothing to do with China. The floods around the Laos capital of Vientiane in 2008 and the historically low water levels seen in certain areas this year all occurred on stretches of the river where most of the water comes from China. In these cases, there is no sense in pointing out that China accounts for only a small proportion of the flow at the river mouth.

Drought was of course a contributing factor to this year's low water levels, but with so many huge dams on the river China needs to back up its claims that the changes in flow were entirely natural. Talk of small surface areas, low evaporation and hydropower not consuming water are transparent attempts to fob off China's critics. The impact of a reservoir downstream has nothing to do with "water consumption" or "evaporation", but the impoundment and release of water. Opening or closing floodgates has a huge impact on downstream flow. Otherwise, how could we talk about reservoirs preventing floods and relieving drought?

Of course, the impact is limited to the capacity of the reservoir. And so we talk of dams being able to regulate downstream flow on a daily, monthly, seasonal, annual or multi-year basis. But China has a huge capacity to do this. Yes, only some 14% of the water at the Mekong's mouth comes from China. But 70% of reservoir capacity in the Mekong Basin is within China – and this will rise to 90% when the Nuozhadu dam (a nine generator scheme under construction in Yunnan) comes into operation. Moreover, all of China's Mekong reservoir capacity is on the river proper, while other nations have built dams only on tributaries.

Our officials describe the Manwan, Dachaoshan and Jinghong reservoirs as being "of small surface area". But a reservoir's effects depend on its volume. Why talk about the area? These three dams are all over 100 metres high, with reservoir capacities of 920 million, 940 million and 1.4 billion cubic metres respectively: in total, the equivalent of three Dianchilakes.

The Manwan and Dachaoshan dams are said to be able to regulate river flow on a seasonal basis, while Jinghong can do so on a monthly (some sources say seasonal) basis. So at the very least, they can influence seasonal river flow downstream. We can argue about whether that is a positive or negative influence, but to disregard common sense and claim these reservoirs have no impact – and then to muddy the issue with talk of "evaporation" – simply makes China look bad.

Particularly bizarre is the fact that China's officials for some reason talk of the "three reservoirs of the Lancang", when domestic media have reported on a much bigger fourth project: the Xiaowan dam. Electricity generation here started in September 2009 and, at a height of 300 metres, it is the world's

highest arch dam. Its power-generating capacity is claimed to be second only to the Three Gorges dam, while reservoir capacity is variously said to be 15.3 or 14.6 billion cubic metres – almost five times the total capacity of the other three reservoirs.

If all the water flowing into the reservoir was impounded – cutting off the river completely – it would still take four and a half months to fill it from empty. And then if a dry period saw river levels fall to half of normal, the release of water could restore normal flow for a full 10 months. You could call that quite a substantial "impact".

According to the hydropower industry, Xiaowan has the ability to regulate river flow on a multi-year basis and is a "tap" that can ensure hydropower stations downstream – including at Jinghong near the border – enjoy a steady flow of water through both the wet and dry seasons. And yet China's officials speak of "virtually no impact". Nations downstream suspect the Xiaowan reservoir is still being filled, since it is so big and the dam only started working in September, 2009. Even a severe drought like the one this year could be exacerbated by a huge reservoir being filled upstream. To determine whether or not this did happen, we must look at how the reservoir was actually operated. Simply claiming there is no impact at all will fool no one.

Furthermore, we know that work started on an even bigger reservoir – at Nuozhadu – in 2006 and that the river has already been dammed. With a capacity of 23.7 billion cubic metres, this scheme will also be able to regulate river flow over a number of years. Not only is it bigger than Xiaowan, but it is also nearer the border. Once that reservoir starts filling, will China again claim it has a small surface area, doesn't evaporate much, consumes no water – and has "no impact"?

The inevitable conflict

It is impossible for a large reservoir to have "no impact" downstream. The right question is: what kind of impact? It can be positive or negative, depending on how the reservoir is built and – more importantly – how it is operated. There are myriad ways to run a reservoir but, simply speaking, there are two basic methods:

One is to manage the reservoir with the aim of preventing floods and relieving drought – in other words, positive regulation. Usually this means emptying out the reservoir until flood season and then storing as much water as possible to lower flood peaks downstream, bringing the reservoir to capacity just as the season ends.

During the dry season, natural flow is passed through and supplemented with water from the reservoir to increase downstream flow, bringing water levels behind the dam to their lowest point by the time the next flood season starts. This relieves both floods and dry periods, evening flow out between the two seasons, and is normally welcomed downstream. But it conflicts with the demands of electricity generation and the need to prevent silt accumulation in the reservoir.

The second method of reservoir operation is almost the direct opposite: store clean water and let silt-laden water flow out. Flood waters carry higher levels of silt than regular flow and this settles on the reservoir floor when the water is impounded. To prevent a build up of sediment and maintain reservoir capacity, it makes more sense to allow flood waters to pass through the dam and instead to store water during the dry season, when there is less silt. And as electricity generation depends on the flow and the head – the height of the water in the reservoir relative to the height the water level on the other side of the dam – storing what little water there is during dry season makes sense as it helps keep the reservoir high.

However, this is exactly what downstream neighbours want to avoid and, if carried through fully, exacerbates both flooding and drought. Both the Three Gorges Dam and Samnmenxia dams use this

method to varying degrees and have presented it as a great innovation. In reality, it is an obvious way of boosting power generation and maintaining capacity but is completely at odds with the original aim of preventing floods and relieving drought. Severe sedimentation – particularly at Sanmenxia – made it necessary. Although experts did their best to come up with sophisticated ways of regulating flow by way of a compromise, the reservoirs' ability to function as intended has been greatly reduced and, at Sanmenxia, is as good as abandoned.

So the interests of the dam operators (maintaining capacity and generating power) and those of downstream residents (preventing floods and relieving droughts) often conflict. Given this, it is understandable if those operating the dams on the Lancang and populations downstream express differing needs.

A Thai official was quoted in the Chinese press as saying – in response to criticism of China in his country – that, since Chinese dams do not impound water during the dry season, the unusually low river levels were insteadcaused by a drought brought about by global warming.

This official presumably had not heard the theory that Chinese dams do exactly this. Whether or not these reservoirs are storing water in the dry season needs to be clarified by China's own authorities. Some say China has actually been doing the opposite – releasing water to relieve drought. And, equally, if that is the case Beijing should make it known. But instead, the country's officials talk solely of "no impact" and "evaporation".

Attracting unnecessary suspicion

If it became clear that China has indeed been impounding water during the dry season, then a wave of criticism would likely follow. But there might also be gratitude: while people living downstream of a reservoir normally hope it will prevent flooding and relieve droughts, in certain circumstances they actually desire the opposite.

Evaluating the impact of a reservoir is complicated. Not only are there various ways of operating a dam, but one particular scheme can also have different consequences for different stretches of the river. China and downstream nations may have competing interests, but there are also conflicts of interest between the downstream nations themselves.

> *Anyone benefitting from upstream schemes will see no need to thank China, while those suffering simply reject its claims, since it has provided no proof.*

For example, the 2008 floods on the Vientiane plains in Laos and the drought on the northern Mekong have both resulted in complaints that China's reservoirs are making the changes in river level more extreme – flood peaks are higher and dry periods drier.

But in Cambodia I heard a different story. There, the Tonlé Sap Lake relies on seasonal changes in the level of the Mekong. In flood season, water flows back up a tributary to fill the lake which, in turn, rises to cover a much greater area. The floods carry nutrient-rich sediment, providing nourishment for the unique strain of high-stalked rice that grows there, and the higher waters allow fish populations to migrate upstream and breed (this is one of the world's largest freshwater fisheries). In the dry season, the water flows back out into the Mekong, the lake shrinks and the locals get out of their boats to collect the fish stranded in traps and harvest the now mature rice And so the lake is known as the land of rice and fish.

This semi-aquatic traditional way of life and the unique seasonal ecosystem both rely on the rise and fall of the Mekong. Unlike those living on the banks

of the river in Laos, the people here worry that the flood waters won't come or that the river will remain in full flow during the dry season. Here, they complain that the changes in the level of the Mekong have been too small – the lake doesn't rise enough, meaning the water doesn't reach all of the rice, while in the dry season water levels are too high and much of the rice harvest is lost.

Add in the impact on fish migration, and the land of rice and fish isn't as abundant as it used to be. Locals are earning less and both the way of life and the ecosystem are under threat. Some point the finger at China's reservoirs, blaming the impoundment of flood waters and the release of water during the dry season.

I explained to the people I met that I had no idea what China's reservoirs were actually doing and therefore didn't know if they could be blamed or not. But I could be sure that these complaints contradicted the ones I had heard in Laos: either of the charges could be true, but not both at once.

If China is responsible for the problems in Thailand and Laos, then we need to look at changes in rainfall patterns and the flow of tributaries such as the Kong River and Tonlé Sap itself to explain the woes at the lake: they cannot have anything to do with China. It could also be possible that both sets of problems are driven by local changes and that China's reservoirs are innocent on both counts. But a firm conclusion requires an examination of the region's hydrology and data on the operation of China's reservoirs.

Only abuse

This brings us to a deeper issue. If it were true that China's reservoirs weremaking changes in water level more or less extreme, in either case there would be advantages and disadvantages. And, by rights, China should – in amongst the complaints – be hearing words of gratitude. If Laos and Thailand are complaining about more extreme changes, Cambodia should be thanking China. And vice versa. But there are only complaints. Is this simply anti-China bias at work?

In fact, I believe the problem stems from claims in certain Chinese quarters that the country has "no impact" downstream. This means that anyone benefitting from upstream schemes will see no need to thank China, while those suffering simply reject its claims, since it has provided no proof. Is there evidence for their complaints? No – because China has not published data on what is actually happening at the reservoirs, making it impossible to objectively evaluate that "impact". And if "evaporation" is then brought up, they may simply conclude they are being lied to.

For example, everyone knows that natural drought has played a role in the drying up of the Mekong. But how did China's reservoirs respond? The authorities refuse to say. Maybe the country deserves thanks for releasing water (even if the drought was so severe that this action didn't help). And ifit was impounding water, well then it can hardly refute the complaints. But refusing to say one way or the other means that China is either losing out on the thanks it deserves from Cambodia, or failing to provide the evidence necessary to counter complaints from Thailand and Laos.

The evasiveness of the authorities over reservoir operation means that, if China is doing something good, nobody knows about it. But it cannot hide any harm that it does and will be suspected of causing harm it has nothing to do with. What sort of strategy is that?

Furthermore, some parties appear to think that other nations work like China – that the entire country will stick to the official line and so you only need to worry about the official stance. I once heard an employee of a Chinese-funded firm complain: "Their government isn't saying anything, what are the NGOs and media doing going on about it?" But these countries work differently – public opinion and official statements play complementary roles, with the public saying

what the government is not able to say in order to apply pressure and leave the authorities room to manoeuvre.

But in China, we argue that diplomacy is too important to be left open to public debate and keep a lid on comment. If this means China cannot use public opinion to strengthen its voice internationally, so be it. But if the country applies this view overseas, believing that all it needs to do is win over government officials while public opinion can be ignored or fobbed off, the results will be poor. Western diplomacy often takes a tough line with foreign governments but is softer with public opinion. In China, we used to joke that our officials were scared of foreigners, while the foreigners were scared of us. Maybe we should remember this when we are the foreigners.

Opportunity in friction

As well as plenty of finger-pointing, this year has seen positive developments in the regional conversation over the Mekong. In the run-up to the April meeting of the Mekong River Commission, a collaborative body founded by Vietnam, Laos, Cambodia and Thailand, and at which China and Burma have observer status, China made a welcome gesture of cooperation. It said it would: provide hydrology data from the Manwan and Jinghong reservoirs; consider downstream interests when planning development of the river;and be willing to discuss matters with those affected by such development.

These are all good signs, but I still think China could be more open. For example, why is it handing over data on only the two smaller reservoirs and not the key Xiaowan reservoir, which is 10 times bigger and able to affect river flow over a number of years? It would at least be consistent if China – on grounds of sovereignty – refused to provide any data at all (not, of course, that I'm suggesting it do that). But to provide data on only the smaller reservoirs will only make others wonder what is going on elsewhere. And if further criticism forces China to provide the extra information, then it will appear to be on the back foot.

Could China not be more proactive? After all, the reservoir does not have a lid and there are any number of satellites that could monitor its water levels. And if, as some have speculated, China's critics have "received support from western, anti-China forces", it would be a small step for the west to hand over that datato countries on the Mekong. If they aren't receiving that data, then the speculation is unfounded. Why doesn't China just hand it over and avoid unnecessary suspicion?

On my visits to south-east Asia, I encountered misunderstandings about China's actions among the general public. For example, I heard complaints about this or that consequence of the "eight reservoirs" China has built on the Lancang – even though the country has so far only constructed four of the eight it eventually plans to develop.

However, most of the complaints I heard focused not on what China is doing, but on its refusal to communicate, which leaves these communities in the dark. They say China's authorities are only willing to deal with governments, and not NGOs or the public, and that attempts to obtain information from Chinese embassies and companies are rebuffed. Western nations do better in this respect: many western companies operating in the region actively invite NGOs and the media to visit their construction sites and ask questions. Contacts in Chinese firms tell me western firms are good at winning over those NGOs and media organisations.

One person specifically mentioned two dams located near to each other in Laos. The Chinese-built dam is guarded by the military, and no visitors are allowed. The western-built dam, meanwhile, is open to NGOs and the media and has a constant stream of visitors. He might have sneered at the western method, but you can imagine which the local people prefer.

The Mekong River Commission is an important channel for official contacts, and with support from the United Nations and other international actors, it is highly influential. But when the body was founded in the 1990s, relations between China and many of the participants had not yet normalised, and so China was not invited to participate. This is of course not the country's fault, but now that friendly relations are in place and China's development of the river – and the impact downstream – is intensifying, there are hopes that China will take part. The range of competing interests within the body leads many in China to believe it is an inefficient talking-shop, however. And, so as to avoid being held back by the commission, China prefers to remain as an observer only.

As this article makes clear, opinions on how the river should be managed differ from place to place. It is not just a case of China versus downstream nations; the downstream nations themselves have many conflicting interests. No matter how China's reservoirs are operated, there will be both advantages and disadvantages downstream. We cannot please everyone. But if China unilaterally decides what to do, it may end up failing to win the gratitude of those it helps, while encountering protest by those who are suffering.

If we had the right principles and mechanisms for coordinating multilateral interests and were able to set up the necessary compensation and responsibility systems, things would be different.

As I have said, the demands of Thailand and Laos are completely different from those of Cambodia – but they only complain about China, and not each other. The reason for this, apart from the lack of ability to control the river themselves, is that as all these nations participate in policymaking at the Mekong River Commission. They have a shared responsibility. Whatever the consequences of that policy, nobody can complain that one country is purposely harming another. But China still bears sole responsibility for its actions, so gets no thanks and only criticism. China's impact on the Mekongis increasing and its participation in a multilateral decision-making mechanism would be of benefit to all involved.

Applying lessons at home

Some foreign observers have blamed the drought in the northern Mekong on China's "hegemony", a criticism I have refuted on many occasions. However hydropower operators are behaving outside of China, you can believe it would be even worse at home. Downstream nations may criticise China for ignoring their interests, but I think the energy firms take overseas complaints more seriously than those made domestically, particularly when those complaints come from governments. Complaints from international civil society – the media, mass organisations and NGOs – may not appear to be treated seriously, but the situation is still better than it is in China.

In China there are often conflicts of interest arising from new reservoirs, relocations and changes in water levels; between flood prevention and drought-relief needs and the interests of the hydropower operators themselves; or between development and the environment. There has been fierce debate over the Sanmenxia dam on the Yellow River and the Pubugou dam in Sichuan, for example: should the dam be built? How should it be built? And once built how should it be run? Answering all of these questions requires different interests to be weighed up. Today it seems it is only environmental groups that can speak out against hydropower. But these issues cannot be summed up simply as "environment versus development", and China still lacks the mechanisms to work through them.

In China today, internal reform and opening up to the outside world are two aspects of the same process. China's participation in globalisation should provide the country with lessons that it can take and apply at home. In the past I have spoken of the lessons Latin America's largest Chinese-backed firm, Hierro Peru, learned about dealing

with independent unions from its experiences with striking workers and the praise Chinalco earned for respecting local land rights at Aurukun in Australia. This knowledge could help Chinese firms at home improve labour rights and reform compulsory land acquisitions.

Similarly, the Mekong controversy could help our hydropower operators learn how to handle relations with other interested parties. I do not believe this dispute is just an international issue, much less that it is appropriate for China simply to adopt a nationalistic stance in dealing with it.

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Image by Paul Mannix

February 08, 2011

Cascade effect

By building dams on the upper Mekong, China has triggered a revival in hydropower ambitions downstream, writes Philip Hirsch.

Much has been written on the downstream impact of China's dams on the Mekong River, which flows through or along the borders of Burma, Laos, Cambodia, Vietnam and Thailand after exiting China (where it is known as the Lancang). The discussion largely focuses on the hydrological impact of impounding water in the eight dams along the mainstream upper Mekong River in Yunnan Province. The Mekong Cascade, as it is termed, has caused considerable controversy in downstream countries, most notably during the2008 floods and the 2010 drought, which many blamed on China's actions.

Clearly, the cascade has major implications for downstream hydrology, with the potential to exacerbate or ease both floods and droughts and impact on fisheries and other sources of income. (chinadialogue has published recent articles on the implications of altered river hydrology and China'sneed for better public relations around its schemes). But China's dams also have indirect ramifications, which receive less attention. Most notable of these is a revival of dam aspirations among downstream governments.

There are currently proposals for up to 11 dams on the lower Mekong mainstream, the section of the river below China. Some of these are in areas bordering or inside Laos, Cambodia and Thailand, three of the four countries that are member states of the Mekong River Commission (MRC), an inter-governmental agency formed in 1995. Dams have been planned for the lower Mekong since the 1950s, but the Cold War subsequently put development on hold. By the time mainstream dams came back onto the agenda in the early 1990s, environmental concerns over large dams had grown to the extent that simply dusting off these megaprojects designed a generation earlier was unpalatable and, until recently, it was widely assumed mainstream dams were off the agenda altogether.

Several factors help explain the revival of Mekong mainstream dams, and China is implicated in a number of ways. One way in which China's own development of the river drives the logic of building more dams further downstream is simply the demonstration and equity effect: the Lao government in particular sees no reason why it should hold back on developing a shared river when an upstream country is already doing so.

A more material way in which China's schemes have helped bring the lower mainstream dams back into the decision-making arena is through the changed hydrology of the Mekong River. Particularly in the upper reaches, immediately below the eight-dam cascade, the altered flood hydrology makes the economics of dams on the lower mainstream more favourable than before.

Early versions of the lower mainstream dams included large storages, for example at the giant Pa Mong dam proposed during the 1960s. However, the scaled-down versions are commonly referred to as "run-of-river" dams, dependent on the seasonal flow of the river to generate power without being able to store more than a few days flow at most. With a more even flow from the upper Mekong dams,

with more water available during the dry season and less during the wet season, the prospects for year-round power generation are greater than under an unregulated monsoonal flood regime.

Another role that China is playing in downstream development is as investor. Chinese state-owned power corporations have stakes in several of the key projects. Until the 1990s, most dams in the lower Mekong countries were public investments, based on loans from the World Bank and Asian Development Bank. The game has changed, however, and most dams are now commercial projects. China has weighed in heavily here: it is estimated that up to 40% of the proposed tributary and mainstream hydropower development in coming years in MRC member countries – in other words, outside China – will be done by Chinese companies. These projects include four of the eleven proposed mainstream dams, at Pak Beng, Pak Lay and Xanakham in Laos and at Sambor in Cambodia.

Recent concern within Beijing's foreign-policy machine over the country's image abroad has led to some interesting changes in the way the nation conducts its hydro-business. At the MRC summit in Hua Hin in April last year, China agreed to release more data on inflows and outflows from its cascade of dams on the Mekong River. This came in the wake of disquiet over the possible impacts of reservoir filling and releases on low flows and flash floods. While China's data-sharing still falls far short of full disclosure, the move did reveal awareness of the need to cooperate with downstream countries.

Sino-Hydro and other companies have also been taking environmental-impact assessments more seriously than in the past. Sino-Hydro's Nam Ngum 5 tributary dam is being used as a test case in a new hydropower sustainability assessment protocol that has been developed by the international hydropower industry in dialogue with some NGOs and other partners.

Another knock-on effect of China's role as the upstream player in the Mekong is a shift in local geopolitics, driven by the re-entry of the United States into the region through its Lower Mekong Initiative. While the US has yet to decide what material developments will take place under this programme, the announcement of the initiative has included thinly-veiled attempts to trump Chinese influence in the region, sometimes portraying the United States as a downstream friend to counterbalance the upstream environmental foe.

What do these seemingly disparate, indirect aspects of China's role in Mekong mainstream hydropower beyond the Mekong Cascade tell us about the region's environmental politics and development trajectories? There are at least two ways in which they paint a more coherent picture than is immediately apparent.

First, it is useful to understand the political logic of the mainstream dams in China and the lower Mekong in terms of path dependency, or the idea that events and their consequences are triggered and explicable in part by previous events and can go on to influence yet further developments. That is, while the immediate considerations of the Mekong Cascade have been considered largely in their own right, there is a bigger set of hydrological, economic and political implications of China's development within its own territory that seems to be pushing inevitably toward construction of dams on the lower Mekong mainstream. In turn, this is driving a new geopolitics as various players realign based on their position on the mainstream dams.

Second, then, it is clear that the environmental politics around dams on the Mekong mainstream are intricately bound up in a wider world of geopolitics, which include China's emerging relations with regional neighbours. They also include the regional playing-out of competition between older and newer world superpowers. What is notable is the way in which these geopolitics are now enmeshed in resource and environmental concerns over a shared river system.

It would be dangerous to equate path dependency with fatalism over Mekong mainstream dams. Important decisions are yet to be made. It would equally be wrong to consider that environmental considerations are subject and subsidiary to dominant geopolitical concerns and that international relations rather than concern for a shared river system entirely rule the game. The recent publication by MRC of the Strategic Environmental Assessment (SEA) report on the lower Mekong mainstream dams, which recommends a 10-year moratorium on the 11 projects, presents an opportunity for the countries of the region to move beyond the path dependency that sees one dam leading to another and another, until the river becomes a cascade of still-water lakes – as would be the case for 60% of the length of the lower mainstream if all 11 dams were to go ahead.

A telling decision is imminent that will demonstrate whether or not the cooperative arrangement represented by MRC will take note of the SEA as the most comprehensive scientific assessment to date. The first of the mainstream dams, Xayabouri, has been notified for prior consultation by MRC member states over a six-month period to March, 2011. This is the first time that other MRC countries have been asked to give their opinions on a dam proposed in the territory of one of their neighbours. If a deal is done to go ahead with this dam despite the SEA recommendations, this will more than likely open the floodgates for further dams on the mainstream, at enormous cost to the well-being of the millions who depend on the river for their everyday livelihoods.

Ultimately, this outcome is linked to China's actions further upstream, without which it is highly unlikely that the mainstream dams would be under discussion, as they are today.

Philip Hirsch is director of the Australian Mekong Resource Centre.

Image by All Points East

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Chinese power, Burmese politics

China's state-owned energy firms have entwined themselves in Myanmar's internal struggles. Yang Meng finds out more on a visit to the stalled Myitsone dam.

We approached the Myitsone construction site along a new concrete road, laid over the local government's old, rough track by China Power Investment Corporation (CPI). This Chinese state-owned power company is the investor behind this multibillion-dollar hydropower scheme in northern Myanmar, also known as Burma, and its Yunnan-based staff told me I was the first reporter to be granted permission to visit.

A cascade of seven dams is planned for the Irrawaddy River, of which the Myitsone scheme – located 30 kilometres north of the Kachin state capital Myitkyina – is just one. At a total cost of 160 billion yuan (US$25 billion) and with power-generating capacity of 20 gigawatts, this string of dams is set to be China's largest overseas hydropower investment to date. Once the dams are complete, experts say, Myanmar's government will receive tax revenues, free electricity and shares and dividends worth US$54 billion (340 billion yuan). That's more than Myanmar's entire GDP for 2010, which was US$42.9 billion (270 billion yuan).

At least that was the plan. On September 30 last year, events took an unexpected turn. Myanmar's new, nominally civilian president, Thein Sein, believed to be responding to increasingly widespread opposition to the dam across Burmese society, suddenly announced the suspension of the project for at least the term of the current parliament.

Myanmar stands on the brink of great change. The military government that has ruled for half a century is in decline. Aung San Suu Kyi's National League for Democracy is again a political player [editor's note: on Sunday, April 2, the party claimed a landslide victory in by-elections, setting Aung San Suu Kyi on course for a seat in parliament for the first time] while ethnic militias control swaths of the north. Nobody has the upper hand. China is Myanmar's biggest investor, and the big state-owned enterprises that have charged into the country now find themselves caught up in its power struggles.

The situation is comparable to that in Africa, where many Chinese companies have struggled to adapt to changing conditions in the swell of democracy movements. Strategy consulting firm Roland Berger has warnedthat existing practices and guidance from the Chinese government are unable to keep up with the constantly shifting circumstances, or to track and evaluate both international and tribal disputes.

As of the end of July last year, 31 different nations had investments in Myanmar totalling US$36 billion (227 billion yuan) across 12 different sectors, according to the country's Directorate of Investment and Company Administration. China is the largest single investor, accounting for almost US$16 billion (101 billion yuan). China is also Myanmar's largest trading partner – annual trade between the two countries is now worth around US$3.6 billion (23 billion yuan). China's Myanmar-bound exports are largely destined for its investment projects, comprising raw materials and equipment worth over US$2 billion (13 billion yuan). Myanmar meanwhile sends minerals and agricultural products worth US$1.6 billion to China.

These figures are strikingly higher than just 18 months earlier. In January 2010, official statistics put China's investments in Myanmar at no more than US$1.8 billion. The leap is mostly thanks to the arrival of huge state-owned enterprises such as the China National Petroleum Corporation (CNPC) and CPI. Previously, investments came from small and medium-sized firms (SMEs) based over the border in Yunnan. Deals already inked by Chinese firms and the Burmese government will see investment continue to boom in the near future, mostly in hydropower, oil and gas. But those who arrive first will also be the first to hit problems.

Myanmar is rich in water. Three major river systems – including the Irrawaddy – run down the country, from north to south. But the country has never had the infrastructure to exploit these resources. Before travelling to Myanmar, I visited CPI's offices in Kunming, where I watched as CPI Yunnan's president, Li Guanghua, unfolded a map of Myanmar with the course of the Irrawaddy closely annotated. "There are over a dozen Chinese firms, including CPI, working on hydropower in Myanmar," he explained. "We may be based in China, but we compete in Myanmar – almost always with other Chinese firms, and fiercely."

Li Guanghua is a veteran of the power industry and its government regulators. He moved to CPI Yunnan in 2008, by which time the company's Burmese projects had already been under way for two years. In 2006, with the military government in need of relief from international sanctions, Myanmar Power visited CPI in search of investment, and CPI became the first Chinese firm to work on hydropower in Myanmar. But the honeymoon period was brief. Soon, other Chinese firms were flocking to compete for the same projects. The Burmese government realised it could impose harsher conditions and still have a range of partners to choose from.

CPI operates a build-operate-transfer (BOT) model in Myanmar, meaning it will build a hydropower plant, operate it for 50 years and then transfer the whole project to the Burmese. Its cascade of seven dams is tabled to generate a similar amount of power to the Three Gorges Dam.

Under the contract, Myanmar will receive a tenth of the electricity generated for free, while the remainder will be sold to China. There is no need for CPI to obtain the land rights – Myanmar will provide those at no cost. Myanmar will also hold a 15% stake in the project. Li estimates that the project will provide an 8% return on investment, which is normal for hydropower schemes. And, as the project is near the border with Yunnan and the Burmese are waiving export taxes on the electricity, he said it is pretty much the same as building a hydropower dam in Yunnan.

The sudden arrival of 2,000 CPI employees in Myitkyina caused temporary shortages of supplies and price spikes. The situation only calmed down when goods were shipped in from Tengchong, over the Chinese border. The Chinese workers have laid telephone and optical fibre lines running back home, and you can now call the dam site with a Tengchong area code.

An unknown party countered the Chinese advance with a terrorist attack. At 4am on April 17, 2010, a series of bombs exploded at four points within the Chinese camp. In the panic, a Chinese worker was injured as he fell from a building. Chen Kerui, a CPI project officer, pointed to a spot less than five metres from our meeting room. "Part of the roof was blown off. It looked like it was homemade bombs, about the size of a tin of paint," he said. The Burmese military has not solved the case, but soldiers are now stationed around the camp. As we drove towards the dam, we saw soldiers armed with grenades and rocket launchers changing shift.

CPI's Irrawaddy projects are in Kachin state (where the majority of inhabitants belong to the Kachin ethnic group), considered the territory of the anti-government Kachin Independence Army (KIA). A ceasefire signed between the two sides 17 years ago forbade either from entering the other's territory.

But, in May 2011, the Burmese army moved to protect a dam being built by China's Datang Corporation on the Tarpein River. Fighting with the KIA broke out, and continues today.

Fifty-six-year-old Nuoleidan is a former KIA platoon leader who now manages the army base. He opened his belt and showed us three gunshot scars, acquired during battle with the Burmese army: "The Burmese government and the Kachin have been at loggerheads for 60 years. Their army wants to wipe out the Kachin, and we're fighting for complete independence. So the war has to go on."

In January this year, at a hotel in Ruili just over the Chinese border, the Burmese government and the KIA held their second round of talks, to no avail. This was not good news for Chinese companies.

The clock has stopped on the Myitsone dam. Nationalist sentiment is on the rise in this traumatised country and has become more important than the struggle between the government and the ethnic militias. On September 10 and 11 last year, Li Guanghua attended two press conferences held by the Burmese parliament and answered questions from members on the dam. Seven government ministers were present, and were firm that the dam would go ahead. But a public backlash followed and, on September 17, anti-dam protestors gathered in front of the Chinese embassy. Sensing that this could lead to larger protests, the Burmese government had no choice but to call a halt to the dam, catching the CPI by surprise.

"They're all saying we've taken Myanmar's resources, but that's not the case," complained Li Guanghua. "The 10% of electricity we're giving to Myanmar is equivalent to two gigawatts, and the entire country only has three gigawatts of generating capacity. And if that isn't enough, we'll give priority to meeting Myanmar's needs. China's installing massive amounts of capacity every year, this is small change for us. It's not a major resource, we're just doing business and it's nothing but good news for Myanmar. Over a century, there'll be one trillion yuan of profit for Myanmar."

Not everyone in Myanmar agrees. Nairg and Maiparn, two young members of the Ta'ang ethnic group (who number 60,000 according to official statistics) on the Burmese border with Yunnan, both strongly oppose the dam. They are members of the Ta'ang Youth and Students Organization (TYSO). Founded in 1998 and based in Thailand, the TYSO is active on Myanmar's borders with China and Thailand.

"The Chinese companies should listen to what we, the people of Myanmar, say. When their bosses go to Naypyidaw, everyone I know is sure they are carrying suitcases of cash for bribes," said Maiparn.

Nairg concurs. The Irrawaddy basin is heavily populated and much of the country's agricultural land lies on the river's banks, and so many like Nairg worry that the dam will affect harvests. "It's true that Myanmar lacks electricity, but the arrival of the Chinese changes our lives, while most of the benefits go to the government and the Chinese companies," he said. "The army takes the land and fields, and then drives away the people. The people get all the pain."

There are people in China who disagree with Li Guanghua too. Yu Xiaogang, founder of environmental NGO Green Watershed, said that China's six large state-owned power companies have already fully exploited their own country's rivers – and that's why they are looking to Myanmar.

Myanmar is rich in resources – and provides an excellent example of what economists call the "resource curse": countries that rely on the export of resources, in particular oil, diamonds and metals, are likely to suffer low growth, high levels of corruption, a lack of political freedom and frequent conflict.

In September last year, Yu and representatives of two other NGOs went on an investigative trip to

Myitsone. In the report they wrote on their return, they said: "China's large state-owned firms have significant resources and huge amounts of capital, and restrict the development of private enterprise. They set policy, control the market and do not need to worry about environmental and social impacts. Profits are not made public, while public resources are often transferred to the companies."

But Li Guanghua has no time for environmental NGOs. "The environmentalists are all well-fed and clothed; they're not the ones who need to improve their circumstances. There's no need to talk to them."

Yang Meng is a reporter at Bloomberg Businessweek's Chinese edition, where this article was first published.

Image by Rebecca W