



A RIVER IN PERIL

By RADIO FREE ASIA

A Cameraman's Journey Begins in China

Seven years ago I was part of a small team commissioned to follow the Mekong River from its source in Tibet to Vietnam and the South China Sea. Our task was to document the lives of ordinary people living along the river before dams and development changed its course forever. Then, a battle raged over building a cascade of mega-dams on the Mekong in China, Laos, and Cambodia, which would threaten the river ecologies that are the lifeblood for more than 60 million people. Now the dams are a reality, and I'm retracing that journey alone to see what's become of the Mekong River and its people.

The Mekong rises in the Tibetan Plateau and flows more than 2,700 miles through Myanmar, China, Laos, Thailand, and Cambodia. Then in Vietnam the river spreads to create the Sông

Cửu Long, or the River of the Nine Dragons.

In just seven years the Mekong has been changed irrevocably. In China, seven mainstream dams are already in operation, with up to 20 planned or under construction in Yunnan Province, Tibet, and Qinghai. Downstream, long-held ambitions to harness the river for electrical power and trade are being realized, with nine mainstream dams planned or under construction in Laos and two in Cambodia. The scale of the dam-building plans for the Mekong is overwhelming, with between 100 and 200 dams planned, under construction, or commissioned.

It's a river of empires, being developed by people from far away, whose visions are imposed on people inextricably linked to the river. These local people are my guides. We will chart the river's changing course, not from a distance but directly through the lives of people who share their fate with that of the Mekong.

China Controls The Head Of The River

Before I can rejoin the Mekong River, I visit the southern Chinese city of Kunming. My mind is



Lancang Jiang in Yunnan, stained by the brown waters of the Middle Little River.

brimming with questions about the future of the Mekong, as Tibetan glaciers melt and power is increasingly expressed by China's control over fresh water. Kunming is the capital of Yunnan, China's most multicultural province, with 26 ethnic minorities.

I meet with a colleague and we go to lunch. We order a traditional Yunnan dish called "cross-the-bridge rice noodles." It's an appropriate dish for a province with many rivers and a lot of noodles. The spicy noodle soup comes with a story hundreds of years old. It's said that a husband was studying on one side of the river to become a government official. Every day his wife would bring him noodle soup, and every day it would be cold. Then one day the woman accidentally left the chicken on the stove too long until all the fat and ligaments dissolved. When she brought the soup to her husband it was sealed in a layer of fat, and when the husband added the fresh noodles to the piping hot chicken broth they cooked perfectly. To celebrate his wife's useful mistake he named them in honor of her daily crossing of the bridge.

Yunnan is a mountainous wrinkle on the earth's surface, with deep ravines cut by melt water flowing down from Himalayan glaciers.

We hail a taxi to a conference taking place in the middle of town. I walk into a session discussing farmers and climate change resilience in China. I'm here to meet people who can shed light on a crucial question: How will climate change affect the Himalayan ice pack and how will this in turn affect the Mekong River?

The delegates break for coffee and I corner Professor Lin Erda, an eminent Chinese scientist and founding member of the Intergovernmental Panel on Climate Change (IPCC). He describes to me a future that will exacerbate existing problems along the river. He explains that over the past 10 years, the ice pack has started to melt

faster than expected. In the next few decades this will release more water, producing changes to the flow regime and water temperatures, causing more dramatic and unpredictable flood events. Temperature fluctuations will interrupt seasonal breeding triggers for fish. Once the ice pack has been reduced to nothing but annual snowfall, the amount of water released to the river will decline.

I ask Professor Lin how he thinks this will affect the cascade of mainstream dams in China and now in Laos and beyond. He says simply that this will inevitably mean that the dams will not be able to produce their expected power output.

In March of this year, drought gripped Cambodia and Vietnam. A Vietnamese delegation was dispatched to China to negotiate over the Lancang waters stored by mainstream dams. China, for its part, signaled its intentions with the inaugural meeting of the newly minted, Beijing-initiated Lancang Mekong Network Mechanism Framework. As a result of negotiations in Beijing, water was then released from the dams in Yunnan.



Three matching launches kept ship shape for the visits of executives of the LancangHydro Cooperation.

In China, the release of water was seen as a gesture of goodwill, satisfying the request of the “younger brothers” downstream. But there has been much criticism of the unseasonal release which resulted in lost riverbank gardens in Thailand and Laos. The inevitable impression is that China has gained control of the Mekong. China is truly the Middle Kingdom, uniquely well placed on the rivers that flow through much of Asia.

If water becomes more scarce in China, which already lacks fresh water, how will managers of those dams – and the cities they supply with power – deal with the needs of downstream people and environments? Will they store water at the expense of the nations downstream?

NGOs in Kunming told me that the government understands the consequences, but is more interested in the benefits. They told me that, because of China’s advantaged position as the source of the headwaters, it’s difficult to influence China’s policy. There is an international treaty concerning trans-boundary rivers, but China is not a signatory. Nor is it a member of the Mekong River Commission, a forum for

intergovernmental management of the Mekong Basin. One thing’s clear: China didn’t think much about the downstream partners when it was planning its dams.

A Gateway To Southeast Asia

As my plane takes off from Kunming for my next stop, which is the city of Jinghong, I’m ready to get away from escalators, cars, planes and televisions, and into a world of rivers, people, and new places.

As soon as we land I can sense that Jinghong is not like eastern China. The southernmost major city on the Lancang Jiang, the name for the Mekong River in Mandarin, Jinghong may be the hottest place in Yunnan Province. The light is different. There are Hindu-influenced Buddhist temples everywhere. The wide boulevards are lined with palms. Buildings are decorated with a miscellany of Chinese and Southeast Asian aesthetics. The serpentine cornices on a service station compete with the silent crowing of stylized golden roosters. Banana plantations border freeway overpasses.

We hire a car at a place beside a temple. A huge



In the distance the wall of the Nuo Zha Du Dam, the second highest dam wall in China

gong hangs in the veranda. Looking around, I'm struck by how different everything feels. I realize that it's the trees, the massed communities of greenery that shade the courtyard. Dozens of different plants all grow on top of each other in an ecstatic crowding that is usually seen only in the tropics.

The first European expedition to chart the course of the Mekong into China arrived here nearly 150 years ago. At the time it was a small kingdom, which the French explorers called Xieng Hong. It was just a few buildings hidden in a forest and barely visible from the river. In the 1950s, the town still comprised just a few brick buildings. Today its Mandarin name is Jinghong, but it's more properly known by its local name, Xishuangbanna. It's the site of the last dam on the Lancang Jiang before the river leaves Chinese soil.

Jinghong is the anchor for China's economic cooperation with Myanmar, Laos, and Thailand. An expanding port town, it's linked to Thailand by the Mekong River port of Chiang Rai. Once a backwater, Yunnan has become a gateway to Southeast Asia. With this in mind, I want to find out if it's possible to catch a riverboat to the Golden Triangle, where the borders of China, Myanmar, and Laos come together.

We drive over a suspension bridge. The river is low. It's the rainy season, so the levels must be due to the dam just upstream. At the port, a gate is drawn across the driveway, and an old man in a guard's uniform ambles over to our car. He scoffs at the idea of my catching a ferry to Thailand, saying they have been stopped ever since there were some "accidents" in 2005.

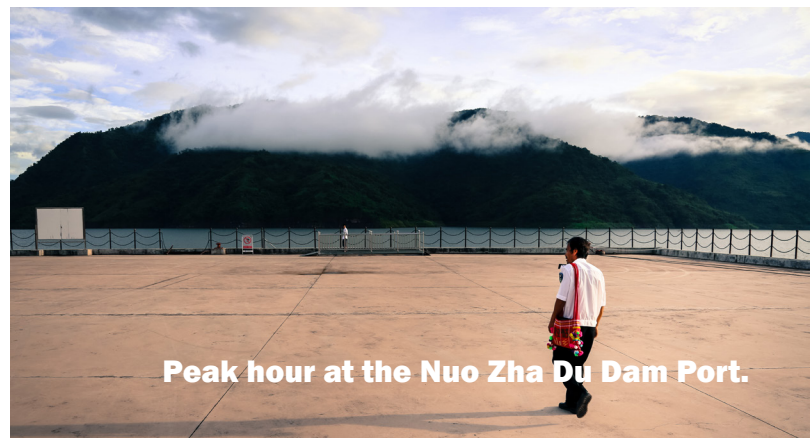
The port's terminal is huge and silent. Through glass doors that are chained and padlocked, we can see customs buildings ready for an influx of trade and tourism, but now stripped of all furniture and covered in an undisturbed layer of

dust. A woman in civilian clothes comes over to see what we're doing. She reports that it might be possible to get a boat at the Gang Lei Port to the south. But she's not encouraging, mentioning something about a shootout and armed men stopping boats along the riverbanks.

Slightly deflated, we leave Xishuangbanna and drive northwest to Pu'er to meet a community activist working to preserve ethnic culture. I want to see a mainstream dam first-hand, but the Jinghong dam is not yet allowing public access. The community activist has suggested I try my luck 200 miles north on the longer-established Nuo Zha Du dam. My colleague says the activist is happy to help, saying, "Any friend of the Mekong is a friend of mine."

On a new highway bothered by almost no cars, long tunnels cut regular holes in the narrow mountain gorges. The jungle is profuse, thick green, and overhanging. However, this is soon replaced by small patches of tea and vast plantations of rubber trees. The road snakes along the floor of the canyons, following the contours of mountain walls. Farmers wearing wide-brimmed straw hats tend gardens, taking the small chance offered by the flat spaces beside the roadway at the foot of the hills.

An hour out of town the highway is diverted into a four-lane army checkpoint, and the soldiers pull our car aside for additional questions. The guard says that they are checking for "everything." We are sent on our way between hillsides terraced with tea and rubber. An hour out of Pu'er we catch our first sign of the mainstream dams on



the Lancang Jiang. Huge pylons form a chain of links on the mountain tops carrying electrical current to cities in the east. The road emerges from the mountains into a floodplain extending in every direction for as far as we can see. It's a tapestry of crops, a vast garden.

We reach Pu'er and meet the activist in a restaurant. He's an exotic figure in flowing fabric, dressed unlike anyone else: thick black hair greying and long, and clothes of rough natural fibres. His skin is deeply tanned. As the rain falls outside, we plan a visit to the Nuo Zha Du Dam. The activist is encouraging but warns us that we'll have to drive nearly 50 miles on bad roads and through military checkpoints.

It seems that the dam has become a popular fishing destination for recreational anglers, and we might need fishing licenses. The activist leads us to a fishing tour and tackle shop. A steady stream of quiet men comes and goes, testing

and selecting their tackle for catching elusive wild fish. This is a business built by the dam, and offers fishing tours to the reservoir.

We sit down at a low table with the obligatory tea service. After introductions we start discussing a visit to the dam. The shop owners decide to call a local who works with fishermen. They all say the dam is relatively open, but security is still touch and go. While we wait for a response to our request for a visit to the dam, they pour the tea that has been brewing and we talk fish.

The fisheries are not just naturally stocked. The dam company has a fishing management department, which invests in seeding fish in the river. There are also some introduced species. They say that a lot of the native fish disappeared when dam was built. There's less diversity now because there are no migrating fish. Many fish are trapped and can't meet their upstream and downstream schools. They just swim from dam



The Nuo Zha Du Dam Reservoir.

A recreational fisherman at dawn on the shore of the Nuo Zha Du Dam.



in the mountains. At the end of the bridge a woman is selling dried fish and shrimp. Her family catches them in the river. She tells us that the river we have followed is called the Da Zhong He, or Big Middle River.

A few kilometers later we glimpse the dam wall in the distance. We turn down a wide, well-made road along the river's edge and in a few minutes see a military checkpoint. The boom gate rises and we roll past the soldier guarding the gate, all three of us with a surprised look on our faces.

Is this a more relaxed China or not? It's disconcerting to be able to just walk in.

We stop at a tourist lookout, an elevated stone balcony with a marble balustrade, far above the dam outlets. The Nuo Zha Du Dam is the fourth-largest hydropower station in China. Dams on the mainstream Mekong are objects out of science fiction. It is hard to overstate the scale of the Chinese dams. They rival the clouds for grandeur. The dozens of tunnels alone extend for miles, wide enough and high enough to accommodate the biggest machinery needed to build the second-largest dam on the Mekong in Yunnan. The road is new and clean. Along the verge, flowers are planted. It is a place that expresses a great pride in its scale, in the midst of carefully kept gardens. My companion tells me that for the Han people, history's catalogue of invasion, war, and desecration has one fatal lesson. If you are weak, you will become a victim. The new China is opening its doors to show the world these fruit of its century-long re-emergence. These dams are among history's most prodigious constructions, harnessing a great river, a force so powerful that it carves its own form out of mountain ranges. Mao Zedong's drive to conquer nature is realized here. And here China makes the Mekong's power its own.

It's quiet. The dam makes almost no sound from this far up, just the faint roar of water escaping from its twin sluices. Birds twitter in the soft wind above us.

We drive on, snaking in and out of tunnels until we reach the dam's reservoir. Out on the lake, individual lights can be seen. Villagers attract fry to their nets. We find the dam's port as night falls. Passing a guardhouse, we drive down a broad driveway to find the fishing guide and a bed for the night.

The local guide is expecting us. He's eager to show us our accommodation choices. The one I'm leaning towards is a room in one of three five-storey hotels. They are almost empty and dark, except for a man chain smoking on a balcony overlooking a silent, unlit square. But our guide wants to show us something more adventurous.

We follow him through the dark port complex and pull up outside the customs building. It's as big as the one in Jinghong, and as empty as an unused crypt. He leads us through a customs hall as big as a basketball stadium. The power is off, and we pick our way by the glow of streetlights outside. He explains that the port was built for trade, but no boats came. In the end it was too hard and too expensive to move cargo on the river just 200 kilometers, or 124 miles, from the Dachaoshan Dam upstream. Downstream, the Jinghong Dam was designed with a lock for freighters, but the guide tells us that it's too dangerous and has never been operated.

Exiting the building, we pause at the top of a long flight of steps. Our guide shines his flashlight on two, 12-person cable cars set on tracks down to the water. Both are locked and chained. These were intended for the tourists and merchants who never came. They have never been used. It was never worth the time to go to Beijing to learn how to operate them.



Two cable cars wait for tourists and trade that will never come to the Nuo Zha Du Port.

Far below we can see the lights of a few fishermen at the edge of the reservoir. Villagers' fishing lamps glow on the black water. We head down the stairs, 50 or 60 meters to the water level. It's hard not to become disorientated in the pitch-dark, taking step after step and seeing only one at a time. Our guide explains that fishermen come from as far away as Kunming, or even Beijing. They stay for up to a week, patiently waiting to catch the dam's slippery prizes.

At water level the port's soaring walls block all breeze, and the air is stale and humid. The guard shows us to a demountable dormitory set on a pontoon moored to the bank. We quickly decide on the less adventurous option of a hotel.

At 6 am, we go to see the fishermen on the lake. They are lonely figures dotted around the water's edge, engaged in a solitary battle of wit and technique and using expensive fishing merchandise -- temperature gauges, aged corn and pork bait, and tiny, extendable one-man jetties, with places for coolers, chairs, and umbrellas. The shore itself consists of raw dirt and rocky cliffs devoid of all but the spindliest shrubs. The guide explains that the water often rises and falls quickly depending on the dam. At times, the shore where we stand could be 10 or more meters underwater, and then at other times the level can drop much farther.

We walk back to the silent port to get a lift to a relocated village nearby to see the fishing market. The dock is large, with two rusting cranes set aside. We climb 30 meters down a set of small concrete steps cast into the vertical wall. A team of men in overalls is busy maintaining the largest of three matching motor cruisers. The boatman explains that these luxury vessels are kept for the visits of company officials.

We motor across the choppy dark water, passing floating square nets on the way. The

nongovernmental organization International Rivers estimates that since 1949 China has forcibly relocated more than 20 million people to make way for dams. The Nuo Zha Du project resettled some 44,000 mostly rural people who were mainly from Lahu and Akha villages. Some moved away, while many others were shifted vertically up the side of the canyon.

The village is perched on a steep slope running straight down to the fluctuating reservoir. We climb through the switchback streets to the market, but find that it is empty aside from a few women selling fruit and one old lady drying little milk-white fish on a table covered in rice sacks. She tells us that she lives in faraway Guangzhou and comes here for the fishing season every year.



This fisherwoman from Guangzhou dries the tiny fish that were introduced into the dam.

The woman explains that the fish species she is drying was introduced after the dam was built. The fisheries were outsourced to a private group that introduced the non-native fish from Japan. Soon however, they discovered that the little fish eat the larger native fishes' eggs. Now local fishers catch them, dry them, and sell them back to Japan. The fisherwoman claims that since the dam was built, few of the native fish survive. Native fish once migrated up and downstream, but now they are trapped between dam walls. The old kinds of fish are rarely found.

We talk with the two women in the empty market. They explain that there were not enough fish available today for the market to open properly. They're selling vegetables, rice sweets, tissues, tea, coffee, and staples. They are the original inhabitants of the village but say that the dam attracted a lot of outsiders. These new people have contacts far to the east, so they can buy the fish from the locals and sell them for a big profit while the locals make only a small profit.

They direct us to a breakfast restaurant. Everything is set on a slope. The dining tables are on a stair landing. The women make us bowls

of steaming spicy noddles in a thick chicken broth with vivid crimson peppers and chillies. They explain that they used to run a roadside restaurant when their old village was beside the road. Now the road and their restaurant are 250 meters below the waterline.

After breakfast we continue through the village streets. A shopkeeper tells us the same story: that since being relocated, the road bypasses the village, and that business is very bad. We stop under the porch of a house where two women are dicing green vegetables.

A woman goes on to complain that the government wants them to stop the villagers from using fertilizer and cutting down trees for their gardens and farms. The government gave them compensation to stop farming and to let the wild forest grow, but they can't do it. They have to make a living somehow. Before the dam came, the river naturally watered and fertilized their farms with annual floods. Now they're forced to clear new land and use chemicals to make it fertile. She also says that not all of the compensation went to the village people. Some of it disappeared, maybe into official hands.

They point to a mountain on the other side of the reservoir where the forest looks untouched. It's a wildlife reserve, created by the government and intended to support hunting tourism. The first project imported some 200 monkeys from India that the villagers claimed were for hunting and eating. But the animals were raised in captivity and were tame. So they died when they were released into the wild. The forest is home to the endangered muntjac deer, whose meat is prized in China and beyond. The villagers say that all of the tigers that once roamed here are gone.

One villager says, "In the old days we fitted into nature."



These tiny white fish originate in Japan, and have been found to eat the eggs of native fish.

They hunted with bows and arrows. Now people use crossbows and guns. These are the Lahu Lancang, the tiger eaters of the Mekong River. The old men's bodies are scarred with wounds from hunting tigers. Now they say that if animals like the tigers become extinct, nature will lose its balance. The only tigers they know of now are the four African cats kept in the Pu'er City Zoo.

The dam and development have replaced the ecological balance that existed between traditional people and nature. These ethnic minorities are now the environmental threat. My travelling companion jokes that this is the way things are done in China. The government destroys the original and then tries to create it again from scratch, and always fails.

Walking through the village, we meet an older fisherman. We ask him about the changes and he tells us that his old home is now hundreds of meters below the water. At first he missed it very much. He missed his goats. Then he says that the water has changed since the dam was built. Before the dam came, the best water would arrive in May and June, with the melting of the Himalayan ice pack releasing floods downstream. This water is called peach water because of its colour and its purity. Now he says

the peach water has disappeared because the river doesn't flow as before. He says that dam authorities check the water quality regularly and tell him it's dropping.

He mentions that in March this year, at the start of the peach water season, he noticed the water level dropping fast, one to two meters every day and then much faster. The government gave them notice this would happen, and they were told it was for the downstream nations, but he's not sure where. He knows that the river comes from Tibet where his Lahu people originated, and he knows it flows south to Laos. But beyond that he's not sure where it goes, perhaps to Singapore or the Philippines.

In the dry season of 2015 and 2016, the region was gripped by the biggest drought in nearly 100 years. Water levels dropped, contributing to devastating losses among the fisheries of Cambodia's Tonle Sap and salt intrusions into the rice bowl of Vietnam's Delta. In response to the drought, China released 2.3 billion cubic meters of water from its dams in Yunnan.

China has gained control of the river that feeds Southeast Asia. This release made at the request of drought-stricken Vietnam demonstrates the



The Nuo Zha Du Dam, the fourth largest hydropower plant in China.

true meaning of the term hydropower. China now controls the source waters of the Mekong, the lifeblood of millions of people downstream.

This event undermines China's long-held assertion that as little as 14 percent of the downstream river water comes from its upper basin, the Dza Chu in Tibet and the Lancang Jiang. In truth, in the dry season 40 percent of the water flowing past Laos's capital of Vientiane comes from China. In Northern Thailand, local activists remember well that the river nearly emptied when China's first dam, the Manwan Dam, which opened in 1994, was first filled to capacity.

However, the drought and the damage done have not slowed the rate of dam building in China, Laos or Cambodia. For the last decade, China's hydropower program has installed more capacity than the rest of the world combined. Five dams are operational. Three are under construction. And up to four more are planned.

China's program is not only intended to create electricity but also to influence downstream nations. In 2010, a Chinese analyst observed,

"We believe that the Lancang Jiang, the Mekong River, will change rapidly – especially during the next two to three years when a large number of construction projects will be completed." China's strategy, he said, is to expand influence, generate foreign exchange, and develop relationships. This prediction has come to pass.

Meanwhile, the ecological and agricultural cycles of the Mekong that have evolved together for many thousands of years depend on the annual floods, on the silt deposited on farmlands, on the inundation of forests and wetlands, and on temperatures that fluctuate regularly, triggering fish migrations to ancestral nurseries. Millions of lives depend on this. The dams in China, and the ones to be built in Laos and Cambodia, have broken this ecological calendar forever.

Dams Destroying Traditional Culture

We leave for Pu'er to meet the activist. On the way, we are stuck behind trucks carrying sand to concrete factories, and the solid green mountainsides are covered in rubber trees.



Fishermen clean their daily catch.

The raw red soil revealed by quarries look like wounds from a tiger's claw.

When we get to Pu'er we meet the activist in a shopping center next to a fountain. He explains that a village we visited was originally set high in the valley, not on the river, and depended more on the road than the river. As the waters rose and drowned the river villages, this village gained a lakeside position. They also gained a lot of compensation, and in that way benefited most from the dam. The activist says that while the government may have given them a lot of money, it didn't last for long, and what they have lost is gone forever.

The dam has changed the structure of society and life. The loss of local fish has been matched by the destruction of traditional culture. There used to be good relations between villagers, but outside influences have fractured those old relationships. He gives one example of a good fishing spot in the new reservoir, which was claimed by one clever man who built his house there to make it his own. This led to inequity and jealousy, and so other people have begun to use destructive ways to get their fish, like poison and electric shocks. Traditionally the river belonged

to everyone. Now, if you don't get a good spot, that's your bad luck. You can fish in the leftovers.

He says, "I grew up in a forest. When I was young I was like Tarzan. I have deep feelings for nature, and personally I hate this economic development by the government. It's not progress. It's not even stepping backwards. It is just destruction. I think that when we built those big dams on the Yangtze and on the Lancang, we lost a basic respect for nature. My people believe that there are gods in the waters, in the mountains and in the skies. Everything has its own spirit. I believe they communicate with each other, can feel pain, and they speak to us in dreams. My dreams tell me that of all the construction projects going on, the ones most hated by these spirits are the dams."

Before the dam was filled, he tried to document the river for the last time. But he found that security was too tight, and the personal consequences for doing it too great. When the dam was built there was no news, no announcement. Everything was kept in the dark. He wanted to ask the scientists, how could you take these resources away from us? He wanted to ask, did the river agree to you building this

The dam has made fishing in the river easier, although many of the native fish have disappeared.





A local boat man for whom the dam has brought new work.

dam? But he knows that these are pointless questions.

In his dreams he says he can feel the pain of the fish and of the river. It is like a blood vessel that has been chopped. People think the dam is magnificent, gorgeous, but when it was finished, he went to the river and begged forgiveness --

heartbroken that the river had been destroyed like that. He says, there's no way back. You can't destroy the dam.

His ethnic people migrated down the Mekong more than 3,000 years ago, following the river as it falls to the sea. They came from the Tian Mountains, the Sky Mountains. When he was young he never felt poor because he had nature. The village would go to work at sunrise and rest at sunset. They had everything they needed. The village was a big family, with no locked doors. They had their own ceremonies and holidays, their own laughter and sorrows. Now it's all gone.

Now they have money, but they've lost everything. The value of life has changed. People know that now the only way forward is to make more money, by any means necessary -- poison the fish, then kill animals, and then sell the land. Their people are never going back to the way it was.

Leaving Pu'er in a gentle rain, we pass under new signs on highways past tea-tiered hillsides. The mountains in the distance are full of rubber, as quiet as a grave. A new nature, neatly spaced, wears transformer towers like a necklace of swaying wires.

Exhausted and sunburned as we drive back to Jinghong in the perilous darkness of Chinese highway traffic, we're stopped 30 kilometers out by the sixth military check point in 24 hours. The soldiers shine their flashlights in the windows and wave us on our way to a welcome sleep.

Traveling Through Rubber Country

At sunrise we leave Jinghong, heading south. The activist has a friend who says it might be possible to catch a Chinese freighter down the Mekong to the Golden Triangle.

The first 80 kilometers are on a new elevated highway through the dramatic mountain landscape of southern Yunnan, almost uniformly covered in rubber plantations. Then, after the satellite far above us directs us to turn right, we descend onto a rough mud track into a world of rubber. We see battered motorbikes with sap-stained buckets strapped to the saddle and women emerging from the tree rows with backpacks of pesticide spray. Tractors carry small sharecroppers' harvests of white resin to local processing factories, a man on a 4x4 with a fresh cake of processed rubber white and wobbling on the back.

Back in Pu'er I ask the activist about rubber, and his voice changes to a growl.

"I hate rubber," he says. "There's rubber everywhere, it's destroyed all the forests, bringing only a little money and leaving nothing. The ethnic people plant it, and they're empty inside. Before there was muntjac, the barking deer, everywhere. Now the rich buy cars, and the young race motorcycles and die in accidents."

He explains that "In the old days, before we chopped down trees, we held a ceremony, and before building a village we always searched for a holy water spirit where pure water flows from the earth constantly, never more or less. Only then can we build a village around a sacred spring. Now springs are drying up as the water-hungry rubber sucks the groundwater dry. One village, Om Village, had its holy water spirit sucked dry by rubber. Now they must seek money from the government and the corporation to survive."

This observation is supported by the work of some of China's preeminent scientists, who point to the impacts of rubber as significant. When planted at a high elevation, rubber



Rubber trees in southern Yunnan.

becomes deciduous. It holds water back in the dry season, depleting groundwater. These exotic species are draining the aquifers.

By the time we drive into Gang Lei, the rental car has a battered undercarriage and cracked windshield. It's a small town with a few streets leading to a large, well-maintained customs building. As we park our car a man walks up and says he's waiting for us. For a price of 50 dollars we can get on a boat leaving in half an hour. I'm surprised, as we were told boats only left occasionally and that I might have to wait two days. I immediately check in the with border guards, who go through my luggage and laptop thoroughly until I show family pictures, which relaxes everyone.

I ask them if it's safe, and they laugh at the mention of any risk. I ask about the "Mekong Tragedy" when drug gangs attacked two Chinese freighters. They say that a few years ago two boats were attacked and everyone on board murdered by some drug dealers on the Myanmar side. It had something to do with a Thai general and a mistaken belief that the crew on one of the boats had witnessed a drug deal and radioed the information to authorities. Fifteen or 20 people, crew and travellers, were caught by the gangsters' speedboats and shot on the sandbank. The guilty men were all found, extradited to China, and executed. They assure me it is perfectly safe now.

With this guarantee I pause to take photos with the guards and my friend, and I say good-bye. Alone again, I walk down the stairs to the wharf. A crane is loading sacks of potatoes into the gaping hold of another freighter, which we climb over to reach our ship. Customs officers come aboard and check our documents, and then we are free to go. The ship casts off, pulls away from the land, and is caught in the current. The captain uses the river's power to swing her 800-ton hull 180 degrees until we face downstream.

The engines roar and the boat speeds towards the first set of rapids. Behind me the golden letters of the port's sign flash in the sun and are gone when we round the first bend in the river. On either side, forested valley walls rise high into the sky. The river churns, a flattened waterfall heading south and changing names.

Some 150 years ago, French imperial ambition imagined a day when the Mekong River would become a road into China. Those dreams were dashed on countless rapids long before the dawn of the 20th century.

When we first travelled down the river seven years ago, there seemed a chance that the Mekong might avoid becoming a cascade of dams. But now, that hope is lost. No one alive today will ever see the Mekong as it was before human hands turned it into a series of long lakes. New dams are being built at a speed earlier generations could not have imagined. At the same time, in this year's drought, climate change seems to have tolled its first bell. And today, I catch a Chinese freighter carrying goods to markets in Thailand and beyond.



Rubber plantations carpet the hills in southern Yunnan.



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A Dangerous Corner of the Mekong: The Golden Triangle

Chinese trade expands here, where China, Myanmar, and Laos meet.

The Chinese freighter casts off from the Gang Lei wharf and heads into the Mekong in the Golden Triangle. Here the river is less about people and stories, and more about a torrent of conflicts and secrets.

The captain and first mate will stay together in the wheelhouse for the entire nine or 10 hour trip, carefully picking their way through the hidden jaws of the river.

We're carrying Chinese goods to Thailand and beyond through one of the most dangerous parts of a growing Chinese trade zone.

I'm travelling with a small Chinese crew of only four men. An hour out of port, the cook points to a rusted metal pole set high up on a large boulder. He explains that this is the tri-point border junction where China, Myanmar, and Laos meet. It's a lonely place. Here the river sheds one name, the Lancang Jiang, and adopts another, the Nam Khong, or "Mother River."

On the eastern bank is Laos. To the west is the Shan State in Myanmar, where tribal wars still blur the lines on the map. On that bank there's almost no sign of human habitation.

Later, in the relative safety of northern Thailand, I meet with an ethnic politician active inside Shan State. She confirms my first impression: "The people in Shan State don't live near the river for fear of drug gangs," she says. Wracked by conflict and drugs, Shan State remains a



Casting off from Gang Lei Port in an 800-ton freighter with a full load of potatoes.

lured to China to meet the demand for wives arising from decades of the One-Child Policy.

The only option for many indigenous people is to flee across the border into Thailand for fear of being forced into servitude by one army or another. Once in Thailand, many Shan women end up as prostitutes.

The sheer and forested riverbank gives no signs of these troubles. I go up to the wheelhouse where the captain and first mate pilot the ship. It's a two-man job: the captain manning the throttle while the mate manoeuvres past giant submerged rocks, nearly close enough to touch.

The military, drug lords, smugglers and casinos prevail

We moor overnight beside a Laotian village and continue our journey at sunrise the next day. When the Golden Triangle draws near, we pass a Tatmadaw army base on the Myanmar bank. The soldiers start gesturing excitedly, motioning for us to come closer. We steam on. The first mate brings me upstairs into the wheelhouse. There the captain mimes firing a machine gun and points to the western bank. We're passing

the site of the "Mekong Tragedy" where in 2012 a local drug lord murdered 13 Chinese crewmen who were travelling on two freighters.

Nearby an unmarked large white compound commands the wide floodplain, where the signs of wealth include a host of golden spires and immense Buddha statues. It is the only significant settlement since leaving China and seems mysterious, bristling with satellite dishes and radar antennas, but no flags nor military or government markings. On the opposite bank is a large Laotian patrol boat. Around the corner in the distance is Chiang Saen, Thailand. This is the Golden Triangle today, a triumvirate of the military, narcotics smugglers, and casinos.

The ethnic politician with whom I spoke claimed that inside Shan State there are four main industries: casinos, narcotics production, precious timber exports, and rare jewel smuggling. The income from Ya Ba, which is a mixture of caffeine and mephamphetamine, and the casinos are inextricably linked. All of these industries are illicit, and all run with the knowledge of the police. She suggested that the local police forces in each nation work together moving goods.

The next day I catch a ferry to the Kings Romans casino in Laos. The casino is at the center of a special economic zone, and the signs of Chinese economic power are everywhere. I meet a group of Chinese men entertaining Laotian lady boys over lunch. They explain that the men own a large banana plantation downstream. Inside the casino, I wander through the gaming halls, staring into the largest, where everyday gamblers play a game called dragons and tigers. The 500-year-old indigenous village that existed on these lands before the government designated it a "Special Economic Zone", is long gone. Now new people from Yunnan Province in China and the Laotian capital of Vientiane run almost all of the new businesses.



Chinese freighters unload cargo at the Thai port of Chiang Saen.

I return to the Thai shore, and head downstream to visit a man called Kru Tee. There, at his Mekong School, I hope to find a community counterpoint to the chessboard of politics and power where local people and the endangered nature around them find no peace.



A Laotian freighter slumbers in the misty dawn.

Teacher in Thailand Confronts Chinese Dams

Upstream Mekong dams and Chinese-backed banana plantations anger villagers led by a respected teacher.



Tuk Ta with the water filter she bought when her son started to get rashes since the coming of the banana plantation upstream

The rain hasn't stopped since yesterday. But these seem to be the last downpours of the season.

I've come to Chiang Khong, a quiet Thai town which takes its name from the Mekong River, to meet Niwat Roykaew, known widely as Kru Tee, or Teacher Tee. I first met him more than seven years ago. Since then, he's established the Mekong School, which is promoting local knowledge and social justice along the Mekong. The school's philosophy is based on outdoor learning and village empowerment through research and participatory action.

With no invitation, I'm going to turn up at his School for Local Knowledge and see if I can talk to him about the Mekong.

I catch a motorbike through the old town, past the port, and down a narrow lane along the riverbank to where a rambling brown wooden building sits in a profusion of trees.

When I meet Kru Tee after a long absence, I notice that his long hair has grown almost completely grey. He's just returned from Chiang Saen, where he's working to unify two communities to stand against Chinese-sponsored organizations trying to exploit the Mekong.

In an earlier life Kru Tee was a headmaster in remote indigenous schools, teaching during a tragic period of land grabbing. This impressed on him a profound respect for the bonds between nature and culture. As he says, "Life changed me. The forest changed me. Time changed me." When Kru Tee returned to Chiang Khong, he found that Chinese power and money had changed the Mekong.

Kru Tee tells me the river normally starts rising in March, turning brown with titanic volumes of silt whipped into its flood. Fishermen think the fish smell the rain, taste the mud, and start

migrating to their ancestral breeding grounds. These are not random journeys. Hundreds of species of fish weave their way to precise places. Then between October and December the river level starts to drop.

Chinese dams disrupt Thai fishermen's catch. But now this natural flow regime has been disrupted by China's dams. The consequences reverberate through every community. Unseasonal water levels defeat fishermen's strategies. They find the fishing rods and bamboo fish traps that they placed overnight high and dry in the morning, or worse yet washed away. Fishermen sometimes return to find they caught birds but not fish on their hooks.

Kru Tee saw the river here dry up when the first mega-dam, Manwan, was filling its reservoir. Then when the Jinghong Dam was finished, a massive unseasonal flood washed downstream, a 13-meter surge, scouring away riverbank homes and gardens. And again, six years ago, the Mekong River ran dry. Officials blamed climate change, so he went to see the Salween in Myanmar. It was full. Both rivers originate in China. The only difference between them was the dams.

Seven years ago Kru Tee said, "We have to assemble people from all of the downstream countries to demand that the Chinese be held accountable."

Kru Tee is now a plaintiff in a group of 37 local people who have initiated an action against the Xayaburi Dam, located in Laos on the mainstream of the Mekong. They're preparing a case for the highest court in Thailand, the Supreme Court, to argue for downstream damages. If the case gets to the court it will set a precedent for transboundary rivers around the world.



Niwat Roykaew, known universally as Kru Tee, defender of the Mekong River

Kru Tee's long thin fingers comb through his hair as he looks away. "The fish can't stay. This is becoming something other than the Mekong River," Kru Tee says. "If the Mekong has so many dams, then maybe its name is no longer Mekong. Maybe we need a new name, the 'Me Nam Can Kwam Tay,' or the death of a river."

Kru Tee's work raises critical questions about the nature of development. Chiang Khong is a site where local people are arguing with regional powers over the basic values of the river.

Ten years ago, ASEAN (Association of Southeast Asian Nations) designated this region as a crossroads between north-south and east-west trade links from China to Vietnam and from the Indian to the Pacific Oceans.

To achieve this, China is funding the Mekong Navigation Project, which will blast away most of the rapids on the Mekong to make way for large ships and freighters that will travel down the river. By 2004, Stage 1 of the project had already destroyed 90 percent of the rapids from China to the Golden Triangle. And in 2015, nearby Myanmar signed an agreement for Stage 2 that puts Chiang Khong and its surrounding rapids on the chopping block.

Kru Tee says that these areas are important ecologically for humans, fish, birds, and plants.

The blasting will kill the ecosystem.

The rainfall thickens, rising to a dull rumble on the wooden structure of the school, and Kru Tee gets more animated, his small thin frame as tense as a spring.

Local Resistance

The locals here won't go quietly. Twice in the past 10 years Chinese surveys have been stopped when Chiang Khong community groups boarded the survey boats. Kru Tee says he simply tells the crews, "I am a local person. When you do blasting, we'll have problems. Next time you come here, I'll take your boat."

A local fisherman, Som Vang, agrees. A barrel-chested man, he laughs and says, "It'll be dangerous for those who try to blow up the rapids. They'll have a problem with me." I believe him.

"It would be like war, like blowing up someone's farm."



Fish traps on the river banks near Chiang Khong.

“No,” he says, shaking his head. “They should use the road for trade instead of the river.”

Som Vang’s father fished, and so did his grandfather before him. The Mekong is his world, and his life. Since China built the dams, it’s gotten hard to catch fish, and the small fish and many others have disappeared.

Kru Tee isn’t a violent man. But he’s part of a local group of fishermen, farmers, and young people. They have a boat ready to launch. “I’m ready,” he says, “I have no worries about my life.”

His face lights up with the finality of this pledge. A 200-ton boat thrums by, heading slowly upstream toward Chiang Saen, or maybe even China. Kru Tee points at it, explaining that the boat comes from the city of Luang Prabang. “People in the city, they don’t know,” he says. “The locals know. You develop from local resources, not by destroying them. And innovation will evolve from within the community.”

“People ask me, ‘Kru Tee, these dams. Can you stop them?’ I say, ‘I don’t know, but I can start to do it.’ Maybe in 100 years the people of Asia will know more about nature and destroy the dams. I will fight for this all my life. I don’t care. I believe the dams will be gone. I believe.” He points to the river, “I wish that I could live 500 years, just to see that.”

Banana plantations pollute the river

The next day before the sun has risen, I meet a local Thai journalist named Aoi, who has written extensively on the impact of special economic zones (SEZs), and in particular on banana plantations backed by Chinese money. We go to a local community forest at the juncture of a Mekong tributary river that has been designated as one such economic zone. But community reaction has stopped the project for now.

“Kru Tee stopped it,” says Aoi, making a chopping motion with her free hand.

Walking through the quiet shadows I take pictures of dozens of trees wrapped in the orange robes of Buddhist monks. The villagers have sanctified the trees to protect them. These wetlands should flood in the rainy season when the Mekong overflows. Fish breed here, but the last flood was eight years ago. That was before the Mekong’s flows felt the full impact of the upstream dams.



Banana are dipped in a solution to preserve them for market.

A man and a woman working in the hottest sun of the day are replanting rice seedlings. They tell us that a banana plantation has been established upstream on the river. By January, when they would normally plant their second season of rice, the plantation had taken the water away.

Aoi assumes that the plantation is managed by shell companies but will bring in Chinese investors. We drive until we encounter endless fields of banana palms and find a dozen young workers in a production line packing large green bananas into boxes for export to China. The manager reassures us that they don't use any chemicals, and he says that the business is a source of employment.

Aoi drives me to a village called Ban Nam Ing, which she first visited earlier this year when the river dried up. For a month, water was trucked in from reservoirs to keep households running, but gardens dried up and died. This was found to have been due to the banana plantation operators draining the river to water their crop.

A young mother, Tuk Ta, explains that since the banana plantation opened, her son has developed a rash that looks like herpes. No one has ever seen this kind of rash before.

Tuk Ta contacted a friend who's a nurse. The nurse tested the water in the river and found unsafe levels of chemicals in it. Meanwhile the fish in the river have disappeared.

The poorest families use charcoal to try and make the water safe. The rest are trying to raise money for a filtration system for the whole town. Tuk Ta says, "I worry that in the future we can't eat, drink, wash, catch fish, or swim." She brings us more bottled water and laughs at the irony. "The rich man sells us our water now", she says. Tuk Ta says she thinks there is nothing that they can do to stop the actions of the international interests that have brought this unwelcome change to their lives. They roll over their heads like the clouds, she says.



Monks wrap orange cloth around trees, "ordaining" them as protection against loggers.

Leaving us, Aoi explains that whatever the issues here in Thailand may be or in neighboring Laos there are no governmental checks and balances, and the banana plantations are far larger. Unregulated quantities of pesticide, plastic, preservatives, and fertilizer are leeching into the river and flowing from Laos downstream. The next day is my last in Thailand, and I visit an 84-year-old fisherman named Leung Sao who knows every rock in the Khon Pi Long rapids. His daughter shows us long spidery nets, all of them hand-woven and looking like shiny blue hair. Each took a month to make. It was a good life, a good living.

“My father was a good fisherman,” she says. “In a single day he could earn a lot of money.”

His other child, a son named Sange, arrives. Leung Sao says that he has passed on everything to his son, all of his knowledge about the rapids, water flow, hidden rocks, all the names, and how to navigate the river.

His son stopped fishing this year when the impact of the dams made it too hard to find fish. Now he’ll be a freelance driver or grow vegetables instead.

Leung says he is sad to know that fish stocks have been reduced so much. Some are gone forever. And now young people can’t make the nets or the gear. The skills are being lost. As the fish disappear, so does the culture of the people. “I cannot stop it,” he says. “If the Chinese want it, there’s nothing I can do.”



Loong Ong master fisher holds up a float he made from a gourd and bee's wax.

Laos Seeks Wealth Through Hydropower

But villagers displaced by dams pay a heavy price in lost ancestral lands.

I enter Laos from Chiang Khong, Thailand. The last time I crossed the Mekong here it was in a longtail boat. Today I go through a new customs building and cross the Friendship Bridge into Bokeo.

Despite being the smallest and least powerful of all the Mekong nations, Laos plays a pivotal role in the river's journey. It's a country with hundreds of rivers, only two of whose waters aren't captured by the Mekong Basin. This wealth of rivers is now supposed to provide hydropower profits.

Laos plans to become the "battery of Southeast Asia" by exporting electricity to neighboring countries.

Over breakfast in Bokeo, my fixer and I sketch a rough map, an extravagant geographical sweep of the pen all the way from the north to south of Laos.

We discuss the government's plans to blast more rapids to make way for more dams and improve navigation. But our driver hasn't even heard of this. He explains that whatever happens in Laos is up to the government. Sometimes the government doesn't tell people what's planned, even when it directly affects them. What the government says, the people must do.

We head northwest and the road climbs steadily for hours through a sheer mountain range where the forest has been shaved to the peaks. The road

is narrow, despite which villages are regularly set on the verge. There are many trucks, every one displaying Chinese names. We pass a weigh station where bananas are being shipped to Yunnan.

At sunset, Laotians reclaim the roadside as a town square, with people promenading centimeters from Chinese semitrailers with their horns blaring. Everywhere people glance up as if dimly reminded of a different reality, with a distant economy imposing new and accelerating goals on them.

After twisting over roads cut into mountain sides, we suddenly emerge to the sight of the Nam Ou or Ou River.

In a small town, Nong Khiaw, which some call a village, we rest at a guesthouse and organize a boat trip to take us to see the Nam Ou 3 dam, now under construction upstream.

A boatman leads us to his vessel, and we cast off and glide like a knife over the translucent green surface, while towering Karst Mountains provide many-faceted faces. It seems ironic that such a place could be called poor.

Hours later we round a corner and see the signs of construction, open-cut hillside bare to the bedrock, trucks and excavators, and jungle streams flowing into the river via concrete drains.

A Chinese construction company brings workers and a brothel

On a high bridge, bold red signs display Chinese words. Next to the worksite, we're met by the sound of Chinese pop songs. We see a brothel with young women who came from Luang Prabang. They had heard there's money to be made here from Chinese workers.

Barely 300 meters downstream, we have lunch with a family who say no one ever informed them about the plans for the dam. The father, with a strong but gentle face, says he thinks that the earthworks are just are a feasibility study. But he says the earthworks destroyed his cassava farm. and the village is in a conflict with the Chinese developers over compensation. The Chinese, he says, drive a hard bargain and want to get the land as cheaply as they can.

His wife boils water over a bamboo fire while her husband crosses his arms and has little to say about the new Chinese village in their midst. The villagers don't go there, but they worry about the young people. Maybe they'll get drunk or take drugs. They don't know what to do.

Never before did these families need to worry about their boys getting HIV from a teenage prostitute or a drug habit from a fly-in-fly-out dam worker. Nor did they have to worry when their children walked out the door of their hut. Now they worry that the children will fall into the arms of a much bigger world. And the father's authority has been diminished in the face of the yet-to-be-built concrete wall of a dam.

He says the Lao government does nothing for the people, but if he complains nothing will change. He can't protest or the authorities will just laugh and he'll end up in jail. It isn't like Thailand here, he says.

The boatman and the villager discuss the other dams already built. They're afraid that they can't predict what the consequences will be. Already some of the original species of fish have disappeared. In total the Nam Ou is home to 84 fish species. Many more are expected to be lost through the reengineering of their habitats. Seven dams are planned for the Nam Ou, with four already completed. In all, 89 villages are expected to be displaced.



A Mekong fisherman checks his nets

The Xayaburi Dam changes the river's flow
The next morning we leave the Nam Ou and head south towards the Xayaburi Dam, the dam that has caused the largest political damage among the lower Mekong nations. Just down from Luang Prabang, the \$3.5 billion, 1.3 GW Xayaburi dam is one of nine planned in Laos. We head for an island below the dam, picking our way through the mud to visit the headman. He tells us that the dam has changed the river's flow, with water levels fluctuating rapidly up and down.

The boatman adds that the water levels used to be tied to the seasons, and that the villagers could use traditions and cultural know-how to catch fish. Now the dam has blocked the seasonal pulse, and the villagers cannot read the signals.

The headman says benefits for them are hard to find. He understands that the dam has been built to develop the country, but on the other hand it's the locals here who pay the price.

"Old men like me will stand here in our homes and fight to find solutions, he says. "But the young are moving away. They'll find new lives elsewhere."

We fly to the capital city of Vientiane and then drive southeast into the Nakai Plateau, where the Nam Theun 2 dam is located. When we visited this dam seven years ago, it was touted as the blueprint for human development through hydropower.

The Nam Theun 2 Dam Displaces Villagers

Arriving on a newly surfaced road we snake past valleys filled with drowned forests. Passing through a makeshift checkpoint where villagers check for smuggled wildlife and precious wood, we arrive in a well-ordered town on the shores of a manmade lake.

Speaking with a husband and wife and his father, we discover that six villages were relocated and amalgamated into this one community. The woman says that life in the new village is better. They have a school and electricity, a water supply, nice roads, and a health center. But they don't have enough money and work is hard to find. Before they could find food in the forest or on their farm and had no need for money.

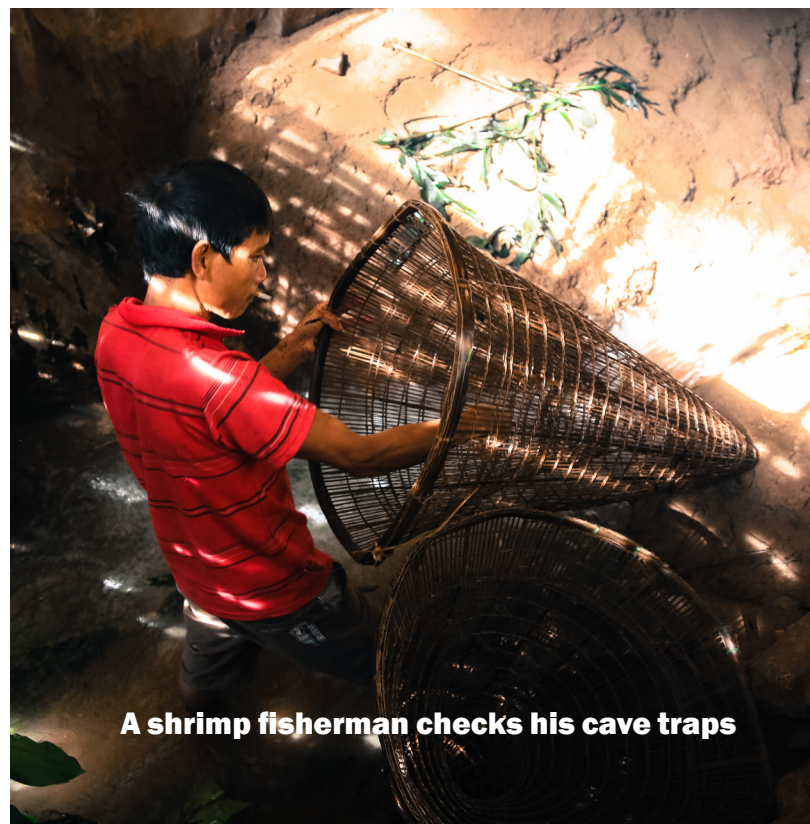
In the relocation the government allocated each household a 20 by 30 meter plot of land, far less than they need for farming. Instead people raise chickens, pigs, and cows, and they fish. But there's always a shortfall, and outsiders from Vientiane come in to fish. This leads to overfishing, and overfishing means that catches have been dropping steadily for years.

The result is that in this one well-resourced community people are regularly not getting enough to eat. In this new economy, soldiers, teachers, police, and government officials are doing well, but the villagers have yet to find a place.

The old man says that the old village had rice paddies. Now they have none. Before they could grow crops or find forest resources to take to market for an income. Now they have lost those businesses. They have no education and no way of engaging with the new cash economy that is flowing all around them.

Poverty Reduction Fails

The government says that dams are being built to lift people from poverty, but in reality the dams



A shrimp fisherman checks his cave traps

that have already been built haven't alleviated the impoverishment of local communities. Instead the people around the dams lose the resources of their ancestors while power is streamed over their heads. But the villagers dare complain only to themselves.

We turn south and head towards the Cambodian border and the renowned "4,000 Islands" area. As we arrive early in the morning at the dramatic end of the Mekong's journey through Laos, the Khone Falls are in flood. Unlike the last time when I was here, the rocks and pools are consumed by an entire river squeezed through a narrow channel. It's deafening and terrifying to be near.

I have come to try and meet a fisherman who was our guide last time and find out about the controversial project to build a dam in the middle of one of the most beautiful places on earth.

A security guard says that the dam is already under construction. But again he repeats the mantra that the people can't say anything about the dam. It's up to the government. "If you speak out, nothing changes," he says. "There's no point, so no one says anything."

He tells us the water has been blocked and drained from the channel to make room for the construction. And when he saw it dry, he says, he was amazed.

He also tells us the government has banned the traditional traps and fish ramps. The old channel was a key migration route, deep and without major drops for the fish. Now the fish are blocked.

In the drained channel bed, men are busy excavating and drilling in order to deepen the channel for the dam to come.

In an area which once embraced the best fishing grounds, the government is supporting the villagers' transition to farming, using irrigation from paddy fields. But the transition to farming has not gone as planned. The villagers have tried but failed to make it work.

We can see Cambodia from a barrage of broken rapids that stops the Mekong's waters.

The villagers have been moved perhaps a mile away, have been given compensation, and have settled in good houses in a small community.

But we speak with a few women who worry about a making living now that the fish are gone. More optimistic, the oldest among them says, "I miss our village, but we can make it work anywhere."

By 2025, hydropower will be Laos' main revenue. For a poor country with no other major resources, dams offer a chance to create wealth from the river that is perhaps its greatest asset. But in a secretive and oppressive state, these massive projects burden local communities with a price.

I'm now within shouting distance of Cambodia, where I'll next discover more of the consequences of these upstream changes.



A village woman heats water for our lunch

Villagers Resist Relocation Caused by a Dam

Officials bring in police and soldiers, threatening arrests or imprisonment of those defending ancestral lands.

My visa is processed in a blue wooden shack at a sleepy Cambodian border crossing, and I'm on the way to Stung Treng Province in northeastern Cambodia, where the capital city bears the same name. The landscape differs dramatically from that of Laos. Gone are the jungles and mountains. Here there are no trees. Just scrub left after logging.

About 30 miles downstream from the Khone Falls, I cross the river over a bridge. Stung Treng sits on the eastern bank. To my left, the Sekong and the Mekong Rivers merge, vast bodies of water creating one river miles wide.

Just a few miles up the Sekong River, a Chinese developer is building a massive dam. The Lower Sesan 2 will dam two tributaries, the Sesan and the Srepok Rivers.

When I was last here, the Sesan 2 was still a highly contested idea. Now, just seven years later, despite community opposition and environmental concerns, the dam is nearly finished and will begin operations in 2017.

Outside Stung Treng we're greeted by posters promoting a smiling Prime Minister Hun Sen and his Cambodian People's Party. We meet our guide, Chenda, from an NGO group called the Fisheries Action Coalition Team, which works with villages marked for relocation.



**The road to Kbal Romeas village, on the
Sepok river**



A fisherboy poses in the dry main street of his village.

The dam will relocate some 5,000 people, including many ethnic minorities, to make way for a 33,560-hectare reservoir. But many people are refusing to leave. These are the people with whom we'll meet.

On the long road to Sre Kor, the first village that we'll visit, bulldozers have ripped whole trees from the ground. When we get to the village we're welcomed by a billboard showing a monk sanctifying trees with the slogan, "If we see a bulldozer we'll burn it."

Two months ago the province governor had to make a rapid retreat when the villagers tried to burn his car. Today officials are returning to try to convince the villagers to leave. As soon as we arrive, the villagers tell us we'll need to hide until the officials leave.

After they've left, we rejoin the villagers, who gather in a community temple. They tell us that the officials brought in soldiers and policemen, allegedly "to protect the forests," a strange claim to make when illegal logging is evident and this land will soon be under water.

Threatened By Bulldozers

The villagers say the officials told them bulldozers would soon come with police and military escorts. They warned the villagers not to interfere or they would be arrested and imprisoned, or worse. But the threats have not changed people's minds.

An old lady with a wide smile says, "Bulldozers? Bring them. We're not leaving. We'll die here if the government is not ashamed to be seen murdering us in front of the world."

She says, "This land, this river, and those graves, they are all that we have. Our parents are there, and their parents. We can't abandon them, or they'll curse us." Sre Kor's ancestral forest is so old that the villagers don't know where all the graves are. Every inch is sacred ground. The old lady says, "This is our way of life. This is our culture and belief. Even monks and kings have parents. How can you tell us to sell our ancestors?"

A second village lies at the end of a long trip down an often-flooded dirt track. It's a poorer and more isolated community. The houses are made from rattan and dried-leaf walls.



Phavy, 59, and Sreakor villagers resisting demands they move to make way for the much criticized Sesan 2 dam project

The young men who've brought us here belong to community patrols organized to stop illegal logging, which has been rampant since the dam construction started. They show us timber confiscated from loggers. They say that they reported it to the police, who replied that if the villagers interfered again they would burn down their houses and kill their animals. In Cambodia, illegal loggers help dam developers force poor people out of their homes.

The villagers say that officials come regularly with army and police escorts to try and force them to leave. They muscle their way into homes, scaring the children and threatening people. The government has closed the local school and stopped a neonatal health worker from working in the village. Now villagers administer injections to their children themselves.

I ask them why they stay. They point to a tree with a saffron sash wrapped around its trunk, perhaps 30 feet in circumference. The tree was a sapling when this village was already old. "We love our village," says one villager. "It's enough. We have the river for water and fish, the forest

for food, our farms for rice, vegetables, and fruit, our livestock for meat. We have a generator and a battery, a satellite dish and TV....We don't need anything else."

They went to see a relocation village and found people there still struggling to get the compensation they were promised.

The time comes to leave. We sit on our motorbikes and in a wind-filled moment we leave the village behind us. In my mind I see water filling the forests until this village is gone.

It's already twilight when we arrive in the resettlement area, a raw patch of dirt with identical concrete dwellings.

In all, there will be six relocation sites covering 4,000 hectares, much of which has already been zoned for forest and land concessions. These communities will likely face future competition over their new lands.

There's no work to be had, nor natural resources on which to build an income. Merchants on

motorbikes bring in food. But this requires money, and sometimes when villagers have none they go hungry.

I speak with a few families who say that if given the choice they would have stayed in their old village. Others are leaving their children with friends and moving to the capital Phnom Penh to find work.

The next day we set out to visit the dam site itself, but we're stopped at a checkpoint. Whatever the reason, the local authorities have decided that we're worth watching, and now they want us to know it.

It's time to leave. We stop on the bridge to Stung Treng to watch the Sekong and the Mekong merge one last time.

The reservoir will flood more than 1,200 hectares of agricultural land, nearly a quarter of the agricultural land in Sesan District. This will necessitate additional forest clearance.

The economic viability of this project has also been called into question. One study found that a good dam produces 10 MW per square kilometer of flooded land. Lower Sesan 2 is at the other end of this scale, generating only 1.1 MW for every square kilometer of flooded land.

A 2012 study by the Washington, D.C.-based National Academy of Sciences identified Lower Sesan 2 as the worst tributary dam in the Lower Mekong Basin for fish biodiversity. It's expected to cause a reduction of fish biomass basin-wide and to endanger 56 fish species. These impacts will be felt across Cambodia, and even in the neighbouring countries of Laos, Thailand, and Vietnam.

But the worst may be yet to come. Several civil society sources have reported that within five to 10 years, the government will begin building



A day's catch on the Tonle Sap.

a second dam currently planned downstream from Stung Treng, at Sambor. This dam will deal the final blow to one of two remaining populations of Mekong freshwater dolphins.

We drive west, passing north of the once great forest, Prey Lang, towards Siem Reap and the Tonle Sap Lake, the heart of the Mekong. We meet Mr. Chim, a representative for seven communes on the Tonle Sap working with the Fisheries Action Coalition Team.

Mr. Chim explains the connection between the Great Lake and the Mekong in simple terms: "If the Tonle Sap is alive, then the Mekong is alive."

The Tonle Sap ebbs and flows with the annual cycle of the Mekong River that feeds it. This annual pulse gives the Mekong its unique character and its abundant biodiversity. Mr. Chim says that in the past five years the water flow has been unpredictable. Even the rainy season looks like the dry season of the old days, he says.

Catching a longtail boat, we cruise down the canal and through a "floating" village, a town on stilts built to ride the rising lake. People go about their business, fixing engines, mending nets, and tending pig sties and vegetable patches growing in floating pens. Leaving the village

behind, we emerge from the cover of flooded forests onto the open lake.

We speak with two young boys on a fishing boat as they pull up their nets. They tell us that they work for their uncle, fishing 12 hours every day except for religious holidays. The Tonle Sap yields around 300,000 tons of fish a year, which amounts to most of Cambodia's freshwater catch. But the boys report that sometimes they'll set and gather nets all day without catching any fish. The youngest boy says that he's 10. When he's old enough, he wants to move to the city and find work on a construction site.

Mr. Chim says that fish are being blocked by the dams, while pollution is adding to the difficulties local people face. They believe that whatever is in the water is causing stomach complaints and is beginning to reduce fish fertility. To make matters worse, industrial fishing concessions are undermining local fishers and village economies. This in turn damages poor people's health.

This is the start of a manmade crisis. In a nation where freshwater fish account for around 75 percent of all animal protein in people's diets, researchers now predict that by 2030 dams could cause a dramatic decline in fish consumption. Replacing fish as a source of protein will be virtually impossible.

For millennia the November turning of the Tonle Sap has carried a tide of fish to every corner of the Mekong. But now this tide is being replaced with a one-way outward migration of people leaving communities under stress.

Mr. Chim says most families can't afford an education, and the young must work. He says, "We'll try our best to stay here and not go to Thailand or Korea to find work."



A village woman steers her traditional boat through the flooded streets of Kompong Pluk



Chau Doc is a teeming Vietnamese Delta port just south of the Cambodian border capturing upstream and downstream trade

Vietnam: The Fertile Mekong Delta Imperiled

Rice and fish farmers battle against drought, climate change, rising sea levels, the impact of dams, and salt intrusion.

A hundred years ago the Mekong Delta was a nearly impenetrable swamp. Today it's Vietnam's rice bowl, but a much imperiled one. This vast wetland inhabited by 18 million people—roughly 20 percent of the country's population—grows half of the nation's rice crop and most of its fish and fruit.

An agricultural revolution that followed the Communist victory in South Vietnam in 1975 encouraged intensified rice farming, the clearing of mangroves, and the widespread construction of dikes to prevent the flooding of rice fields. This has devastated much of the region's biodiversity.

Here one can see many Vietnamese who long depended on rice farming facing the impact of El Nino-induced drought, climate change, a damaging focus on producing more and more rice, a loss of sediment to upstream dams, rising sea levels, and a subsequent intrusion of damaging salt water.

Approaching the northern Delta on the Hau River, I visit a Cham village that lies behind a curtain of mangroves and Nipa palms. Children play on a long rickety jetty, leaping into the river as a warm rain sets in. The Cham people are a Muslim minority and one of the oldest communities to settle in this area. Their homes are set on high stilts, and the ground is slippery clay. This is a town designed to ride out the annual flood season.

We visit the village headman, a trim and handsome man with a grey beard who is dressed in a plain white tee shirt and sarong. The sky darkens as we retreat under his house. He tells me that when he was a child in the 1940s the flood waters would rise in October and September, and turn red with silt. The fish came with this red tide, migrating from the river to forests and fields to lay their eggs. The people would harvest fish from their rice fields, a bounty carried in the river's pulse. But he says that in the last few years the river has remained the same grey color all year round. There are no fish to catch. He says that he's not sure if it's because of the dikes and land being drained for farms. In his opinion, the real change is that upstream dams have blocked the floodwaters and migrating fish.

But experts say that the dams alone are not destroying the river. The river's degradation is also the result of overcropping, overfishing, sand dredging, reengineering, water pollution, and climate change.

Fear Of The River's Water

The flood season had once been a joyful time. As the river filled village roads, people would catch fish from their balconies.

“The river is our friend,” the headman says. “It has a spirit.”

He smiles sadly, “It was more beautiful before, cleaner and healthier. The children never had sickness.”

The headman believes that the water must contain chemicals because it's starting to make people sick. As I travel down the river such accounts echo from northern Thailand to Cambodia's Tonle Sap and now I hear same thing here. People are becoming afraid of what's in the river water that flows through the center of their lives.

As wild fish disappear from the river, fish farms have become perhaps the second most numerous enterprise in the Chau Doc area. At one of these farms, a floating wooden building is one of thousands of such pontoons moored three and four deep along each side of the river. Stacked head high under the veranda are sacks of fish meal, food for the fish teeming under the floorboards. When we arrive feeding is underway, a pungent industrial operation. In hole in the wooden floor the water explodes into a silvery frenzy of heads and tails as the feed reaches the water.

The farm owner explains that the fish grow for 10 months. He sells one batch of fish every year to a Vietnamese fish-processing company for export to Japan, the U.S., and China. The stock of fish farmed in Vietnam's delta is now greater than that from its other freshwater and seawater fisheries combined. The farmer says that they don't eat their own stock. It's taboo, bad luck. He tells me that when he was a child, they could catch fish off the side of their

boat. Nowadays they buy fish from the market. This year when the water was very low, the oxygen levels fell dramatically and the fish suffocated in the intensively packed cages. They improvised by putting a boat in front of the farm and ran the propeller to force aerated water through the cages.



Feeding time on a fish farm beneath a shrine to Buddhist and animist spirits.

We drive to the nearby province of An Giang to meet with farmers who are resting from the day's labor. We order coffee and sit around a knee high concrete table on the roadside. The roads here all run along the dikes. They explain that land outside the dikes is vulnerable to salt incursion, and they only grow one crop of rice each year. However, even within the dikes, the impact of upstream dams is felt through the silt being blocked by the dams. Estimates suggest that the dams in China and Cambodia alone will stop as much as half of the Mekong's sediment load from reaching the Delta.

The farmers explain that the loss of silt decreases the quantity and quality of their rice, while increasing their production costs. Normally floods bring silt and nutrients while also destroying pests and weeds, drowning the grasses, insects, and mice. The water also washes away bacteria that grow on the dead stalks of previous crops. All of this biomass decays and becomes nutrients fertilizing the soil. Without the nutrient-rich floods, the farmers must increasingly turn to fertilizers and pesticides. The rice crop is of poorer quality and fetches less on the market. Costs go up and returns fall.

One farmer says, "When there's no flood, sadness fills the air. It's all we talk about, how there are no fish, no floods, no lotus flowers."

"We used to have annual increases that rose gradually. Now the Chinese just release when water when they feel like it. It means that China controls the water and China controls if we live or die."

So far the changes in the Mekong River have not stopped them from growing rice year round. They have sufficient irrigation. The impact has been much worse nearer to the sea where the salt water has invaded normally freshwater areas. In some places the land is almost unrecoverable.



A Cham girl in her village

We continue our drive south. As night falls, the rain thickens until we are sloshing through the darkness blinded by oncoming headlights on increasingly narrow and potholed roads. The next morning in Soc Trang we meet with workers from the local government who report that this year the salt water intrusion reached 60 kilometers, or nearly 40 miles upstream and stayed at that point for four months. In a normal year, the salt only reaches 39 kilometers upstream and only for a few days. This year

roughly half of all farming areas in the delta were affected by salt. If they had had no dykes the losses would have been total.

They explain that the crisis is due to both a lack of fresh water caused by upstream dams, and to climate change, which results in less rain but causes rising seas. A closed dike can protect a rice field as long as there is enough fresh water inside, but if not, then the field becomes a rapidly shrinking island in the seawater.

The Men And The Young Are Leaving

Just to the south of Soc Trang city is the district of Huyen Tran De. I speak with a group of men playing Pétanque under old shade trees. The oldest man there says that everyone here has lost land to salt. Although he was able to grow a small crop, his harvest only generated a small return.

He says that since he was born the river flooded every year with freshwater from upstream. But now when the river should be high, outside the sea gates he finds nothing but salt. The precarious life of farmers is such that, after one year lost to salt, families have been broken apart. The old man says, “You can see for yourself, there are fewer young people here now. Old men raise babies so that the children’s parents can go to find work.”

Outside the dikes, the poorest people are facing the brunt of upstream change and rising sea levels. The closer we get to the sea, the towns thin and trees disappear until we find ourselves crossing between open shrimp ponds in a scrubby barren and brackish landscape. We stop in a little village where houses cling to the clay sides of the raised road, and speak with the community in a local shop.

There are no men or young adults here. The group that eagerly gathers to speak with us is composed of grandmothers and young children. They tell us “the loss of water is the biggest suffering.” During the drought there was no fresh water here—none for the people, animals or crops. The government supplied drinking water for two months, but then the trucks stopped and they were forced to rely on privateers selling bottled water at vastly inflated prices. The river was too salty even to wash their clothes in.

These families used to have rice fields, but the salt poisoned the ground. Now the land has been bought by outside investors and turned into a shrimp farm. The money ran out, so all of the parents left to find work. They come home to see their children once each year during the Tet holiday. As we leave, rain starts to fall, and buckets of every description are quickly put into position under the eaves to catch the fresh water.

A house as river guage, with the water levels for every year since its construction recorded on this leading support post



2001
2011
95
99
92
2004
94
2005

Crossing a huge bridge we see the mouth of one of the Mekong's nine dragons. This is the River Hau, located a few miles to the east. Moments later we stop beside a small home set on the edges of a mangrove swamp. There a grandmother is raising eight children. She explains that they make their living in the tidal zone where the Mekong joins the sea.

There they hunt for crabs, shrimp, and mudskippers. If they catch enough fish to eat and some left over to sell, the money buys rice. When they don't get enough, she adds sugar to hot water to make a soup for the children. Ten years ago, she says, there were more fish. Now the fish have disappeared. She thinks that it's the clearing of all the mangroves and dredging of canals that caused this.

We walk with them to the river mouth where they borrow mud sleds, a local invention designed to skate over the knee-deep mud flats. With the adults kneeling on the runner board, the babies are loaded into a front tray where the catch is to be thrown, and they push off through the mangroves.

We wade through silt that managed to reach here all the way from the Himalayan Plateau and down through Southeast Asia.

The grandmother wipes mud from the faces of her two baby grandchildren and reveals angry welts and red puffiness around their eyes and cheeks.

"It's the rain," she says, "Every time the rain falls and runs from the fields into the river, the children's faces break out in these rashes."



A Cambodian trader with her lotus roots



A Vietnamese woman navigates the watery Delta