

# **European Rivers Summit**

Lisbon, Portugal

18-20 November 2021

”Mekong Fluvicide redux:  
ode to a once-mighty river”

David J.H. Blake



# Fluvicide = Rivercide = Ecocide

## Commentary

NAT. HIST. BULL. SIAM SOC. 49: 143–159, 2001

### Killing the Mekong: China's Fluvicidal Hydropower-Cum-Navigation Development Scheme

Tyson R. Roberts<sup>1</sup>

#### ABSTRACT

China intends to develop Lancang or Mekong mainstream hydropower in Yunnan and make the Mekong mainstream navigable from Yunnan for some 2,500 km to the South China Sea. This poses unprecedented environmental and social problems for the downstream coun-

The Mekong ecosystem is in a relatively healthy condition at present. Installation of high mainstream dams on the Lancang Jiang and construction of the navigation channel will cause great ecological damage and deterioration. Major negative impacts will be caused by sequestration of upstream sediments and nutrients in reservoirs and by "regulated" flow regime based on controlled outflow from the hydropower dams. Reduction of the river's natural hydropower (ROBERTS, 1996), irregular discharges related to electricity generation (ROBERTS, 2001), and other gross systemic changes also will cause harmful ecological simplification and deterioration of the Mekong ecosystem. The environmental impacts will not act individually, but cumulatively. Massive loss of biodiversity is only one of several predictable results. There would certainly be extinction of some fish species (Fig. 5), but also, and of even more consequence in terms of adverse effects on people, reduction of populations of many of the migratory fish species that are most important in Mekong wild-capture fisheries.

## World Rivers Review

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### Proposed Mekong Dam Scheme in China Threatens Millions in Downstream Countries

by David Blake

A spate of recent reports have confirmed that China's Yunnan provincial government is committed to proceeding with a scheme to build six new hydropower dams on the upper Mekong (known as the Lancang Jiang in China) in Yunnan province, in addition to two already completed dams. The 8-dam scheme will change the seasonal distribution of water and block the transport of sedimentation – environmental changes that will affect millions of people living downstream in Burma, Thailand, Laos, Cambodia and Vietnam.

Announcements in the English language *People's Daily* last December stated that, "Yunnan has a hydropower potential of around 90 million kilowatts, making 23.2% of China's [potential]... Precedence will be given to construction of many large and medium-sized hydropower stations." The article predicts that Yunnan will become China's "No. 1 Hydropower Base."

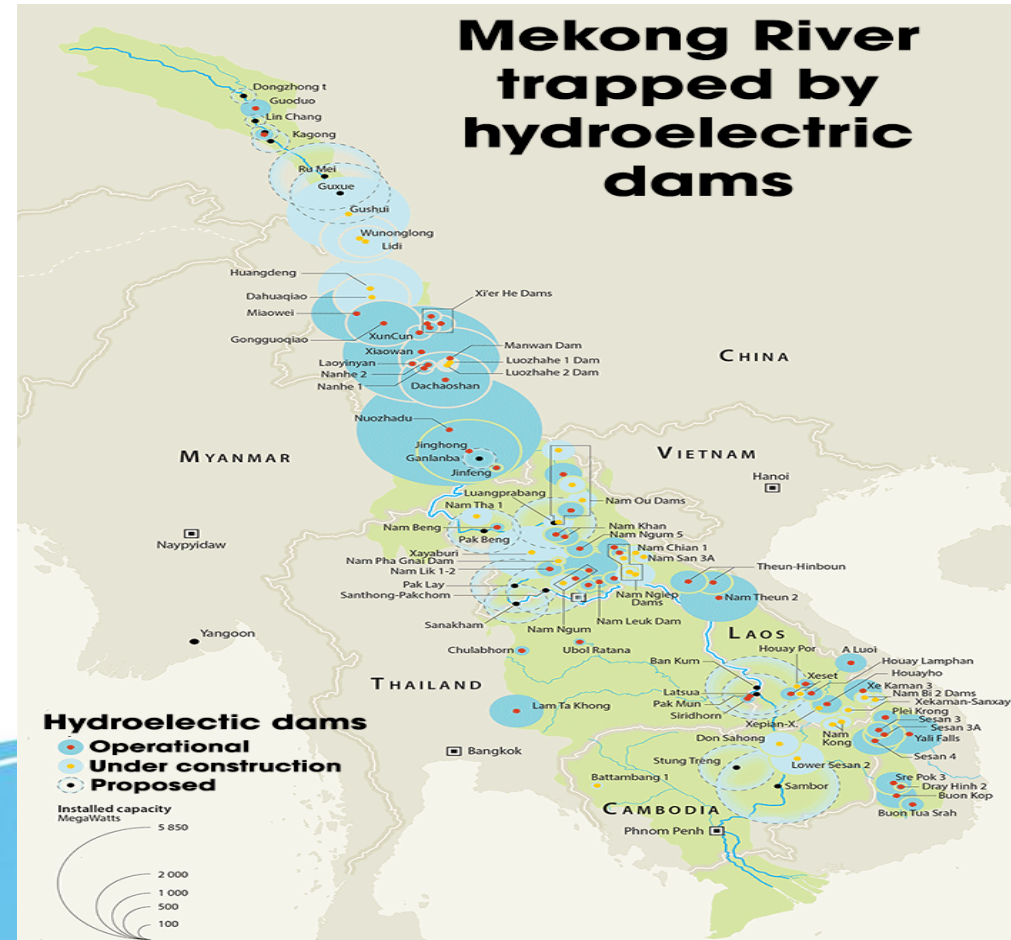
If all eight dams were completed, the scheme would have a total installed capacity exceeding 15,000 MW, which would provide power for much of southwest China, with



These villagers in Laos are among the millions of people who could be affected by China's dam scheme, to start later this year; it is expected to be completed in 2012-13. At 292 meters in

sumed directly by farmers and fishers, without ever passing through a market.

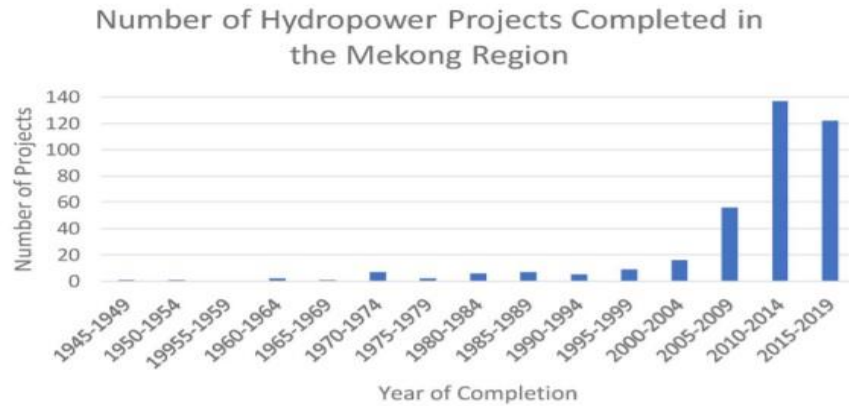
"The Mekong not only plays a vital role in sustaining the livelihoods of millions of people downstream from Yunnan, its waters also support many unique wetland ecosystems, including the flooded forests of southern Laos and Cambodia, numerous lakes and swamps, the seasonal flow of water into and out of Cambodia's Great Lake, and Vietnam's extensive delta region. The health and integrity of the rich biodiversity of the Mekong's ecosystems depend largely on two main factors: the annual and predictable flood-ebb cycle of the river and the enriching sediment washed down from the upper catchment."

[illegible]

# Dam proliferation across basin – every Mekong nation aspires to greater hydraulic control & water sovereignty

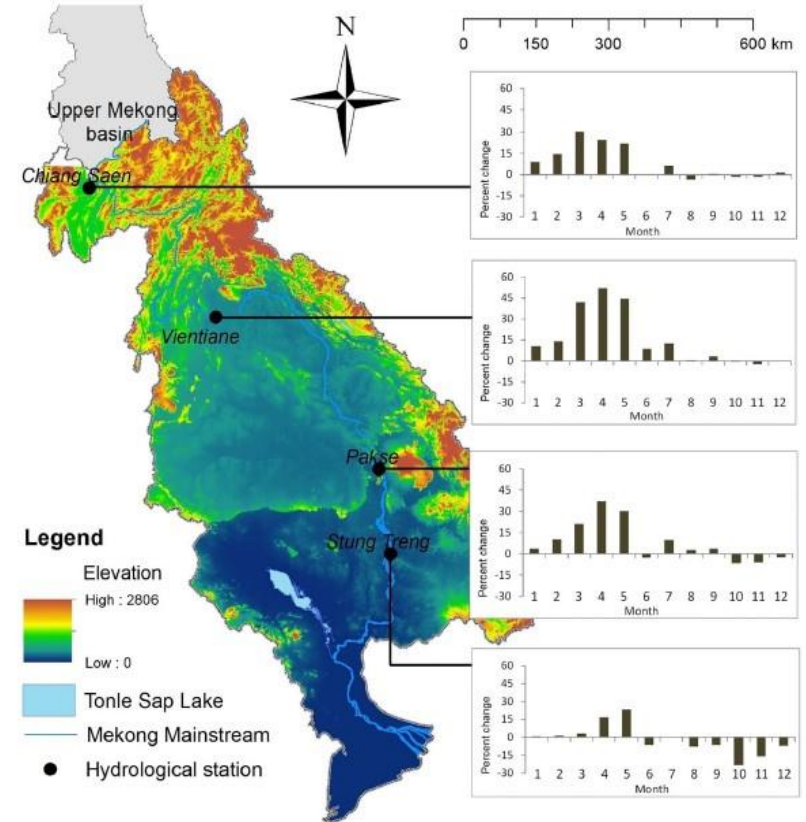
J.S. Hecht et al.

Journal of Hydrology 568 (2019) 285–300



**Figure 1.** Number of hydropower projects by year of completion (five-year range) in the Mekong Region (Cambodia, Laos, Myanmar, Southwest China Transboundary Projects, Thailand and Viet Nam). Generated by the author using data from <https://www.stimson.org/2020/mekong-infrastructure-tracker-tool/>.

Source: Kearnin Sims (2021): Infrastructure violence and retroliberal development: connectivity and dispossession in Laos, Third World Quarterly, DOI: 10.1080/01436597.2021.1920831



**Fig. 3.** Change (%) in mean monthly water levels at key stations in the Lower Mekong basin between 1960–1991 and 1992–2013. (Data source: MR).



# The river in the 1990s...





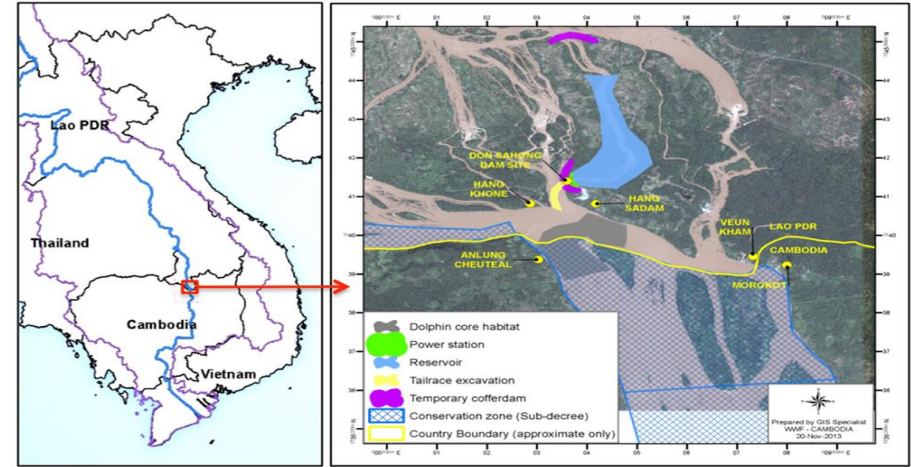
# In 2021: A river transformed by dam proliferation across the basin



Xiaowan Dam  
(China) – 292  
m tall – 4,200  
MW installed  
capacity – 15  
billion cumecs  
storage



Xayaburi  
dam (Laos)  
– 32 m high  
– 1,285 MW  
- \$3.8 billion  
cost -  
completed in  
2019



Don Sahong Dam – 260 MW in southern Laos – Mega  
First Corp (Malaysia) – commissioned early 2020



# Transformed to a “reservoir river”

***“The Mekong was blocked and bloated, looking alternatively like a swollen dead worm or a broad lifeless lake”*** (Scot Ezell, “4 Dams on the Upper Mekong in Yunnan, China: 2011-2019”, The Diplomat, May 5 2021)

- Clearer water observed in middle reaches, portends ecological collapse
- Less sediment and nutrients reaching Delta – more erosion & less fertile alluvial soil
- Flood-pulse system is breaking down, with delay in early rainy season peak and evening out of peaks and troughs
- Capture fisheries in rapid decline – fish protein not replaced by aquaculture or animal protein for poor
- Cumulative and cascading socio-ecological impacts becoming apparent

***“In the last five years the number of fish have declined by almost half”***, said Seum Noeun...He now catches only 1-3 kg per day. Five years ago he said he could catch around 6 kgs of fish a day.

Source: Voice of America News, 23 October, 2021. <https://www.voanews.com/a/new-reports-point-to-dams-stressing-cambodia-s-mekong-river-fisheries/6282525.html?utm>

## Low sediment turning the Mekong river blue

Many fear the blue water and patches of green algae are the first signs of profound changes wrought by climate change and hydropower dams.

### SECTION OF THE MEKONG RIVER



### MEKONG RIVER AT XAYABURI DAM, LAOS



Source: Planet Labs Inc., Copernicus Sentinel data 2019, 2017 accessed via Planet Labs Inc.  
M. Sharma, 10/01/2020

REUTERS



Mekong River, Nakhon Phanom, July 2019



# Other factors leading to Mekong's demise besides dams:

- Urban growth – water extraction & wastewater release; wetland reclamation; groundwater depletion
- Industrialisation – point source extraction & pollution
- Mining – open cast; lignite; gold & copper, etc.
- Agricultural intensification – use of agrichemicals rapidly rising – irrigation extraction & associated pollution
- Deforestation; land use change
- Industrial forestry plantations – rubber, eucalyptus, etc.
- Sand extraction & dredging
- Increasingly consumerist & materialist societies – demanding ever more natural resources, incl water. Rivers have become convenient waste sinks, esp. plastic & household waste



# Mekong dam opposition/resistance

- Dynamic & volatile – varies over time & national political regime
- Focused on hydropower sector (irrigation largely ignored) & on loss of local livelihoods
- Up to 2010 focused on major trib schemes, then switch to mainstream, with Xayaburi dam
- Civil society generally weak in region – Thailand exception
- Intnl NGOs & local NGO partnerships
- Advocacy, lobbying, direct action & legal action (in Thailand)
- Few tangible successes in last 20 years – dam delays at best



# Whither the Mekong basin's "managers"?



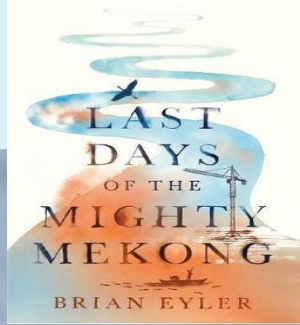
- “The Mekong River is a lifeline not just for communities living along it but for the wider region and the world. Take for example its rich flora and fauna, which includes 20,000 species of plants and 1,148 of fish. The river is the source of some of the world’s largest freshwater fisheries, yielding an estimated 4.4 million tonnes per year with a total value of US\$17 billion, much of it exported to neighbouring Asean members.
- As the beating heart of Southeast Asia, the Mekong River also supports some of the world’s largest rice producing areas. Last year the countries of the Lower Mekong Basin accounted for around 25 per cent of global rice exports, worth almost US\$6 billion according to research website World’s Top Exports. Maritime Southeast Asian nations also import a large percentage of this Mekong rice.”
- Source: An Pich Hatda & Anoulak Kittikhoun, South China Morning Post, 13 Sept, 2021. <https://www.scmp.com/week-asia/opinion/article/3148277/aseans-focus-mekong-issues-crucial-regions-water-security?>

But the large dams keep on being built regardless of the MRC’s studies & “processes”.....



# CONCLUSION – Fluvicide is well advanced on the Mekong

- “No work of man violates nature so completely, so
- irrevocably, as a dam” - David Brower



“To intervene in such a massive way in such a complex process - *it's like putting a jackboot into a spider's web*. What kind of civilisation is it when you teach men in college to look at a river and imagine pouring concrete into it?” - Arundhati Roy. “Dam Buster” The Guardian. 28 July 2001.

“Yes, David, being a powerless witness to the destruction of the Mekong has been and remains extremely painful. All so predictable, yet we were called catastrophists. And now that the disaster unfolding is worse than what we anticipated, it is still not enough to trigger any meaningful coordinated actions on the scale of the need. Far beyond sad!” - Marc Goichot. Leader of WWF’s Greater Mekong Water Initiative. PM, 14 May 2021.

# Thank you!

# Dedicated to actual Mekong “heroes”, past & present:

- Niwat Roykaew - “Kru Tee”
- Wanida Tantiwittayapak – “Pii Mod” (RIP)
- Sombath Somphone (state enforced disappearance 2012)
- And others who’ve risked their reputation, liberty & lives for the river and its people...

