

# Small dams, big impact on Mekong River fish: study

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Cambodian fishermen row their boats on the Mekong river in Phnom Penh on March 2. Plans to build hydropower plants along Southeast Asia's longest river could have devastating effects on the world's largest inland fishery and should be reconsidered, scientists said on Monday.

Plans to build hydropower dams along small branches of southeast Asia's longest river could have a devastating impact on millions of people who rely on the world's largest inland fishery, scientists said Monday.

Plenty of attention has focused on plans to develop 11 big dams along the main stem of the 4,600 kilometer (2,850 mile) [Mekong River](#) which passes through China, Myanmar, Laos, Thailand, Cambodia and Vietnam.

In December, ministers from Cambodia, Thailand, Vietnam and Laos

postponed a decision on the first of those efforts -- the \$3.8 billion Xayaburi [dam](#) -- saying more research was needed to assuage concerns from conservationists.

But the international study published in the [Proceedings of the National Academy of Sciences](#) examined the impact of building dams on dozens of the smaller branches, known as tributaries, and warned of a "catastrophic" future.

"We find that the completion of 78 dams on tributaries, which have not previously been subject to strategic analysis, would have catastrophic impacts on [fish](#) productivity and biodiversity," said the study.

Since the area is home to many species of migratory fish, the analysis found that several dam projects could block more than 100 kinds of fish from swimming upstream, causing massive losses to diversity and fish supply.

Tens of millions of rural, poor residents in the region depend on subsistence fishing for their main source of protein, said scientists from Cambodia's Inland Fisheries Research and Development Institute and Stanford and Princeton University.

"We found there is going to be a very sharp tradeoff between producing energy and the impact on food and biodiversity," lead author Guy Ziv of Stanford University told AFP.

Ziv said researchers focused on 27 of the 78 planned tributary dams, because those 27 are scheduled for construction from 2015 to 2030 and their future remains up in the air.

Also, they require no international accord to be built, even though they will undoubtedly affect fishing populations in neighboring countries.

"The overall impact of those is greater than some of the mainstream dams which got all of the international attention so far," Ziv said.

"The beneficiary of the production would be Laos, producing energy mostly for export into Thailand and Vietnam, while the impact would be felt by Cambodia and partly by Vietnam, losing a big percentage of their fish catch."

More than one million tons of freshwater fish are caught each year in the Cambodian and Vietnamese floodplains alone, and the entire Mekong River Basin is home to 65 million people, about two-thirds of whom rely on fishing to survive, the authors said.

In all, the researchers identified 877 fish species in the Mekong River Basin, 103 of which would be potentially blocked from making their upstream migrations by hydropower development.

Specifically, four planned dams were found to create the largest fish biomass losses, including the Lower Se San 2 in Cambodia, causing a 9.3 percent drop in fish biomass basin-wide, which Ziv said "really looks like a very bad option."

Three others in Laos also posed particular concerns for the amount of biomass they were projected to cut: Se Kong 3d (2.3 percent), Se Kong 3u (0.9 percent), and Se Kong 4 (0.75 percent).

Although those percentages may seem small, Ziv said they would add up fast in communities that depend on fish for survival, noting that the disappearance of one percent of fish in the basin would be equal to losing 10,000 tons of food.

Tributary dams fall under national laws and do not require international agreement, even though building these dams could have "potentially

significant transboundary impacts" on fish in other countries' waters, said the study.

"Most of the catch is in subsistence fisheries," added Ziv.

"These are poor men who rely on these fish for their livelihood, so you are really impacting the poorest people when you are reducing the catch."

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