



WWF

BRIEF

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# DON SAHONG DAM

## EIA RECIPE FOR DISASTER

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### What are the concerns about the EIA and mitigation plans for the Don Sahong Dam?

There are many concerns with the Environmental Impact Assessment (EIA) for the Don Sahong Dam conducted on behalf of the dam developer Mega First Corporation Berhad (MFCB).

Concerns include:

- Recommendations that are not supported by scientific evidence.
- A lack of knowledge on geographically specific ecosystem services, ecology, fish species, and livelihoods.
- Incorporation of inappropriate research methodologies
- Incorporation of technologies that are un-tested and most likely not effective for diversity of fish species found in the Mekong ecosystem.
- Presentation of contradictory evidence.
- Absence of studies on potential trans-boundary issues including environmental, social and economic impacts.

### What could be the consequences?

The case is not made that the Don Sahong Dam will not effectively block trans-boundary fish migration routes, permanently harm local and regional fisheries, impoverish fishing families far up- and downstream, and hasten the extinction of the last remaining population of the Mekong's iconic and critically endangered dolphin, among other unique wildlife.

The EIA doesn't demonstrate that the following local impacts are well identified and will, or can be addressed and mitigated. Those impacts include fragmentation of river system, loss of a crucial fish migration route, loss of fish catch, loss of nutrition and food security, loss of livelihood income opportunities, loss of existing ecotourism through loss of dolphin population, loss of agriculture production, and ultimately a much reduced quality of life for those living in the area.

### Fish pass failures:

The statement that Don Sahong Dam will not have significant cumulative impacts on fish migration or fisheries is purely speculative and not based on sound evidence. Further, it doesn't comport with the EIAs 'Recommendations' that state *"The blockage of the Hou Sahong could potentially have a cumulative impact on the sustainability of regional Mekong fisheries through limitation on fish migration pathways due to construction of multiple barriers to fish passage both upstream and downstream."* Of course, the EIA then states that a mitigation strategy exists to make sure this doesn't happen. But, this point it is purely speculative. Significant impacts to up and downstream fish migration may occur if measures to modify the channels, provide sufficient flow and attraction velocities, and attract fish with little delay do not work."

Attraction to, and subsequent passage up the mainstream channels needs to be specifically measured and compared to passage success rates that presently occur through Hou Sahong. To

state that “the alternative channel is adjacent, and its attraction flow will be improved this should not be an issue since modifications to the channels will change attraction flows” does not resolve this issue. Furthermore, the idea of catching large fish from below the Don Sahong Dam and trucking them to above the dam, i.e. a trap-and-transport system, is a strategy that seems highly unlikely to work. There is no precedent of this sort of program being implemented in Southeast Asia. Even catching large fish would be difficult, especially without damaging them, leading to a seemingly unrealistic plan.

#### **Water flow and level impacts:**

Numerous water flow and level impacts are not even acknowledged in the EIA. The major water diversion that the Don Sahong Dam would require would lead to big changes to the water levels in various channels in the Khone Falls area. The authors of the EIA have not adequately considered or documented these changes, including how they might impact on fish and fisheries, especially migrations of particular species of fish up different channels. They do not appear to have fully modelled these hydrological changes, which is a major flaw and problem.

The Don Sahong Dam will reduce the amount of water in the Phapheng channel and other nearby off-shoot channels to a minimum of 800 m<sup>3</sup>/s (this is less than the minimum level of 1,000 m<sup>3</sup>/s proposed in the 2007 EIA for the project), which is the same as the lowest amount of water that passed the Khone Phapheng waterfalls during the lowest level of the dry season in the particularly dry year of 2010. This reduction of water during key fish migratory seasons, especially at the beginning of the rainy season, will heavily impact fisheries in important fishing channels such as the Hou Phapheng itself, and also the connected Hou Som Nyai, Hou Som Noi, Hou Kacheviang, etc.

#### **Limited knowledge on geographically specific ecosystem services:**

Information contained in the EIA suggests that the authors of the report know very little about the geography and ecology of the proposed dam location. For example, the Social Impact Assessment (SIA) declares that the low fishing season for villagers season is December to March. This is totally inaccurate. Important fisheries take place during this period. The lowest period is August to October, when water levels are too high to make fishing easy or effective.” The authors additionally claim that the Snakeskin Gourami (*Trichogaster pectoralis*), Tilapia (*Oreochromis niloticus*), and 3-Spot Gourami (*Trichogaster trichopterus*) were found in the Hou Xang Pheuak. Tilapia is a non-native species that likes relatively still water and has never been recorded in the Khone Falls area. The other two species are native species, but they are mainly found in relatively still waters. They would not be found in the Hou Xang Pheuak in significant numbers.

Furthermore, factual errors in describing the dam location, incorrect numbers of households in surrounding villages, unrealistic assumptions regarding island communities and in restoring aquatic habitats leads to work that should be considered not credible.

#### **Community engagement gaps:**

The SIA contains some major oversights and did not consider nor consult with some important villages that would be impacted by the project, such as Don Phapheng, Don Esom and Ban Khone. These villages would certainly be impacted by the project (either directly on fisheries due to the project – i.e. Don Phapheng, or in relation to fishers whose fishing would be impacted by plans related to supporting migratory passage – Don Esom and Ban Khone), especially in relation to proposed fisheries plans, so it is unclear why they have not been investigated or considered in the plan.

The EIA acknowledges that the proposed management measures for the project have so far not been discussed in any stakeholder meetings. This should have been completed before including any such measures in the plan.

## This litany of flawed analyses will impact Mekong fisheries and Cambodian livelihoods

Fisheries are an integral component of the Cambodian diet. Fishing and collecting aquatic animals is part of the livelihood of almost all rural Cambodian households, and most families living near to the Mekong River rely on the rich fisheries to feed their families and make income. As well as a key source of protein, fisheries are also the major source of many micronutrients essential to good health.

Fish and other aquatic resources accounts for 76% of animal protein consumed by the Cambodian people according to a report recently released by Cambodia's Fisheries Administration with approximately 75% of the basin's population depending on agriculture and fisheries for their livelihoods. The economic value of the Mekong River's ecosystem services is immense, with capture fisheries alone valued at US\$1.4 billion–US\$3.9 billion per year. This does not include the economic value of subsistence fisheries, which provide food for millions of people living in the basin.

- Aquatic resources are the second largest dietary component per person and per day (after rice), accounting for 18% of total food intake.
- Pregnant women and adolescent children are most dependent on the availability of inland fish for their overall food security and health.
- Freshwater fisheries, especially from wild capture, make up between 47 and 80% of animal protein consumed by the people living in the Lower Mekong Basin. As the overall intake of fat in the Cambodian diet is very low, the fat and protein contributed by fish is very important.
- Long-distance transboundary migrants (white fish), which are very sensitive to dam development, make up one quarter of total inland fish intake.
- Consumption of inland fish in Cambodia is estimated at 570,000 tonnes per year, by government research. When complemented by other aquatic animals, this amounts to 625,000 tonnes of inland capture resources harvested each year in Cambodia.

## Conclusions

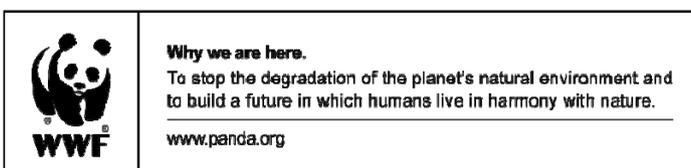
The inadequate EIA documents are of great concern considering the importance of the Don Sahong Dam project. The EIA and associated documents consists of sub-standard and incomplete research and fails to address a large number of potential and probable effects on fisheries. The mitigation measures are unproven and unlikely to offset the dam. The monitoring plans are vague and misdirected, with baselines to be established during and after-the-fact, and are unlikely to provide timely warning of problems. In the event that the proposed mitigation measures do not work, there is no alternative plan or failsafe.

Overall, if in the likely event the passage systems proposed for the Don Sahong Dam fail, permanent harm to some Mekong River fish populations and the millions of livelihoods they support will likely occur.

## Further information

This brief is based on external and independent scientific reviews. For more information please refer to the following paper:

WWF. 2014. Summary of scientific reviews from three international fish passage experts on the Don Sahong Dam EIA and technical reports related to project design and mitigation measures (Unpublished).



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