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Thank you Mekong River Commission (MRC) for the opportunity to voice our opinion and concerns. On behalf of Fauna & Flora International (FFI), I am happy to share our considered views on the proposed construction of the Don Sahong dam.

FFI has been conducting scientific research in Cambodia for over 13 years, with more than 110 years of successful global conservation activities. FFI currently operates in more than 140 projects in over 40 countries, mostly in the developing world. We are an independent conservation organisation, proudly standing up for biodiversity.

FFI Cambodia supports sustainable economic development that places equal importance on economic, social and environmental factors. However, in the specific case of the proposed development of the Don Sahong dam, I believe the negatives pose a far greater threat to the natural world and surrounding communities than any positives its construction would yield. This dam would adversely impact habitats in the dam's catchment, riparian zones and local communities – and I can not therefore, in good conscience, agree to its construction.

There are correlations between the tropical landscapes of the proposed Don Sahong dam in Laos and the Stung Atay hydro-dam in Cambodia. FFI Cambodia's Sustainable Provision of Ecosystem Services (SPES) project, (a project we operated from January 2011 – December 2014), in the Atay River "Stung Atay" catchment in the Cardamom Mountains, provides many lessons that should be considered when discussing the proposed Don Sahong dam, primarily about the impacts of deforestation on rainfall, and therefore electricity.

#### **Deforestation = Reduced Rainfall = Reduced Power Production**

This is backed up by growing scientific evidence linking deforestation to reduced local rainfall and reduced power production.

There are invaluable lessons to be learnt from the Amazon. Studies from 20 years ago predicted – accurately as we now know – that Amazon deforestation is altering the climate, as documented in researcher Antonio Nobre's 2014 The Future Climate of Amazonia Scientific Assessment Report. The report notes that the deterioration of the rainforest – through logging, fires and land clearance – has resulted in a decrease in forest transpiration, worsening droughts and connected to extreme weather events. This report also stated that the system of monsoons of South America is similar to that in Asia.

Evidence of rainfall dependence on regional forest cover has been found for the three major tropical forest regions of the world (Amazon, Central Africa, and Southeast Asia), which questions the logic of

hydro-power expansion plans in developing countries (Stickler, et al. Dependence of hydropower energy generation on forests in the Amazon Basin at local and regional scales, 2013).

In Southeast Asia further research is required before a comprehensive understanding of ecosystem services – that are linked to forest cover and necessary for hydro-electricity providers – can be grasped. Undertaking such research would be a valuable investment as part of strategic energy supply planning.

So, if deforestation (of which the construction of a hydro-dam would contribute to) leads to reduced rainfall, and low catchment water supply leads to reduced capacity of hydro-dams – how effective will Cambodian and Lao hydro-dams actually be in 30 years time?

### **15% Water Loss from Mekong**

Since 2000, there have been regular discoveries of new animal species (including reptiles, amphibians, birds and bats) in Cambodia, which indicates that much of Cambodia's biodiversity remains unknown and unstudied by science, and many more areas still need to be researched.

The Mekong River with its monsoon-based annual flood pulse supports a biological diversity second only to the Amazon in numbers of fish, mammals and birds. This is a region of great biodiversity importance.

As described in the Don Sahong Power Company's Preliminary Design Guidance, the Don Sahong project would be situated on a branch of the Mekong River, the Sahong channel, and the station would utilise on average about 15% of the total Mekong flow. A 15% loss of water flow could still have an adverse effect.

At the heart of the Mekong is the great lake, Tonle Sap, which is home to many bird and fish species, and is the driving force of the ecosystem processes that support the system's huge natural productivity. As per the MRC's 2013 Environmental Impact Assessment, the sustainability of both local and regional fisheries is identified as the most important environmental consideration for the proposed Don Sahong dam. The significance a year-round pathway for fish migration still needs to be investigated and monitored. In the Tonle Sap, for instance we understand that some species of fish need to swim upstream to the Cardamom Mountains to breed, then swim back.

Research is warning us that if deforestation in Cambodia continues at its currently alarming rate, this will likely lead to reduced rainfall and a lower volume of water in the Mekong River. In turn the volume of the Tonle Sap Lake will be reduced, the fisheries resources could be depleted, and the livelihoods of those communities who depend on fishing could be severely affected.

Even now, the proposed 15% average of the Mekong River flow the station would take annually will have a serious impact. In two years we may see no difference, but in 30 years this could be devastating to biodiversity, communities and industries depending on this water source.

### **Sustainable Economic Development**

FFI urges an openness and transparency when dealing with lessons learnt from existing hydro-dam construction. And we urge further research about the suitability of selected catchment areas for hydro-dam development. Already, several existing hydro-dams in the region are not running at intended capacity.

There are a number of other concerns to consider during and after construction of a hydro-dam. There needs to be good management during hydro-dam development, including educating (often foreign) workers about the importance of biodiversity and preventing workers from hunting wildlife around the site. There needs to also be good management and law enforcement (including of boundaries) after hydro-dam development to prevent the establishment of illegal villages which can lead to agricultural encroachment, hunting, land ownership disputes and illegal logging.

FFI recommends research into other options for producing electricity in Southeast Asia, such as solar panels and wind energy.

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