

Laos: A Unique Perspective on Hydropower and Carbon Credits

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Laos is more than 9,000 kilometres from Avignon. It's a relatively poor, landlocked country with few polluting industries. Unlike rich countries, Laos burns a minimal amount of oil. Biomass is abundant. Most of the cooking in homes and restaurants is done with charcoal. Remarkably, Laos relies on hydropower for nearly 100 percent of domestic electricity production, reaching more than 90 percent of households. The Total Primary Energy Consumption of the country of 6.7 million population was less than 2.5 Mil TOE in 2013, and grows at an annual rate of about 5%. Think of Laos as a net carbon sink in a vast green jungle.

Of course, the Lao Government shares the international community's alarm over the adverse environmental and economic impacts of climate change. Negative impacts already threaten the future sustainability of highly vulnerable water resources in Laos, Cambodia and Viet Nam. At COP21, the Lao PDR raised the spectre of enormous damage to agriculture and human livelihood, a burden well beyond the coping ability of poor Southeast Asian countries.

Looking at the total hydropower resource of the Mekong River and its tributaries, the Lao Ministry of Energy & Mines identified a potential capacity of 26,000 MW. The Ministry has begun planning or construction on 20 or 25 more hydropower stations. The current installed capacity stands at more than 6,000 MW. Four years from now, in 2020, Laos will have 10,000 MW capacity, and by adding 1,000 MW a year during 2020-2030, Laos will have 20,000 MW for domestic use, two-thirds of it available for export and trade.

The Lao PDR does not apologise for its success developing hydropower, or its strategy of trading or selling power to Thailand, Vietnam, Cambodia, Myanmar and all the way to Malaysia and Singapore. Indeed the goal is to develop all hydropower resources as rapidly and responsibly as possible and practical.

Large-scale hydropower brings many benefits, including rural electrification and construction of new homes, roads, bridges, schools, clinics, community centres and markets that might not otherwise be built in remote areas. Chief among the benefits is the opportunity for our people to learn new skills and earn a better livelihood. There are also environmental benefits. It's estimated that electricity export from Laos reduces carbon dioxide emissions by the equivalent of 5 million tons a year.

After forty years of developing successful hydropower projects, the Lao Government understands the need to address all aspects of technical, economic, environmental, and social sustainability. In the course of developing landmark projects — like Nam Ngum 1, Nam Theun 2, Theun Hinboun, and Xayaburi — Laos has engaged experts from CNR and other highly respected engineering and consulting companies at every step of the way, to elevate projects to the highest international standards and practices.

In accordance with the Mekong Agreement of 1995, the Lao PDR has opened its mainstream Mekong projects up to the scrutiny of riparian neighbours and international experts. Laos proceeded with the 1,285 MW Xayaburi Hydropower Project only after completing exhaustive technical and

environmental impact studies. Even then, plans for the run-of-river scheme underwent the Mekong River Commission's formal six-month prior consultation process. As a result, engineers designed low-level outlets to improve the flushing of sediment, and adapted fish passages to the behaviour of local species, to aid migration during and after construction. Making these modifications added more than \$100 million to the project's cost.

Laos wholeheartedly embraces the premise that a balance must be struck between engineering design and environmental protection. However, as a poor nation, striving to elevate itself above Least Developed Country status, we cannot afford to wait for every study to look at every aspect of development from the mountaintop to the sea. When rich countries delay projects, project costs increase, and poor people suffer. Laos is designing hydropower plants that will benefit the Lao people and the region for a century or more. In order to strike that balance between engineering imperatives and the pressing need to protect the environment, policymakers and planners must, above all else, be practical.

If rich countries are serious about offsetting their carbon emissions, they should take a cue from Bill Gates, who has argued for increased government spending on energy research. Instead of subsidising alternative energy projects, which will require endless subsidy, they should spend their money on innovation. They should nurture brainpower and software, not hardware. The end product should be new ideas for efficient, cost-effective technology that works without subsidy.

We suggest that highly developed countries help lesser developed countries like Laos incubate advanced, environmentally sensitive hydropower plants that will generate non-polluting power while eliminating the need to build smokestack plants.

For example, large hydropower projects done properly in Laos can save Thailand and other neighbouring countries from building more coal-fired plants. Building export-based hydropower plants is a win-win-win for the producing country, the importing country, and consumers in both countries.

If Laos produces 60,000 Gigawatt hours a year for export, that's a reduction of 30 million-60 million tons of carbon dioxide emission, depending on the fuels being replaced. At the going rate of \$10 a ton, carbon-credits could pay Laos between \$300 million and \$600 million a year to pursue research to advance the sustainability of hydropower, a proven solution.

The more money we get from carbon credits, the more research we can do, the closer we can get to practical solutions for our planet.