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Emerging Powers Harnessing Neighbours' Hydroelectricity

By **Mario Osava***

RIO DE JANEIRO, Apr 13, 2011 (IPS) - Emerging countries like Brazil and China are building numerous hydroelectric dams at home and abroad to help drive their economic growth. But while in Latin America the phenomenon is touted as an integration process, in Asia it has generated tension over the shared use of rivers.

Brazil, the leader of this strategy in Latin America, has an agreement to build five hydropower dams in Peru, and is interested in building two similar plants, which would depend on reaching agreements with Bolivia: a joint venture between the two countries on the stretch of the Madeira river that forms part of the border between them, and a Bolivian plant.

A large part of the energy generated by these projects will be exported to Brazil, whose government projects an annual 5.9 percent increase in demand for energy from now to 2019, when the country will need 167,000 MW, over two-thirds of which will come from hydroelectricity.

Building dams outside of the country is one way to evade stiff opposition from environmentalists and indigenous groups in the Brazilian Amazon, where nearly all of the country's as-yet untapped hydropower potential is found.

Cachuela Esperanza on the Beni river in northern Bolivia, near the Brazilian border, will have a potential of 990 MW, according to a project drawn up by Tecsuit, a leading Canadian consulting firm. That is nearly the equivalent of Bolivia's entire demand for energy.

"It will only be profitable if more than 90 percent of the energy generated is exported," Walter Justiniano, an engineer from the city of Guayaramerín, on Bolivia's northern border with Brazil, told IPS.

Distributing the energy within Bolivia would require the installation of hundreds of kilometres of power lines, since the nearest city is 1,000 kilometres away, he said.

The proposed dam on the Ribeirão rapids on the Madeira river, the biggest tributary of the Amazon by volume as well as length, would have a capacity of 3,000 MW - similar to the Itaipú dam, one of the world's largest hydroelectric facilities, built 27 years ago by Brazil on the border with Paraguay.

Paraguay has never been able to consume more than 10 percent of the energy produced by Itaipú, although it is entitled to half.

The two projects are still in the feasibility study phase, according to Alberto Tejada, manager of electricity generation at Bolivia's state power company Empresa Nacional de Electricidad (ENDE).

The Cachuela Esperanza project depends on the evaluation of "technical questions and policies of sovereignty, security and environmental protection," Tejada told IPS. "Negotiations and arrangements for its financing and construction are not far along," he admitted, although Bolivian President Evo Morales expressed his interest in pushing the project forward in January.



The Madeira river, where Brazil hopes to build a hydropower plant under an agreement with Bolivia.

Credit:Agência Brasil

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The Ribeirão rapids project, meanwhile, depends on an agreement between Bolivia and Brazil "as a guarantee of enforcement of the treaties for the free navigation of international rivers," Tejada said.

A Bolivian team of experts is studying the hydroelectric potential of three rivers in the basin shared with Brazil, which will serve as a basis for the negotiations, he added.

The rivers to be dammed, in both Bolivia and Peru, are tributaries of Brazil's major Amazon rivers, like the Madeira and the Solimões.

The black hole of Asia

The situation is much more complex in Asia, where the Tibetan plateau in China is the source of some of the world's largest rivers, which flow towards India and Southeast Asia.

Growing demand in China is driving up energy consumption much faster than in Brazil, because of the Asian giant's population of 1.3 billion and economic growth of around 10 percent a year.

But the recent spate of dam-building by China is worrying others downriver with dams and water needs of their own. There are approximately 81 large Chinese hydropower projects on the upper Yangtze, Mekong and Salween rivers.

Cambodia, Laos, Thailand and Vietnam established the Mekong River Commission (MRC) in 1995, to cooperate on sustainable management of the river.

China's 21 dams on the upper Mekong are causing concern in the four MRC countries, where a drought in the summer of 2009 reduced the Mekong's flow drastically enough to make the MRC suspect China of hoarding the river's waters, causing scarcity downriver.

But the MRC's weak resistance to Chinese pressure has been harshly criticised by organisations like the International Rivers Network (IRN).

In addition, Laos announced in March that it would build the Xayaburi hydroelectric dam with a capacity to generate 1,260 MW, triggering protests in Vietnam, which fears serious damages to agriculture and fish farming in the Mekong delta.

But Xayaburi is just the first of 11 hydropower plant projects on the Mekong river that the governments of Cambodia, Thailand and Laos are considering, nine of them in Laos alone.

India's concerns over Chinese dams on the Yarlung Tsangpo (the upper reaches of India's Brahmaputra river) echo similar worries over dams being built in Nepal and Bhutan, where India in its turn is leveraging its weight to access cheap electricity.

The larger countries in the region are thus using their economic clout to harness the resources of smaller countries.

In Burma, dams being built by China, Thailand, India and Bangladesh offer these countries an opportunity to access cheap electricity while not being held responsible for the negative social, economic and environmental impacts. Strong anti-dam movements in Thailand, for example, make projects in Burma particularly attractive.

There are 29 hydropower projects in Burma with a total combined capacity of 19,413 MW currently under construction and another 14, with a capacity of 13,971 MW, in the planning stages. Ninety percent of all power to be harnessed is for export.

Chinese firms are the biggest dam builders in the area, one more example of how "China is emerging as a massive economic investor in the region," Carl Middleton of IRN's Mekong campaign told IPS.

Brazil, similar role, smaller scale

Brazil plays a similar role but on a smaller scale in Latin America, where companies like Odebrecht, Andrade Gutierrez, Camargo Corrêa and Queiroz Galvão are involved in the largest dam-building projects.

But Brazil seeks to exercise a more subtle kind of power than China, whose companies tend to bring in Chinese workers for projects abroad, which limits the hiring and training of local labour power.

Nearly all of the countries of South America have an energy surplus, untapped potential and sources like oil, hydroelectricity, natural gas or coal. But "some states have natural resources, while they lack capital or technology" to develop them, said Daniel Falcón, a diplomat in the Brazilian foreign ministry's division of non-renewable energy resources.

These conditions justify the push for "energy integration," which besides offering "complementarity," foments "understanding and mutual familiarity among neighbours," he told IPS.

That is one of the top priority issues taken up by the Union of South American Nations (UNASUR) since 2007. The regional bloc now has guidelines and an action plan, and is

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negotiating an energy treaty. "There are no initiatives like this anywhere else in the world, not even in the European Union," Falcón said.

The Cachuela Esperanza dam will represent additional revenue for the Bolivian state, more energy for productive activities, and improved living conditions in the country's northern Amazon jungle region, while reducing the use of fossil fuels to generate electricity, leading to a cut in greenhouse gas emissions, Tejada argued.

But it will also require a dam "almost as big as Itaipú," which will flood rainforest in Bolivia, said Justiniano, the engineer from Guayaramerín. He concurs with other critics of the construction of "Brazilian" hydropower plants in Bolivia and Peru, who consider them unnecessary and destructive of the countries' rich biodiversity.

*With additional reporting by Franz Chávez in La Paz and Keya Acharya in Bangalore. (END)

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