

TVA in Borneo: Bakun Dam Revived

by Martin Chew Wooi Keat

In early 2003, the construction of the Bakun Dam, located in the Malaysian state of Sarawak, has been revived, following a deferral in 1997 forced by the speculative attack on the Malaysian ringgit and other Asian currencies. The original contract had been awarded in 1994, but the history of the Bakun Dam goes much further back. The Bakun was intended to be the first in a series of dams along the Rajang River system, similar in concept to the Tennessee Valley Authority (TVA) system. The TVA, the centerpiece of President Franklin Roosevelt's centrally financed great infrastructure projects that pulled the United States out of the Great Depression in the 1930s, transformed the vast, impoverished region of the Tennessee River Basin into a thriving center for agriculture, industry, scientific development, and education.

The Rajang, the longest river in Sarawak, and the hydro potential of the Bakun Dam were first surveyed in the early 1960s by the Snowy Mountain Hydro-Electric Authority of Australia. Additional and more detailed surveys in the late 1970s and early 1980s identified still more sites, especially along the upper Rajang. It was estimated that Sarawak's rivers had a potential capacity to generate 20,000 megawatts (MW)

of electricity. Furthermore, because of the low population density in this region, the development of massive hydro projects would not involve the resettlement of large numbers of people. In the case of Bakun, only around 10,000 people have to be resettled, compared to more than a million in the case of the Three Gorges Dam in China.

World's Third Largest Dam

After it is completed in 2007 (estimated), Bakun will generate 2,400 MW of electricity, and will be the third largest dam in the world. The largest, the Three Gorges, has a capacity of approximately 20,000 MW, while the second largest, the Brazilian-Paraguayan Itaipú Dam, has a capacity of 12,600 MW. The original plan for the Bakun Dam had an estimated cost of 20 billion ringgit (3.8 ringgit = \$1). This included a 600 kilometer power cable from the dam to the coast, and another 670 km of undersea power cable—costing around RM 7 billion—to allow Borneo Island to power Peninsular Malaysia. The revived dam, however, will not include the undersea power cable for the time being, in order to lessen the cost, and will cost only RM 9 billion to build.

The tender for the revived dam was awarded to the Malaysia-China Hydro Joint Venture (MCHJV). MCHJV is a partnership between Sime Darby of Malaysia and China National Water Resources and Hydropower Engineering Corp. Beijing lobbied for the contract by offering to buy more palm oil at a fixed price.

Around 5,000 people are expected to be employed at the height of the project. The revival of the Bakun Dam, and



The area to be flooded by the Bakun Dam in Malaysia's Sarawak province (see the map), is above this narrows of the Janang River. Like the original Tennessee Valley Authority, the Bakun Dam project will produce significantly more electricity than the surrounding region of Borneo uses now—creating power for future development.

Southeast Asia



Source: EIRNS.



A worker is dwarfed by the size of the intake tunnels under construction for the dam.

the involvement of China in the project, points to on-going regional efforts to counter the collapse of the global economy, through government financing of great infrastructure projects.

The risks, however, are enormous. A single day's delay in the project could cost a penalty of RM 1 million. But there can be no great projects without great risks. The chairman of MCHJV, Jafar Carrim, is optimistic of success despite the barrage of negative publicity from anti-growth non-governmental organizations and the international mainstream press. According to Carrim, "We have the *crème de la crème* of the Malaysian construction industry [Sime Darby] . . . and the Chinese have probably built more dams than anyone else in the world."

The Bakun Dam will eventually stand at a height of 205 meters (the Three Gorges Dam is 181 m) and create a reservoir larger in size than Singapore. Environmentalists, both local and foreign, have used this as an excuse to try to stop the project. Furthermore, the 2,400 MW of electricity generated by Bakun will be far in excess of the current consumption of 800 MW by the Malaysian section of the island of Borneo. Accountants, both local and foreign, have used *this* as an excuse to try to stop the project.

Scientific Insight Needed

What the environmentalists and accountants lack, however, is the scientific insight of Vladimir Vernadsky, and Vernadsky's biogeochemical vision, as applied to the development of Borneo. Borneo has rich mineral resources. Oil and gas, coal, bauxite, industrial-grade diamonds, and low-grade iron ore abound. Borneo is also home to sandalwood, ironwood, and camphor. (Sandalwood is used for making high-quality perfume. Ironwood is one of the hardest woods in the world, which has excellent physical properties and is not vulnerable to termites or other tropical wood-eating insects or



Diversion tunnels have already been drilled in preparation for the dam construction.

fungus. Camphor is used in a variety of medicines.) Borneo is also suitable for the cultivation of rubber, coffee, pepper, sugarcane, and rice.

Borneo is larger than Germany, Austria, Italy, and Switzerland combined, but has a population of only about 10 million people. The power from the Bakun Dam will allow man to transform the Noösphere of Borneo, for the physical economic benefit of both man and nature. While an accountant sees Bakun's power as an excess, to be cut to balance the budget, a physical economist sees Bakun's power as high-density free energy, to be used to garden the ecology of Borneo to allow the increase of the population density of the island and the region.

For starters, the power from Bakun will be tapped to supply an RM 8 billion aluminum smelter plant in Sarawak, in a joint venture with a company from Dubai. Aluminum production requires huge amounts of electricity, and Borneo has deposits of bauxite. Bakun will allow steps toward further industrialization of Borneo, involving not just mineral extraction and refining, but also the transformation of raw materials into finished goods. Currently, much of Borneo's needs are imported, either by sea or air, because of the lack of manufacturing activities on the island.

Currently, the main mode of transport in Borneo is by river. Rail in Borneo is virtually non-existent. There are numerous small and isolated tribal communities scattered throughout Borneo, living on subsistence, slash-and-burn agriculture. The low energy throughput per unit area, coupled with inefficient water-based transport, makes it difficult to develop industry and cities in Borneo. With power from Bakun, these scattered communities can be brought together into modern cities, with sanitation and medical and education facilities, connected to one another by electric-powered rail. A "TVA" system in Borneo could very well transform the island into an integrated economic unit, to serve the needs of the entire Southeast Asia region.