Ghana's Hidden Treasure in Ghana's Volta Lake

Submitted by Evo Alexandre

Harvesting an Underwater Forest

Sloan Fellows find a triple-bottom-line business in West Africa.

THE LARGEST MAN-MADE RESERVOIR in the world, covering roughly twice as much land mass as San Francisco Bay, is Ghana's Volta Lake. Created by damming a river gorge four decades ago, the 250-mile-long lake supplied hydroelectric power to a newly independent African nation. Today it also provides irrigation for farmers, fish habitat supporting commercial fishermen, and transport for people and goods that need to move from remote inland villages to markets closer to Ghana's coast and back.

Yet the lake is also a killer. When the gorge was flooded in 1966, thousands of hardwood trees were left standing. Many of them lurk just below the water surface much of the year where they snag the nets of fishermen and are a collision peril for the long wooden kayaks and other boats that transport goods and people. At least 300 people in the region of 2 million have died from boating mishaps—most related to the underwater hazards.

For **Wayne Dunn**, Sloan '97, however, the massive reservoir represents a wonderful opportunity. The underwater forests "could generate the largest source of environmentally sustainable natural tropical hardwood in the world," says the 51-year-old former Canadian logger with a long-time interest in socially responsible business practices. Dunn is cofounder of a for-profit company headquartered in Mill Bay, British Columbia, that hopes to not only harvest and sell the wood but also provide social and environmental returns.

He has a long way to go before realizing this triple bottom line, however. The company has to assess exactly how many trees are under water and where; design and construct equipment to harvest them and carry the wood to shore; and build a sawmill. Plus, it needs to figure out how to do it all without harming the underwater habitat for fish.

Inspiration for the company came on a cold and miserable fall day in 2004 as Dunn sat in an Ottawa hotel room during a business trip. A documentary on television described a Canadian company that had developed a remote-controlled device to harvest underwater pine trees in reservoirs in British Columbia. Because the wood was completely submerged, it hadn't been exposed to oxygen and, as a result, was in pristine condition.

Dunn, who was running a consulting firm that specialized in socially responsible business, immediately thought of Ghana, where his wife, Gifty, was born and raised before moving to Canada. He had met her in the mid-nineties when they both served on the board of Plenty Canada, an Ottawa-based group that helped African natives and Canadian aborigines build more sustainable communities through programs that provided such resources as instruction in better farming techniques and new water systems. Since their marriage, Dunn had spent quite a bit of time in his wife's native country as a consultant. Perhaps, he thought, the same harvesting technique would work on the trees in Volta Lake.

Dunn consulted his unofficial board of advisors starting with his

PHOTOS BY MICHAEL M. PHILLIPS

The Sloan Fellows team, from left: Michael Bush, '94; Wayne Dunn, '97; Steve Hicks, '98; and Naa Lamle Wulff, '07.

father, John, once a logger. Then he turned to former Canadian Prime Minister Joe Clark, whom Dunn had met not long before when Dunn was a guest speaker at a conference in Africa on corporate social responsibility that Clark also attended. Dunn knew the former PM had a long-standing interest in Africa and was working at the Woodrow Wilson Center in Washington, D.C., so he arranged a lunch meeting to discuss the Ghana idea. Next, he approached **Steve Hicks**, Sloan '98, a former investment banker and close associate, and **Michael Bush**, Sloan '94, a management consultant specializing in small business. In October 2005 Clark agreed to cofound Clark Sustainable Resource Developments (CSRD) to harvest underwater timber. Hicks came on board as chief administrative and financial officer, and Bush assumed the role of unofficial chief operating officer. Recently **Naa Lamle Wulff**, Sloan '07, joined the company's management team.

The lake's forests had the potential to be highly profitable. They figured each tree was likely to sell for $1,500 to $2,500, and possibly much more. But they also saw the company as having two other bottom lines—providing social improvements in the form of jobs for some residents and greater boating safety for others; and reducing the threat to forest environments by satisfying demand for ebony, mahogany, and other hardwoods without removing living trees. In fact, CSRD planned to plant new trees around the lake and in other parts of Ghana. "I have never seen a business opportunity where these dimensions lined up so well," Dunn says now.

It was an ambitious plan, but Dunn had a history of doing the seemingly impossible. After quitting high school to become a logger, he eventually became involved in economic development for indigenous peoples. His efforts included creating partnerships between the Miskito Indians in Nicaragua and members of industry and government to increase fishing and forestry job opportunities, and a program for South African mining companies to help miners with AIDS. Dunn's background and experience so impressed the Sloan Program's administration he was accepted by the highly competitive master's program despite the fact that he never attended college.

After seeking cofounders for the Volta Lake project, Dunn knew he had to persuade the Ghanaian government to go along. In mid-2005, even before the official company launch, he and Clark initiated discussions with Ghanaian officials ranging from President John Kufuor to the ministers of harbors and railways and energy. "They were intrigued by the notion," Clark says. "But we still had an enormous amount of work to do." For example, Dunn says, no country has a "regulatory framework for mining of underwater forests. We had to create an agreement from a base of zero." Investors couldn't be expected

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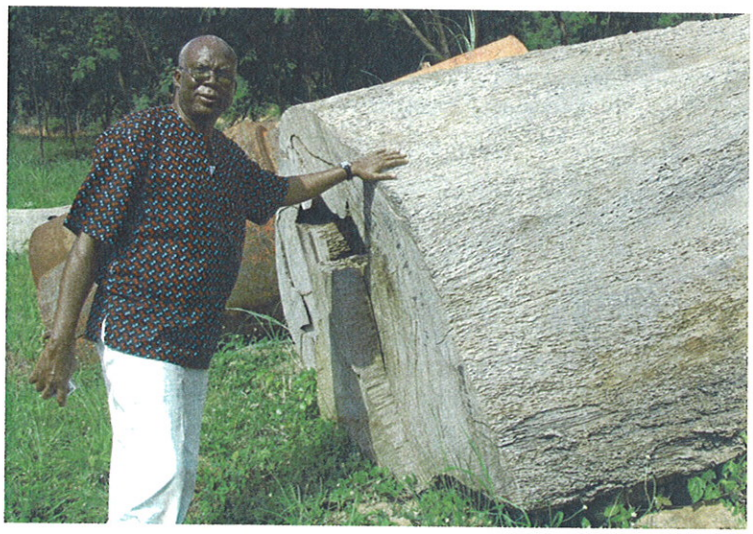

Nayon Bilijo, Ghana executive director of Clark Sustainable Resource Developments, stands beside a mahogany tree that was pulled from Volta Lake in order to clear a transportation path for boats. The company hopes to harvest many more such valuable trees.

SLOAN FELLOWS PORTRAITS COURTESY OF CSRD

A motorized canoe carrying passengers, food, and other supplies approaches Dzemeni, a town on the east shore of Lake Volta. On market days the boats navigate around tree stumps on their journey to the Afram Plains. A Dzemeni villager brings fuel to the incoming vessel.

to sign on without a realistic possibility of government approval. To keep the project moving, Dunn and Clark funded the company largely themselves, including taking out a second mortgage on Dunn's home. By early 2006, friends and family were considering investing in the company but not without a signed agreement with the government of Ghana.

With money running dangerously low 14 days before the Ghanaian Parliament was scheduled to adjourn, Dunn hopped a plane and spent a week in intense discussions. It worked. In February Parliament unanimously approved the agreement and the Ghanaian government signed the deal giving CSRD exclusive rights to the lake for 3 years, and another 15 years during which it can harvest areas of its choosing. In return, the government is entitled to 20 percent of net profits. Six months later CSRD closed on a $1.5 million round of financing from friends and family, as well as London-based City Capital Corp. In February 2007, the company closed a second round for $12.5 million, this time from a handful of institutional investors, including Goldman Sachs and City Capital Corp.

Getting government approval and investor funding were only two of the challenges. Just how many trees were beneath the lake? How would CSRD get them out, process them, and ship the wood? As a first step, working with a former Ghanaian deputy minister of lands and forestry, the company located an aerial photograph of the area dating from after World War II that was digitized and superimposed on a map of the lake. This produced a rough estimate of the number of submerged trees, which were also inventoried by boat.

Using more sophisticated sonar technology, the company started a comprehensive survey of the trees in July and began developing remote-controlled equipment able to locate, grab, and cut the trees. Work also is under way designing barges able to carry the logs. "The more we know about the forest, the more efficient we can be in our equipment design," Dunn says. "If the trees are mostly at 100 feet below, that calls for a different design than if they're, say, at 50 feet." The technology will combine sonar imaging with equipment used by the off-shore petroleum industry that relies on remote-controlled devices to operate under water.

Not long after the government and CSRD signed their agreement, a global environmental group called Conservation International voiced concern that harvesting the trees could destroy the fish population that used tree roots for protection. The current sonar evaluation will assess the condition of the fish and the impact the operation could have on them. "We will need to cut the trees in a way that doesn't have a negative effect," Dunn says.

There's also the matter of building a sawmill to process the timber, something still in the planning stages. Fortunately, there are railroad tracks and paved roads built when the dam was under construction. "It means we can do processing of logs and manufacture right on site," Clark says. By fourth quarter of 2008, they hope to begin harvesting.

At some point the underwater trees will run out. What then? For the Volta Lake region, Dunn hopes to have created a more sustainable economy. For example, the lake is heavily used for commerce now, and water transport is likely to improve dramatically because the danger of colliding with the trees will have been eliminated. As for CSRD, the company's executives are already thinking about underwater trees in other locations in Africa and Latin America. "The Ghana venture is bigger than just this one piece," Dunn says. "Our efforts will move to different areas where the power of business can profitably drive environmental and social value as well." ●