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## A Man Has a Plan To Harvest a Forest In Ghanaian Lake

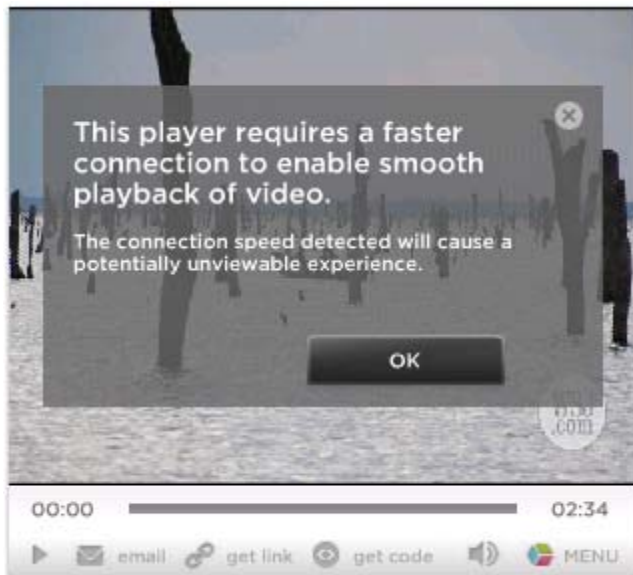
**Volta Boatmen Dodge Trees  
That Tilapia Seem to Like;  
Dunn's Hardwood Fortune**

By **MICHAEL M. PHILLIPS**  
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DZEMENI, Ghana -- From shore, what's most striking about Volta Lake is not its size, though it is one of the world's largest man-made reservoirs. Nor the wooden canoes, long as tractor-trailers, that ply its waters carrying passengers and cargo.

What's most striking about Volta Lake is that it is full of trees.


In the shallows, the treetops emerge from the water like the bristles of a brush, the dead remnants of huge tropical forests submerged when Ghana dammed the White and Black Volta rivers more than 40 years ago to generate electric power for the newly independent nation.



WSJ's Michael M. Phillips reports from Ghana, where an underwater forest has interested a Canadian developer, but worries environmentalists and the local government.

underwater can be just as controversial as cutting down live ones on dry land.

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The trees are a constant danger. Nearly 300 people have died in boat-tree collisions on Volta Lake. "Sometimes, they cut the boat open," says ferryman Enos Agada, his eyes bloodshot after a 36-hour crossing.

But where Mr. Agada sees a threat to life and livelihood, Wayne Dunn sees sunken treasure. A 51-year-old Canadian who dropped out of high school to become a logger, Mr. Dunn has won approval from the Ghanaian government for an audacious plan to harvest the forests of mahogany, ebony and other hardwoods that are still rooted to the lake bottom, 200 feet below in some places.

He's betting that the timber is worth tens of millions of dollars, if not more. He's also discovering that cutting down dead trees

"We believe it's the largest and most valuable underwater timber concession in the world," says Mr. Dunn, who has a midcareer master's degree from the Stanford Graduate School of Business, though he didn't finish high school or attend college.

Such investors as former Canadian Prime Minister Joe Clark, **Goldman Sachs** and British Columbia's Salman Partners Inc. have gambled \$14 million that he can both assuage environmental concerns and come up with the technology to pull the big hardwoods out of the water. That's something that has never been done on a commercial scale, according to Mr. Dunn.

He stumbled on the idea in Canada in 2004, while watching a television documentary about a remote-controlled submarine used to cut pines in reservoirs in British Columbia. Mr. Dunn is married to a Ghanaian woman, and he knew that the country had extensive hardwood forests. He wondered whether some of those forestlands had been flooded when the Akosombo Dam created Volta Lake in 1966.



Mr. Dunn enlisted his father, who has been a logger since the age of 11, as well as former prime minister Clark and another partner, to form Clark Sustainable Resource Developments Ltd., based on Vancouver Island, British Columbia. Last year, the company negotiated a two-year pilot agreement with the Ghanaian government, under which it can explore the lake, and a 15-year follow-up deal to harvest its choice of 875,000 underwater acres.

The Ghanaians were happy to sign, partly out of a desire to reduce the number of deadly boating accidents, and partly because the government's initial 20% cut of the profit.

But, first, Mr. Dunn had to figure out whether there actually are enough trees in the lake to make the project worthwhile. To do so, he hired 54-year-old Nayon Bilijo, a former Ghanaian deputy minister for lands and forestry. Mr. Bilijo

sifted through forestry archives and found a tattered map that predated construction of the dam. He pieced the map together on a board, and the company digitized the information and superimposed the forests onto a map of Volta Lake -- showing that giant swaths of forest are now under water.

A blind, long-retired forestry official told Mr. Bilijo that the forests were legally protected reserves, right up until they -- along with the houses of 80,000 villagers -- were swallowed by the rising waters.

Last November, Mr. Bilijo took a powerboat, a chain saw and a fish finder -- the portable sonar device that anglers use to locate schools of fish -- and spent several hours taking depth readings and wood samples. He soon realized that he was seeing the tops of trees that, in some cases, were standing in 100 feet of water.

Lab work indicates that wood from the lake is still good, despite decades in the water, the company says.

The company claims the average tree will be worth \$1,500 to \$2,500. Now the company is planning an extensive survey of the lake's tree population, using more sophisticated sonar equipment. It launched its first survey boat on Tuesday.

At the same time, company engineers are trying to figure out how to cut and recover trees that are waterlogged, don't float and might weigh up to 100,000 pounds each. Hardwoods can measure six feet in diameter.

The company hopes to patent its system, which combines logging and deep-sea oil-drilling technologies. Its engineers say they plan to build specialized barges with equipment to find the trees, identify the species and then use mechanical arms to reach into the water, grasp each tree at top and bottom, cut it and bring it to the surface.

The company is also wrestling with questions about whether its operations would disturb the lake's ecosystem, or the livelihoods of those who live on its shores. Shortly after signing the agreement, the company got a letter from Okyeame Ampadu-Agyei, Ghana director for Conservation International, a global environmental group, raising concerns about the impact the logging might have on fish and fishermen. An estimated two million people live on the lake, with 80,000 making a living directly from fishing.



**Wayne Dunn**

Though the lake is artificial, tilapia and other fish now breed in the exposed, tent-like root systems of the hardwoods, Mr. Ampadu-Agyei argues. "The removal of the submerged forest will...pose significant risk to the biodiversity, including the risk of species extinction, if the unique habitat conditions that have evolved to harbor delicate and rare species over time are destroyed," he wrote.

The company says it is eager to ensure that both lake and locals emerge better off after the logging. Mr. Dunn has hired away a forestry expert from the Nature Conservancy, who talks enthusiastically about a simultaneous commitment to financial, social and environmental returns.

Company executives, for instance, envision a wood-processing plant that will create jobs for locals. They're donating money to a group that protects the lake's endangered West African manatees, bulbous plant-eaters that can no longer migrate to the ocean because the dam is in the way. There's talk of donating life jackets to passengers on the big transport canoes, and power to people who lost homes to the big hydroelectric dam but still don't have electrical service of their own.

"It's a complex operation," says Chris Gordon, a zoologist and research fellow at the University of Ghana's Volta Basin Research Project. "It's not just a matter of going out with a saw and cutting them down."

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Fishermen search for tilapia among the hardwood trees jutting out of Volta Lake. Whole forests were flooded when the Akosombo Dam came on line on the Volta River in 1966.

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