

Return from Genocide

Rwanda has moved from horror show to a model of wireless connectivity.

By James Daly



A Wireless Leap? Rwandan schoolchildren attend math class. *Credit: Getty Images*

Twelve years ago, Rwanda was an abattoir, a scene of unimaginable carnage where hundreds of thousands were hacked to death in a savage civil war.

Today, the small, landlocked country about the size of Maryland is home to one of the most ambitious wireless projects on Earth, one that will eventually connect every school, hospital, and home via high-speed Internet access.

The unlikely Edison behind this astonishing technological transformation is Greg Wyler, a soft-spoken dot-com millionaire from Boston. Last year, Wyler and a team of investors quietly bought the telecommunications infrastructure of Rwanda from the state in a \$20 million privatization transaction. Today, the company Wyler heads -- Terracom -- is building one of the largest and fastest fiber optics networks in Central Africa (an elegant leap for a guy who made his fortune with a slotted-fin heat sink, which cools silicon parts in PCs).

In less than three years, Terracom has scored some impressive wins. Not long ago, a highspeed connection in Rwanda cost more than \$1,000 per month. A whopping twenty-two customers could afford this service from the national telco, RwandaTel. Terracom immediately started to lay more than 350 miles of fiber throughout Rwanda and has dropped the price for a combination high-speed Net connection and phone line to about \$80 per month.

As Wyler notes, a decent tech infrastructure creates a stable business environment, which encourages a thriving economic and social climate. A nation once in ruins can be saved. But, more importantly, he says, "if we save Rwanda, perhaps we can Africa. If we save Africa, perhaps we can save the world."



Credit: David Julian

Schools in the United States, particularly in rural and cash-strapped areas, could take a lesson from some of Wyler's connectivity and social/political insights. Consider, for example, the Midwest. Fly over Kansas, the Dakotas, or Wyoming and look down. There are oceans of wildflowers and prairie grass, twisting rivers, even the occasional lonely farm. But not a lot of people. Over the past decade, as the coasts and the Sunbelt exploded with development, the Great Plains steadily emptied: During that time, nearly two-thirds of the rural counties in the region recorded population losses.

Some places have even reverted to what the U.S. Census Bureau calls "frontier counties," areas with fewer than six inhabitants per square mile. For students, the isolation results in long trips to attend school, or spikes in truancy.

For years, states such as North Dakota have had a terrible time keeping young, ambitious people. While in office, former governor Ed Schafer regularly met with restless kids. Each time, he would ask them, "What will keep you here?" The answer always revolved around quality of life. "Kids are attracted to the bright lights of Broadway," says Schafer. "Unless they get that connectivity, they are out of here."

Schafer is now CEO of Extend America, a North Dakota company that hopes to bring high-speed Net connectivity to the empty plains. But the area can also take a page from Wyler, who is in the middle of a project to wire more than 100,000 kids at 400 schools throughout

Rwanda. Nearly half have been wired so far. That's good progress, considering that in Rwanda, the first public schools reopened in 1995.

Wyler, who arrived three years ago looking to make a civic contribution, came across a government-sponsored project to put computers in Rwandan schools and link them to the Internet via satellite. The plan, which included the purchase of \$2,000 PCs, appeared costly and inefficient. Why purchase expensive computers and then deliver only slow dial-up connections? Fiber optic cabling, which takes almost no power and has very high bandwidth, was a better answer. This means Terracom can use inexpensive so-called thin clients (basically, PCs in a networked environment that depend primarily on a central server for processing activities) instead of expensive PCs.

Most of the schools have no electrical power, so they rely on solar energy. This, too, makes economic sense in a thin client/fiber environment. For example, ten PCs at 200 watts each equals 2,000 watts; on solar, at about \$5 per watt, that's a \$10,000 system. But ten thin clients, which use 20 watts each, equals 200 watts. At \$5 per watt, that's \$1,000 per school -- something within reach.

Though wiring schools with high bandwidth is Wyler's main mission, Terracom is also wiring the whole country, which provides economic growth and, consequently, jobs for the students when they finish school.

"Look how far we've come," says Patrick Kariningufu, Terracom's chief technology officer. "A dozen years ago, there were bodies in the streets. Now we have a future. We know the mess we were in and don't want to go back."

Wyler, too, speaks of the many doors his wiring efforts will open. "There's a lot more riding on this than a business," he says. "Rwanda is a test. If we can do it here, think of what we can do in other places." Places, for instance, like North Dakota.

James Daly is editor in chief of *Edutopia*. **This article is also published in *Edutopia* magazine's November 2006 issue.**