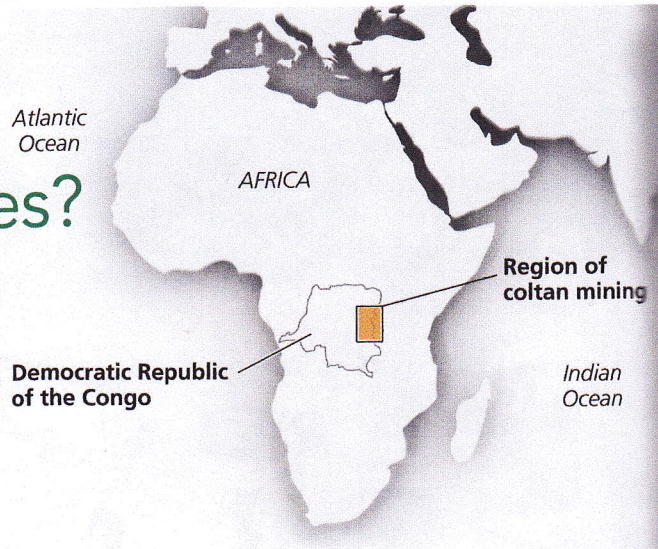
CENTRAL **CASE STUDY**

Mining for . . . Cell Phones?



"The conflict in the Democratic Republic of the Congo has become mainly about access, control, and trade of five key mineral resources: coltan, diamonds, copper, cobalt, and gold."

—Report to the United Nations Security Council, April 2001

"Coltan . . . is not helping the local people. In fact, it is the curse of the Congo."

—African journalist Kofi Akosah-Sarpong

Pulling a cell phone from her pocket, a student on a college campus in the United States dials a friend. Inside her phone is a little-known metal called tantalum—just a tiny amount, but no cell phone could operate without it.

Half a world away, a dirt-poor miner in the heart of Africa toils all day in a jungle streambed, sifting sediment for nuggets of coltan ore, which contain tantalum. At nightfall, rebel soldiers take most of his ore, leaving him to sell what little remains to buy food for his family at the squalid mining camp where they live.

Coltan miners in eastern Congo

In bedeviling ways, tantalum links our glossy global high-tech economy with one of the most badly wrecked regions on Earth. The Democratic Republic of the Congo has been embroiled in a sprawling conflict that has involved six nations and various rebel militias. Over 5 million people have lost their lives in this war since 1998. For its population size, this is as though Congo were being hit by three September 11 terrorist attacks every day for a decade. It is the latest chapter in the sad history of a nation rich in natural resources—copper, cobalt, gold, diamonds, uranium, and timber—whose impoverished people keep losing control of those resources to others.

At the center of the recent conflict is tantalum (Ta), element number 73 on the Periodic Table (**APPENDIX C**). We rely on this metal for our cell phones, computer chips, DVD players, game consoles, and digital cameras. Tantalum powder is ideal for capacitors (the components that store energy and regulate current in miniature circuit boards) because it is highly heat resistant and readily conducts electricity.

Tantalum comes from a dull blackish mineral called tantalite, which often occurs with a mineral called columbite—so the ore is referred to as columbite-tantalite, or *coltan* for short. In eastern Congo, men dig craters in rainforest streambeds, panning for coltan much as early California miners panned for gold.

As information technology boomed in the late 1990s, global demand for tantalum rose, and market prices for the metal shot up to $500/kg ($230/lb) in 2001. High prices led some Congolese men to mine coltan by choice, but many more were forced into it. As the war began in 1998, local militias, supported by forces from neighboring Rwanda and Uganda, overran eastern Congo. Farmers were chased off their land, villages were burned, and civilians were raped, tortured, and killed. Soldiers from each army seized control of mining operations. They forced farmers, refugees, prisoners, and children to work, and the soldiers skimmed profits from the coltan the people mined. Children and teachers abandoned school and worked in the mines, while prostitution spread AIDS and sexually transmitted disease through the mining camps. The turmoil also caused ecological havoc as miners and soldiers streamed into national parks, clearing

rainforests and killing wildlife for food, including forest elephants, hippopotamuses, endangered gorillas, and the okapi, a rare relative of the giraffe.

Most miners ended up with little, while rebels, soldiers, and bandits enriched themselves selling coltan to traders, who sold it to processing companies in Europe and the United States. These companies refine and sell tantalum powder to capacitor manufacturers, which in turn sell capacitors to Nokia, Motorola, Sony, Intel, Compaq, Dell, and other high-tech corporations.

In 2001, an expert panel commissioned by the United Nations Security Council concluded that coltan riches were fueling, financing, and prolonging the war. The panel urged a U.N. embargo on coltan and other minerals smuggled from Congo and exported by neighboring nations. A grass-roots activist movement advanced the slogan, "No blood on my cell phone!"

Sony, Nokia, Ericsson, and other corporations rushed to assure consumers that they were not using tantalum from eastern Congo—and the region was in fact producing less than 10% of the world's supply. Meanwhile, some observers felt an embargo could hurt the long-suffering Congolese people, rather than help them. The mining life may be miserable, but it pays better than most alternatives in a land where the average income is 20 cents a day.

Soon, however, the high-tech boom went bust, and global demand for tantalum diminished. This occurred just as Australia and other countries were ramping up industrial-scale tantalite mining. As supply outpaced demand, the market price of tantalum fell, and several major producers quit mining tantalum. *But nations began to work through their stockpiles, and by 2010 demand had grown, driving prices up* once again.

Today, the war is declared over and foreign troops are out of Congo, but internal factions continue to fight, and thousands of people continue to die or to flee their homes. Western electronics companies avoid knowingly purchasing tantalum from Congo, but as a result, much of it ends up being sold to China. In 2010 the U.S. Congress included in its financial reform bill an amendment requiring all electronics companies to report the origin of the tantalum in the products they sell. Yet the trade has so many middlemen and so little transparency that a company like Apple Computer will find it very difficult to determine where its tantalum actually comes from.

In the meantime, some Congolese men are returning to the coltan mines, while others mine for tin, copper, or cobalt. Similar stories are playing out with these and other "conflict minerals" that we in more wealthy nations put to use in our products every day.