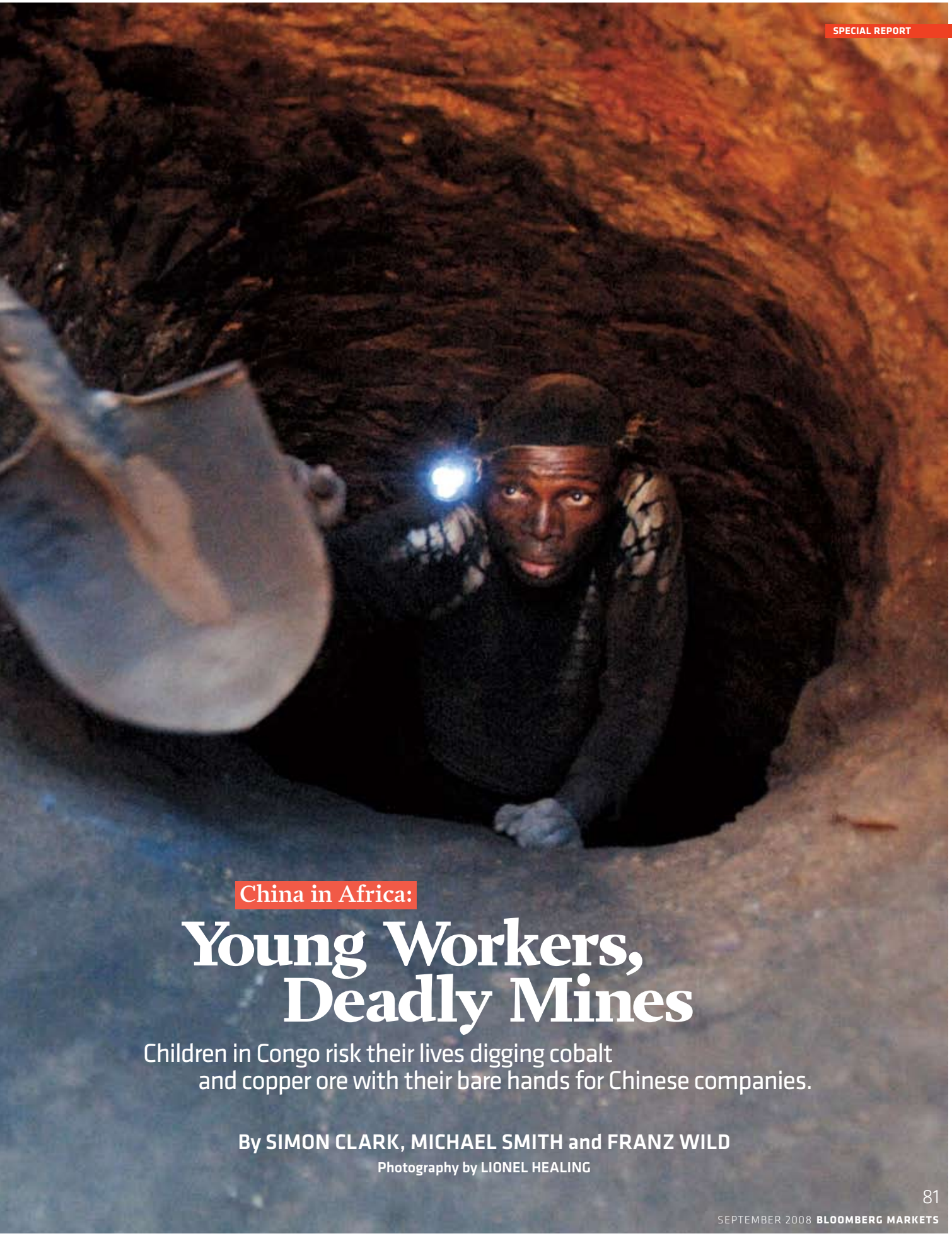
To find ore, **children dig holes** that sometimes collapse, burying workers.



China in Africa:

Young Workers, Deadly Mines

Children in Congo risk their lives digging cobalt and copper ore with their bare hands for Chinese companies.

By SIMON CLARK, MICHAEL SMITH and FRANZ WILD

Photography by LIONEL HEALING

ADON KALENGA WORKS seven days a week collecting minerals from the ground with his bare hands. He is 13 years old and lives in Katanga province in the Democratic Republic of Congo. He has no home and can't afford the $6 a month it costs to attend public school in this central African country of 62 million. Sometimes he sleeps in the streets; other nights he spends in an orphanage. Mostly, he works, earning about $3 per day. He's one of 67,000 people in Katanga who earn a living collecting stones infused with two minerals that are in demand worldwide: copper and cobalt. Reddish-brown copper is used to make the electrical wires needed to light the world's cities. Cobalt, a silver-gray metal, is used to make jet engines, ink and mobile phone batteries.

'THIS IS ONE OF THE WORST FORMS OF CHILD LABOR,' SAYS AN OFFICIAL AT THE UN'S INTERNATIONAL LABOR ORGANIZATION IN GENEVA.

Adon Kalenga, 13, gets $3 a day to clean ore and often sleeps at an orphanage in Likasi. A **Chinese trader** counts money, lower left.

China's African Empire

Chinese companies are buying mines and oil wells in Africa to fuel their nation's growth.

- Cobalt
- Copper
- Ferrochromium
- Iron ore
- Manganese
- Oil
- Platinum

Source: Bloomberg

Katanga, a region of green rolling hills that's bigger than California, is home to 5.5 million people. The province in the south of Congo contains 4 percent of the world's copper and a third of its cobalt reserves, according to the U.S. Geological Survey. The minerals Adon and children like him wrest from the red, hard earth find their way to smoky smelters on the edge of impoverished towns near the mines. Most of these rusting, hand-fed furnaces are owned by companies based in a faraway country, one that was founded on an ideology that exalts the rights of workers: the People's Republic of China.

"My life is hard," says Adon, wearing black rubber boots, a hooded sweatshirt and filthy, ripped jeans that sag on his skinny frame. Adon's left shin is scarred from a fall during a mine landslide three years ago that killed workers, including four young friends. He spends the day around unstable, hand-dug mineshafts, using his bare hands to fill sacks with ore. He then hauls the rocks down a steep trail. At the end of the path, he works knee-deep in a filthy stream, the kind that has spread a cholera epidemic throughout much of Katanga. The boy's hands are raw from washing rocks in a metal screen. "The Chinese buy the ore," Adon says. "I don't know why."

Adon toils alongside about 200 other boys and men and a handful of women in the Kamatanda mine, a 1-square-mile (2.5-square-kilometer) area pockmarked by holes as deep as 80 feet (25 meters). On paper, the mine, 3 miles (5 kilometers) northeast of the town of Likasi, is owned by Congo's state mining company, Lubumbashi-based La Générale des Carrières et des Mines, or Gécamines. In reality, Adon and his peers practice a chaotic form of capitalism, with little supervision from either the company or the state. The hand diggers aren't employees; they're freelancers who sell what they've dug and cleaned to brokers such as Patrick Nsumba. The middleman pays Adon to wash the copper ore, which the man sells to a smelter in Lubumbashi, Katanga's capital.

In a clearing next to Kawama mine in Katanga province, 10,000 people live in a cluster of huts topped with tarpaulins. The makeshift dwellings include a hotel for people who visit workers.

The plant is run by a unit of Tongxiang, China–based Zhejiang Huayou Cobalt Co., which processes Katangan copper and cobalt. With wads of Congolese francs on hand, Zhejiang Huayou's representatives buy ore from people like 29-year-old Nsumba.

"This is one of the worst forms of child labor," says Joost Kooijmans, a legal officer at the Geneva-based International Labor Organization, a United Nations agency. "If they're buying ore processed by children, they're involved in violating the rights of the children."

Chinese smelters buy cobalt and copper from mines across Katanga that use child labor, says Patricia Feeney, who campaigns for the rights of Congo's miners. "The Chinese smelters have no regard for the health and safety of their workers or the children who dig the ore," says Feeney, executive director of Oxford, England–based Rights and Accountability in Development.

In Tongxiang, the Chinese city 80 miles from Shanghai where Zhejiang Huayou is based, marketing manager Zhai Yang says his company sells processed cobalt via intermediaries he declines to name to companies such as Sony Corp., the second-largest consumer electronics company; Nokia Oyj, the world's largest cell phone maker; and Samsung Electronics Co., the second-largest mobile phone maker.

George Boyd, a spokesman for Tokyo-based Sony, declined to comment. Susan Allsopp, of Espoo, Finland–based Nokia, says the company is researching whether Zhejiang Huayou is an indirect supplier. "We have no evidence to suggest that they are supplying any of our suppliers," she says. "We take any accusations of this nature seriously and do not accept the use of child labor or abuses of human rights. We will continue to monitor this matter, and if we find any breaches of our standards, we will take swift action." Samsung spokeswoman Hae Won Choi says the company is investigating and, so far, 70 percent of its suppliers say they don't buy cobalt from Zhejiang Huayou.

Zhejiang Huayou's Zhai says he doesn't

At Kamatanda mine in Katanga, a young worker carries a sack of ore, walking along a feces-strewn path to a river, where others will clean the minerals and sell them to traders.

Pan Guodong, a trader from Guangzhou, China, haggles over prices with miners as he buys ore for South China Mining's smelter.

'CHINESE COMPANIES NEED TO OBSERVE LOCAL LABOR LAWS AND REGULATIONS,' A CHINESE GOVERNMENT OFFICIAL SAYS.

know whether his company buys minerals that originated with child labor. "I've never been to Congo, so I don't know the mines," he says. Zhai says his firm has a policy against child labor and will investigate. It will stop purchasing ore if it was dug by children, he says. "It's our responsibility to make sure the local children are safe, so we won't buy from any children," he says.

Congolese law must be respected, the Chinese government says. "Chinese companies need to observe local labor laws and regulations and fulfill their social commitments," says Chen Rongkai, a Beijing-based spokesman for the Ministry of Commerce. Congo, like China, has ratified an ILO convention against hazardous child labor. The Democratic Republic of Congo, formerly known as Zaire, borders the Republic of Congo.

Since 2005, the Chinese have become the primary owners of furnaces that rely on ore from hand diggers, says Katanga Governor Moise Katumbi. He says more than 60 of Katanga's 75 processing plants are owned by Chinese companies and adds that 90 percent of the region's minerals go to China.

From the deserts of Sudan in the north to the savannahs of Zimbabwe and South Africa, a juggernaut of Chinese companies is moving across Africa. The goal is to secure natural resources to supply factories, build cities and fuel an economy that has expanded more than 9 percent per year on average since the late 1970s, when Chinese Communist Party Vice Chairman Deng Xiaoping pushed his country toward free enterprise. Deng is commonly associated with the phrase "To get rich is glorious" —although he denied saying it. Because China isn't self-sufficient in natural resources, the government has made the hunt for minerals and food around the world a foreign policy priority.

In its global quest for commodities, China relies on laborers—from hand diggers in Katanga to iron ore miners in Peru—who work in unsafe, unsanitary and sometimes lethal conditions. In mines, smelters and ports, hundreds of workers have been injured or killed since 2005 working for Chinese companies in Africa, Asia and Latin America, according to government administrators, workers, doctors and official documents.

In Congo, Fidèle Kalwa, who runs the biggest morgue in Katanga province, eyes a list of 33 names of people who have died in separate mining landslides since the beginning of 2007. "Many others aren't even dug up because they get buried in their holes," Kalwa says. In Zambia, a blast in 2005 killed at least 45 workers at an explosives factory owned by Chinese-run Chambishi Nonferrous Mines Ltd. In Ban Chagnee, Laos, Chinese rubber plantation owners took rice paddies from villagers against their consent and unknowingly removed soil from a burial ground to build a road, according to a February 2008 study for German aid agency GTZ.

In Peru, regulators fined a unit of Shougang Corp., which is owned by Beijing's municipal government. Peruvian officials found that the firm violated regulations by allowing 110 workers with lung disease to work in an iron ore mine. Two have died since 2006. The company disputes those findings. (See "China in Peru: Poisoned Lungs," page 99.)

Africa's weak law enforcement makes the continent vulnerable to Chinese companies with lax practices. "China desperately needs the raw materials that Africa supplies, to keep its economy growing," says Christopher Cramer, professor of the political economy of development at the University of London's School of Oriental and African Studies. "Chinese companies will go anywhere in the world for natural resources, and many are neglecting labor standards where they are not likely to be challenged."

AFRICA IS THE world's poorest continent, burdened by centuries of slavery, colonial exploitation, civil war, despotism, corruption, famine and disease. In the past five years, Africa has become China's new frontier for oil, copper, cobalt and iron ore. Chinese diplomats are paving the way for China's companies, courting governments in places like Congo with promises to build roads, railways and ports—and to provide jobs. In exchange, China has received access to mines and oil fields and the rights to buy minerals for years to come. The Chinese don't tie African aid and investment to requirements that governments respect human rights and labor standards, says Ana Maria Gomes, a European Parliament member from Portugal. She sponsored a Parliament resolution critical of China's African strategy that passed by 618 to 16 votes on April 23.

Yang Jiechi, China's foreign minister, said at London's Royal Institute of International Affairs in December that countries should be allowed to set their own standards for development. "The right of all countries to choose their own social system and development path should be respected," he said.

China's policy of noninterference is paying off just at a time when the country is hosting an international coming-out party in the form of the Summer Olympics in Beijing. Exports from Africa to China rose to $29.9 billion in 2006 from $6.3 billion in 2000, according to the International Monetary Fund. State-owned China National Petroleum Corp., China's largest oil and gas company, is the biggest foreign oil producer in Sudan. More than 200,000 people have died since 2003 as the result of a civil war in Sudan's Darfur region, in what the UN has described as one of the world's worst humanitarian crises. China, a permanent member of the UN Security Council, has long resisted sanctions against Sudan and its president, Umar al-Bashir.

China also trades with Zimbabwe. On June 29, President Robert Mugabe, 84, declared himself the victor in a runoff election that European Union leaders and the White House called a sham. On July 11, Mugabe's regime escaped UN sanctions when China and Russia vetoed a U.S. effort to punish him with an arms embargo. "This is an African problem," says Liu Zhenmin, Chinese deputy ambassador to the UN.

Wu Zexian, China's ambassador to Congo, says, "We will work economically in countries without interfering at all in their internal affairs."

Wangari Maathai, a Kenyan environmentalist who won the Nobel Peace Prize in 2004 for opposing political repression, says China has an obligation to ensure it and its companies act in a civil and humane manner. "In countries where human rights aren't respected and where people can't hold their governments accountable, it's vital for foreign governments and investors to impose conditions," Maathai, 68, says.

The no-strings deals China makes in Africa benefit consumers in the U.S., Europe and Japan, says Jonathon Bond, managing partner at London-based Actis Capital LLP, which has invested $3 billion in Africa and other developing regions. The commodities Chinese companies acquire in Africa and Latin America supply factories in China that export more than $1 trillion of goods a year. "The West has subcontracted its manufacturing industries to China," Bond says. "China imports African raw materials and then re-exports them as components of finished goods to the West."

Hilton Tsoi, founder of South China Mining, which buys ore from Congo hand diggers, is building six smelters in Katanga to refine copper and cobalt he'll export to China.

That supply chain starts in places like the Kamatanda mine, where hundreds of men, women and children toil in the scorching sun, digging and trading on ground covered by feces in an area with no sewage system and no tap water. Amid the clamor of hammers, picks and shovels, dust fills the air. The workers don't use excavators or trucks, nor do they work in ventilated shafts. Instead, they

labor barefoot and shirtless in lunar landscapes of rocks and pits. There are 67,000 miners known as *creuseurs*—French for *diggers*—working in Katanga's copper belt, according to Saesscam, a government labor agency that oversees ore miners.

One of the workers is Adon, the homeless teenager. On a sweltering day in March, Adon breathes in rancid air as he stands in a stream below the mine, surrounded by workers washing ore. He says his whole body hurts, especially his feet and shoulders. He has been carrying 40-pound sacks of ore to the river. His small, calloused hands are raw, and bits of stone are shoved under his fingernails. Sitting on a bag of copper ore a few feet away is a trader, Giselle Ngoya, who breastfeeds her 7-month-old daughter as she haggles over prices with miners.

When Adon was 9, his father died and his mother abandoned him. Adon's aunt and uncle, angry that they had another mouth to feed, accused the child of witchcraft and turned him onto the streets, Adon says. "I don't believe in this sorcery stuff," says Adon, who attends church on Sunday mornings before going to the mine. One day, he says, he'd like to be a mechanic.

Soon after Adon was thrown out of his house, a friend suggested he work at the mines. During Adon's first year on the job, he was nearly killed. He was carrying a sack of ore on his head when torrential rain caused a landslide. Adon, fleeing with other miners, lost his footing in the mud and fell. A rock slammed into his left shin. "Blood was flowing a lot," he says. "I could even see the bone." Adon says that among the dead were four friends—Fabrice, Jean, Patient and Patrick.

'THE MINES ARE LIKE POISON, WITHOUT ANY SAFETY EQUIPMENT,' SAYS BETTY BAMBI, WHO RUNS AN ORPHANAGE.

Adon works for middlemen like Patrick Nsumba, who manage the flow of ore from Kamatanda to the smelters. Adon says other middlemen aren't as fair as Nsumba. "There are a lot of people who haven't paid me," he says.

Nsumba says Adon asked him for the work because he needed the money to buy food. "I'll do everything so my kids don't have to work in the mines," Nsumba says. "The conditions are too tough."

Nsumba graduated from Congo's Lubumbashi University in 2005 with an economics degree. He pays child laborers like Adon a flat rate of $3 a day. Adult diggers who explore deep underground for minerals are paid more when they're producing. Those workers pay a tax of 18 cents per 110-pound bag to Saesscam, the agency that oversees hand diggers. Nsumba sells the ore for a markup of almost 100 percent to Congo Dong Fang International Mining Sprl, which is owned by Zhejiang Huayou. Even though the three-year rally in commodities lost steam earlier this year, cobalt prices were still up 130 percent as of July 1 since the start of 2005, and copper values had almost tripled.

Aside from the Chinese, Gécamines and companies run by Indian, Lebanese and local entrepreneurs also purchase the ore unearthed by the hand diggers, says Denis Kampashi, who runs Saesscam's office in Lubumbashi.

A few hundred feet up a slope from the stream where Adon works, a hill is scarred with dozens of hand-dug shafts, piles of dirt and narrow, slippery trails with gaping pits on each side. Another teenage boy, Carlito Muamba, climbs partway down a 50-foot-deep shaft that workers have dug with their hands and small shovels. There's no ladder; Carlito scrambles in and out of the hole using his hands and feet. The shaft has no bracing to protect against cave-ins.

Young workers dig a hole in search of copper and cobalt ore at Kawama mine in the sweltering Congo sun on an afternoon late in March.

It has no fans or vents for air circulation to prevent suffocation. Carlito, 15, wearing a filthy T-shirt and ripped sneakers with no laces, crouches on a narrow ledge about 10 feet down and stabs a shovel into the mine wall to search for ore. His digging causes the unsupported tunnel walls to come loose. Red dirt and pebbles begin falling onto Carlito's shaved head. Even so, he keeps digging for more stones with his hands, sweating. Then he claws at the earth with his fingers and climbs out of the hole. Carlito says he is risking his life because he's hungry. "I work to pay for food," he says.

Carlito says he's too young to dig at the bottom of the hole, where miners use hammers, chisels, shovels and their bare hands to secure ore. "My brothers work down there," he says. Carlito dropped out of school in fifth grade to work with two older brothers at the mine. Four other siblings live at home with his mother in Likasi, and his father can't afford to feed and school them all.

EVERYONE IN KATANGA province, including the managers of Chinese smelters, knows children work in the mines, says Betty Bambi, who runs a charity orphanage where Adon sometimes sleeps. She says neither the government nor the companies do anything to help the child miners. "The mines are like poison," says Bambi, 61, who wears a black gown with a pattern of apples and blossoms and is known as Mama Betty to the children in her orphanage. "The kids work without any safety equipment. The Chinese don't care about the kids. All they're after is the minerals."

Yang Youngjian, external relations manager in Likasi for Congo Dong Fang, says he hasn't been to the mine, which is 3 miles from his office in Likasi. "I've seen pictures," he says. "The conditions aren't so good. They are even working with babies on their backs. They are very grueling conditions." He says that if his company stops buying, the workers will lose jobs.

The hand diggers of Congo use methods—such as working in shafts without shoring, lighting or ventilation—that

began to disappear in other parts of the world in the 1700s because mining companies viewed them as too dangerous, says John Tilton, a professor of mining economics at the Colorado School of Mines in Golden, Colorado. "Nobody in their right mind would want a job like that unless there's nothing else," he says.

Katanga hand diggers say they buy their own picks, shovels and torches.

The situation at Kamoto, an underground mine 80 miles from Kamatanda, is different. There, the miners are all employees, not freelancers. They work for the mine's owner, Bermuda-based Katanga Mining Ltd. The company supplies every miner with $250 worth of safety gear, including a lamp fixed to a hard hat, steel-toed leather boots, coveralls, a belt, a jacket and pants. "We want to bring safety standards up to North American or European safety standards," Katanga Mining manager André Boudreault says.

Congo regulators have safety and environmental standards for the mines at which hand diggers collect ore for Chinese companies, but government enforcement is weak, Governor Katumbi, 43, says. Congo's rules follow ILO standards banning child labor.

A Chinese smelter called South China Mining Sprl gets copper ore from Katanga's Kawama mine on a hill overlooking the Congo River, where 3,500 people work inside unstable hand-dug holes. Joe Kongolo smashes boulders with a sledge hammer. Last year, a mine shaft near where Kongolo was working caved in and buried three men under dirt and rocks, he says. Kongolo, 24, rushed to assist. "I was helping, digging with my shovel and my hands," he says. The workers managed to save two of the men, he says. The third, whom Kongolo didn't know, died.

Tresor Kumwimba, 13, sits on a sack of ore he will wash in a roadside stream 2 miles from the Kamatanda mine. Tresor, who woke up at 4 a.m. to go to work, is helping his father earn money to pay the child's overdue school fees. 'My feet hurt,' he says.

South China Mining founder Hilton Tsoi, who's based in Hong Kong, says he's visited hand diggers' mines. "The conditions are so-so," Tsoi says. "Just humans, no machinery." Tsoi, 58, says he's buying ore from people who have to work to survive. "They have no choice," he says. "How can they get their food?"

Chinese-owned smelters in Katanga are particularly prone to accidents that maim or kill workers, Katumbi says. "It's not even the Chinese standards which they are building here," he says. "There are no standards." Most North American and European companies adhere to international safety and labor guidelines set by groups such as the Geneva-based International Organization for Standardization and the ILO. The rules forbid using children under the age of 18 in hazardous conditions. Since March 2007, Katumbi says he has expelled about 600 Chinese nationals from Katanga for violating labor and environmental laws, about 12 percent of the number working there at the time.

China's connections to Africa go back to the early 1400s, when Chinese explorers sailed through the Indian Ocean to the continent. The Ming dynasty, which ruled China from 1368 to 1644, reined in ocean-going voyages as part of a policy of isolationism. Britain, Portugal and Spain started raiding Africa in the 1500s to bring slaves to work on plantations in the Americas. By the 19th century, European powers had colonized most of the continent, in part to gain control of its resources.

The Congo region was claimed by Belgian King Leopold II in 1885 as his personal property. The Belgian Congo was granted independence by Belgium in 1960 and became the Democratic Republic of Congo in 1997.

China's influence in Africa started to

A worker tends to copper ore being refined at its melting point of 1,981 degrees Fahrenheit at Chinese-owned Cota Mining near Lubumbashi. Vice Director **Lan Mei**, right, says the company ensures safety.

grow after Mao Zedong founded the People's Republic of China in 1949. The communist leader established ties to Africa's newly independent states in the 1960s, competing for influence on the continent with the West and the Soviet Union, which sought resources and political relationships of their own, says Martyn Davies, executive director of the Centre for Chinese Studies at South Africa's Stellenbosch University. "Mao was seeking international prestige and recognition," he says. In Kinshasa, Congo's capital, China built the National Assembly building in the 1970s and the Stade des Martyrs soccer stadium in the '90s.

Since 2003, Chinese Premier Wen Jiabao and President Hu Jintao have visited 20 African countries between them. In November 2006, representatives of 48 out of 53 African states gathered in Beijing for a summit. In January, China expanded its ties with Congo by promising to finance $9 billion of roads, railways and mines in exchange for 10 million metric tons of copper and 600,000 tons of cobalt from six Gécamines-run mines over a decade at a fixed price.

"We are going to build major public works at the same time as building mines," says Wu, China's ambassador to Congo.

Congo's southern plains are scattered with derelict mines and furnaces—relics of the predecessor of Gécamines, which Belgium built to extract minerals from its colony. The company was plundered during the 32-year regime of dictator Mobutu Sese Seko, who was ousted from power in 1997 by rebel leader Laurent Kabila. In a civil war that lasted from 1998 to 2003, scrap-metal scavengers hacked Gécamines facilities to pieces. Kabila was assassinated in 2001 by one of his bodyguards. He was succeeded as president by his son Joseph.

"The mines are like a disaster area," says Paul Fortin, 69, the Canadian-born chief executive officer of Gécamines. He says China's $9 billion offer was the best one on the table. "If anybody else can match that, please tell me," he says.

Wu says Chinese banks will guarantee

the loans for the deal so they won't increase Congo's $11.5 billion of debt. Xavier Maret, the IMF's Congo representative, isn't so sure. It's not clear who will borrow all the money. Neither country has fully disclosed the terms of the deal, he says. Congo may have to guarantee the loans, which would jeopardize an IMF plan to forgive more than half the national debt, Maret says.

China's promises are meaningless to Mbayo Muyambo, who says he's witnessed a torrent of injuries as safety director at Chinese-controlled Feza Mining Sprl in Likasi. Muyambo, 38, says Feza's workers are routinely burned at the company's smelter by fiery drops of molten cobalt because the company doesn't supply fireproof suits. "They say they're too expensive," says Muyambo, who had previously worked for 17 years at Gécamines, where he received training from German safety engineers. China's Wanbao controls Feza, according to Wang Xiao, Feza's deputy director. Feza's shareholders include Congolaise des Mines et de Développement, which is owned by Gécamines, and Ramat Gan, Israel–based DGI International Ltd.

On March 29, one of Feza's inspectors, Punda Luhendwe, mutilated his left eye when he tried to put out a fire in the smelter control room because he wasn't wearing protective glasses, Muyambo says. Pushed back by waist-high flames, Luhendwe grabbed a fire extinguisher and its hose whipped up into his eye, Muyambo says. "The only thing the Chinese care about is productivity," he says of his bosses.

A Feza spokeswoman who identified herself as Mrs. Yang declined to comment. Beijing-based Wanbao Mining Ltd. didn't respond to requests for comment. DGI spokesman Pieter Deboutte says the firm has no role in managing Feza and gets no profit from the smelter.

Ambassador Wu says his government can't police the multitude of Chinese investors in Africa. "There are entrepreneurs who go all over, and when they find a place with good prospects, they stay," he says. "All investors need to respect the law."

Katanga's government struggles to enforce its own labor and environmental regulations, provincial Mining Minister Barthelemy Mumba says. On a sweltering 90-degree-Fahrenheit (32-degree-Celsius) day in March, he's driving a silver Toyota Land Cruiser over a rutted dirt road. He arrives unannounced at a cobalt drying plant run by Chinese-owned Cota Mining Sprl near Lubumbashi. The provincial environmental mining ministry had shut down the facility in December because a pool of acid was in danger of leaking into a stream. The plant was supposed to stay shut until further notice.

On this visit, Mumba finds dozens of men shoveling ore into a 50-foot-long oven, their feet baking inside thin rubber boots. "We suspended your production," Mumba tells Nino Ngaktambo, Cota's top Congolese manager at the site. "Why did you restart without our authorization?"

Ngaktambo says, "We were just trying to—" as Mumba yells at him, ordering him to close the site.

One worker, Dunancien Molupenga, tells Mumba he's afraid he'll be fired if he doesn't get back to stoking the drying oven. A few feet away, a Chinese manager in a straw hat gives Molupenga a signal to get back to work. The Chinese manager doesn't speak French, Swahili or English. He declines to give his name or to comment.

"I could be fired just like that if I don't work," Molupenga says, adding that most Chinese managers don't speak the language of workers, so they use hand gestures to communicate.

The Cota raid lasts 30 minutes. By the time Mumba leaves, everyone who paused in his labors is back at work.

"You have to distinguish between those companies that abide by international standards and those that don't," Mumba says. "Among those that don't, you often find Chinese companies. We don't want people to come and build things like this. This, really, isn't investing."

On March 6, Cota got an order from Katumbi allowing the firm to continue work. Lan Mei, vice director of the company's operations in Lubumbashi, says workers were making adjustments to the oven on the day of the raid, and no cobalt was being refined. "It was preparatory work," says Lan, who tours the smelter dressed in a baggy black dress, burgundy boots with untied laces and a 2-inch (5-centimeter) amber-colored pendant around her neck.

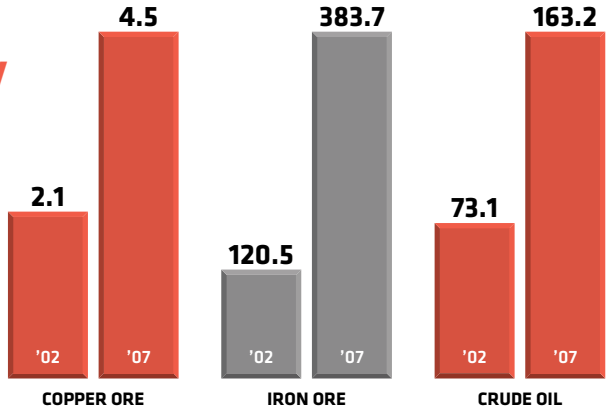
Since the December inspection, Cota has given workers cloth masks, rubber

'CHINA DESPERATELY NEEDS THE RAW MATERIALS THAT AFRICA SUPPLIES,' A PROFESSOR WHO STUDIES ASIA AND AFRICA SAYS.

China's Dependency

The nation is relying on more imports to build its economy.

IMPORTS, IN MILLIONS OF TONS



Source: China General Administration of Customs

Two Congolese men work together washing ore with their hands in a plastic basket that they place in a filthy stream by the Kamatanda mine in Katanga. Hundreds of people work along the muddy stream in 90-degree-Fahrenheit heat, preparing ore for sale to furnaces.

boots and long-sleeve work shirts, Lan says. "We provide safety equipment," she says.

A year ago, Lan says, she got the second-highest-ranking job at Cota because she speaks French, unlike her Chinese bosses. Lan, 37, a former fine arts student in Aix-en-Provence, France, has no formal training to oversee Cota's six smelters, which heat copper ore to the melting point of 1,981 degrees Fahrenheit until it's ready to be drained, at which point the furnace is opened and liquid metal gushes out, along with toxic smoke and flying drops of molten metal.

COTA'S CONGOLESE WORKERS say they suffer from a lack of safety equipment. Welder Clovis Pienar's arms and chest are covered with two dozen scars. Pienar, 25, wears a plastic visor and thin cotton overalls. They don't protect him, he says. His pants caught fire earlier this year, and today there's a dark hole on one leg. "We are treated like animals," Pienar says.

Jerome Musonda, 33, has two scars next to his right eye, where he was burned stoking Cota's smelter without safety gear earlier this year. "Nearly every week there's an accident," he says.

Mumba also faults Chinese companies for paying workers less than North American and European mining companies. Cota workers say they're paid $65 a month, 35 percent less than the $100-a-month base pay Katumbi has said he's seeking.

A few miles away is a smelter owned by Société pour le Traitement du Terril de Lubumbashi, or STL, a joint venture between Cleveland-based OM Group Inc., Lubumbashi–based investor George Forrest's Forrest Group and Gécamines. "The pay and benefits are OK," says Alex Tetemukombo, who gets $218 a month for tending a smelter in heat-resistant steel-toe boots and a fireproof suit. "A lot of people who work at other smelters don't get that protection, especially when they work for the Chinese."

As more and more Chinese arrive in Katanga, pressure is rising to prove to locals that they'll benefit from the new investors, Gécamines' Fortin says. "There will be a backlash," he says.

On March 6, there was one. Diggers from the Kamatanda mine clashed with riot police in Likasi. They were protesting because Gécamines wanted to oust them from the land and reclaim the mine after it traded six of its other mines to China. As stones flew, a policeman shot Landry Milongo, a passing 15-year-old

'WE DON'T WANT PEOPLE TO BUILD THINGS LIKE THIS,' SAYS A KATANGA MINING MINISTER. 'THIS, REALLY, ISN'T INVESTING.'

'The Big Hill,' a 394-foot-high slag heap that started growing in 1910, dominates the skyline of Lubumbashi, the provincial capital of Katanga. The mountain, a byproduct of an old smelter, is now being reprocessed for ore by a joint venture of Belgian and U.S. mineral companies.

schoolchild, Likasi Mayor Marthe Chiwengo says. By the time the teenager reached the hospital, he was dead.

Three days after the shooting, about 50 relatives mourn next to an avocado tree at the family's tin-roofed hut. "The population isn't benefiting at all from the mining," says René Kasongo, the dead boy's great-uncle. "The companies just take the minerals and pay the bare minimum."

Chinese companies are scouring the world for commodities to feed the fastest growth rate of any major economy. "Chinese economic growth is dependent upon access to these resources," says Chris Alden, a professor at the London School of Economics and Political Science and author of *China in Africa* (Zed Books, 2007). "Some of these companies are exporting worst practice instead of best practice from China."

China's leap from Marxism to capitalism has come at a cost of deadly labor conditions, says Han Dongfang, who founded the China Labour Bulletin in Hong Kong, which monitors Chinese worker abuses. "The government has totally ignored health, environmental and social responsibility," Han says. "The Chinese, from the top leaders to the desperate ordinary people, believe that making money is more important than human life."

Chinese coal mining accidents killed an average of 10 workers a day last year, according to the Chinese State Administration of Work Safety. Last year, the governor of Shanxi province was forced to make a public apology after official media disclosed that brick kiln managers in his province were using child slave labor.

Under Mao's state socialism, China's masses were supposed to be protected by a cradle-to-grave welfare system dubbed the "iron rice bowl." The government and its giant state-owned enterprises offered full employment, subsidized housing, free health care and pensions. Mao's regime was no workers' paradise: 70 million people died from manmade famine and political oppression, according to *Mao: The Unknown Story* (Knopf, 2005). In the past 30 years—following Mao's death and Deng's embrace of market principles—300 million out of a population of 1.3 billion have lifted themselves out of poverty, according to the UN. More than 415,000 of them have become millionaires, according to a study by Merrill Lynch & Co. and Capgemini SA. Still, another 200 million live on less than $1 a day, according to a 2004 World Bank estimate.

The new China urged unprofitable state-owned companies to put profit ahead of providing for employees. From 1995 to 2001, 46 million Chinese lost their jobs, according to Andy Rothman, a Shanghai-based China strategist at CLSA Ltd. and former economic official at the U.S. Embassy in Beijing. Private companies now account for 70 percent of China's gross domestic product compared with 17 percent in 1990.

The rush to make money came at the expense of workers, says Auret van Heerden, Washington-based CEO of the Fair Labor Association, a nonprofit organization that monitors work conditions in 60 countries. "Conditions in China became comparable to the period in the West from the Industrial Revolution in the 18th century up to the Second World War," van Heerden says.

This year, in an effort to bridge the growing chasm between rich and poor and to close down the worst sweat shops, Chinese President Hu passed new labor laws setting minimum wages and assuring one month's pay for each year worked for employees who get fired. Hu has yet to send that message to Chinese companies working abroad.

Maathai, the Kenyan Nobel laureate, says Chinese companies should respect human rights and internationally accepted labor standards around the world. "We in Africa expect China to help and not to take advantage of Africa's vulnerability," she says. "China needs to understand Africa. We hope she will."

For Adon Kalenga, the 13-year-old from Congo whose minerals supply Chinese smelters, the concept of fair treatment is a world away. It's the end of a nine-hour workday in March, and he's slumped in a chair, nursing his back. Tomorrow, as he has almost every day for more than three years, Adon intends to return to the mine and the filthy stream. "I want a normal life, like the people I see walking in the street," says Adon, who can barely read and write. "But I can't even afford to go to school. Things will never change." **B**

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China in Peru:

Poisoned Lungs

Mirna Chang will never forget the evening in July 2006 when her husband, José Rodriguez, collapsed on the living room couch in their cinder-block two-bedroom duplex and grabbed at his chest. "I can't breathe, I can't breathe," he cried, his voice breaking in panic. By the time Chang got Rodriguez to the hospital, he was turning blue. Rodriguez, a worker at Chinese-owned Shougang Corp.'s iron ore mine in Peru, stayed in intensive care for more than a week. A year later, he died of a lung disease that strikes miners who work for years in dusty conditions.

Signs of the lung disease that Rodriguez had, pneumoconiosis, are easily detectable on X-rays years before the disease reaches an advanced stage, says Miriam Vidurrizaga, the doctor who runs Peru's National Occupational Health and Environmental Protection Center, or Censopas. Peruvian regulations require mining companies to give every worker an annual medical exam. If any lung disease is detected, regardless of what caused it, the company must transfer the sick worker to a job free of such risks as dusty air.

Daniel Vargas, Shougang's medical services director at the mine in San Juan de Marcona, Peru, says X-rays of Rodriguez in July 2006—days before Rodriguez first went to the hospital and a year before he died—showed no signs of pneumoconiosis, and Rodriguez was allowed to continue working. Vargas says Shougang has never found widespread cases of pneumoconiosis in that mine. "We don't have this kind of problem," he says.

Peru's mining regulator, the Energy and Mining Investment Supervising Agency, or Osinergmin, says something quite different. An inspection in June 2006 found 110 of 889 Shougang workers, or 12 percent, had pneumoconiosis. The agency fined Shougang 147,000 soles ($45,030), saying the company violated regulations by allowing sick people to work in its mines and processing plants.

The Peruvian unit of Beijing-based Shougang, China's seventh-largest steelmaker, responded to the Peru regulators by disagreeing with its medical findings. Shougang told the agency in writing it knew of just one case of pneumoconiosis at the time.

Osinergmin said it didn't believe Shougang. "These assertions are not backed up by documents, and since there was no evidence that disproves the problem, the violation stands," Osinergmin Mine Inspection Chief Guillermo Shinno wrote in an Oct. 24, 2007, report.

Mirna Chang, whose husband died of lung disease after working in Shougang's mine, says the firm never told them he was ill.

A year before Osinergmin published its report, a different inspection by the General Directorate of Environmental Health reached similar conclusions. Shougang exposes workers to risks to their health and safety and violates Peruvian health laws, the health agency reported in June 2006.

In September 2006, Moises Tapia, a doctor who runs a local branch of EsSalud, Peru's national health service, diagnosed Rodriguez with pneumoconiosis. That was two months after Shougang's finding that Rodriguez had no signs of the disease.

"It's a horrible death," Tapia says of the lung disease. The condition creates slivers of lung tissue that turn corklike, restricting airflow. Tapia says the 60-year-old died because he breathed in dust too long on the job. "The illness, pneumoconiosis, is caused by working in the mine," he says. "That's scientifically proven."

Chang, 48, says she and her husband were stunned by the diagnosis. That's because Shougang's doctor, Vargas, had been telling Rodriguez for more than a decade that his lungs were clear.

"When the government doctor told us what he had, I couldn't believe it," says Chang, whose grandfather immigrated to Peru from Beijing decades ago. "My husband never went to his own doctor because the company always said his lungs were clear."

Peru, the world's largest silver producer and third-largest producer of copper, zinc and tin, has a history of abusing workers' health and safety. Accidents in mines have claimed the lives of 519 people since 2000. In the Peruvian Amazon, thousands of people toil as modern-day slaves in logging camps and dangerous, hand-dug gold mines, working without pay and in remote areas far from home. (See "The Secret World of Modern Slavery," December 2006.) Earlier this year, the government enacted a law requiring mining contractors to abide by safety and labor laws. "Let's eradicate this underground economy, which is the slavery of the 21st century," Peruvian President Alan García said on June 23.

The Shougang mine has a higher rate of accidents that injure and kill workers than other foreign-owned open-pit mines, Osinergmin says. Six workers have died in accidents at Shougang's mine and processing plants since 2000, double the number of deaths at Cerro Verde, a mine near Arequipa, Peru, that's owned by Phoenix-based Freeport-McMoRan Copper & Gold Inc. Shougang runs the only large-scale iron ore mine in Peru.

China started looking to Peru for natural resources 16 years ago, when Peruvian President Alberto Fujimori sold state-owned mines. In 1992, Shougang paid $120 million for the iron ore mine in San Juan de Marcona, which is in the Atacama Desert, 528 kilometers south of Lima. In addition, China National Petroleum Corp. won a

SCOTT DALTON (3)

A GOVERNMENT STUDY FOUND 110 SHOUGANG MINERS HAD LUNG DISEASE. THE COMPANY SAID JUST ONE MAN WAS ILL.

contract to pump oil from state-owned fields.

China's Peruvian acquisitions are part of a larger hunt for resources in Latin America by the world's most populous country. In the past five years, Chinese companies have made oil and mineral deals in Argentina, Brazil, Peru and Venezuela.

At Shougang, workers who feel sick usually go to EsSalud after the company doctor tells them they have no lung illness. One miner, Alfredo Carnero, says Shougang sent him back to work as a mechanic in a dusty processing plant for five years after Censopas doctors had diagnosed him with pneumoconiosis in 2002. The Shougang doctor told him each year that he was healthy. "I always asked them why I felt bad, and they said I was fine," Carnero, 70, says. "The doctor said I was as healthy as a young man and could work another 10 years." Carnero says he retired in October and has started feeling better after almost a year of breathing cleaner air.

Vargas, Shougang's medical director, says the company hired lung specialists to examine Carnero's medical records. They concluded Carnero didn't have pneumoconiosis. Vargas says the health ministry's diagnosis must have been flawed.

Julio Ortiz, the secretary general of the Shougang Hierro Peru SAA Mine Workers Union, says Shougang routinely lies to workers about their health. "They do everything they can to deny we are sick," he says. Ortiz, 46, was diagnosed by a government doctor with early-stage pneumoconiosis in 2002. "They can lie and say no one is sick, but everyone who gets this disease and fights for their rights has their illness confirmed by the government," he says. "This is how we show the big lie."

Vargas says he told Rodriguez his lungs were fine at every annual company exam and allowed him to return to work. He says Rodriguez had fibrosis, or scarring of the lungs, which he says was unrelated to the job.

Chang, Rodriguez's widow, says Vargas never told the family that her husband had any lung condition. Her husband didn't get treatment until EsSalud doctors examined him, she says.

Under Peruvian regulations, Shougang should have transferred a worker with lung fibrosis to a job in clean air, Censopas's Vidurrizaga says. "They should be taken out of the job and put on the surface," she says.

Pneumoconiosis and fibrosis are closely linked, says Donald Enarson, an epidemiology professor at the University of Alberta in Canada. Miners get pneumoconiosis, also known as silicosis, by breathing dust containing silica, a type of sand, for extended periods of time. Fibrosis is the scarring caused by breathing the dust, says Enarson, a specialist in occupational lung diseases.

The dustier the air and the longer a miner works, the more likely he is to get pneumoconiosis, Enarson says. That makes the disease rare in mines in North America and Europe because air quality is closely monitored to prevent dust from building up, he says.

In 2002, Censopas examined 220 Shougang miners at the request of the Mine Workers Union and diagnosed 62 with pneumoconiosis. Shougang's disability insurer, Lima-based Rimac Internacional Cia. de Seguros y Reaseguros SA, hired José Pineda, a doctor and lung specialist, in January of this year to review the chest X-rays of 830 workers. Close to 50 Shougang

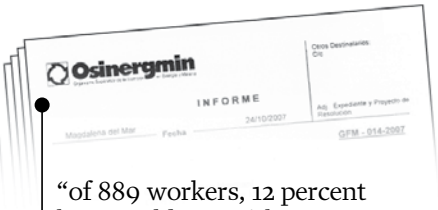
Violations

Peruvian government agencies found that Beijing-based Shougang was ignoring health and safety regulations. Excerpts:

"risk of work accidents in different installations and work areas"

"materials blocking workers from moving normally and operating machinery"

"no safe drinking water facilities in work areas or the cafeteria"



"of 889 workers, 12 percent have problems with pneumonoconiosis"

"Noise levels in the grinding plant exceed the maximum permissible levels"

"lack of worker housing (381 workers don't have homes)"

Sources: Peruvian General Directorate of Environmental Health report, June 14, 2006; Peruvian Energy and Mining Investment Supervising Agency report, Oct. 24, 2007

Workers use heavy machinery, top, to move iron ore at Shougang's mine in San Juan de Marcona, Peru. Others shovel the minerals from a conveyor belt at the processing plant.

workers had some form of pneumoconiosis, says Pineda, who is based in the Edgardo Rebagliati Martins National Hospital in Lima.

Shougang disputes both the government findings and Pineda's January review. Vargas says Shougang in mid-2008 had just two cases of pneumoconiosis. Shougang is deciding whether to offer the two workers early retirement or jobs in safer areas. Rimac spokeswoman Patricia Cortez says the firm doesn't know about the 50 cases cited by Pineda; it agrees with Shougang.

Another Shougang worker diagnosed by government doctors with pneumoconiosis, Alejandro de la Cruz, died in 2006 at the age of 69.

Peru's Health Ministry diagnosed de la Cruz with pneumoconiosis in December 2000 and again in April '02. The agency informed Shougang of its findings and recommended that he receive medical treatment as required by the government.

Vargas disputes the health ministry's diagnosis and says de la Cruz wasn't sick. The company allowed de la Cruz to stay at his job working a drill rig in Shougang's 650-foot-deep open-pit iron ore mine in the desert, three of his relatives say.

On Feb. 11, 2003, Heina Vargas, a doctor at the San Juan de Marcona Hospital, diagnosed de la Cruz with advanced pneumoconiosis and wrote a recommendation that he be taken out of the mine. A week later, de la Cruz asked for disability payments, providing EsSalud's diagnosis that he was too ill to work, according to Rimac. Cortez, Rimac's spokeswoman, says the insurer had found that de la Cruz had "normal lungs" and didn't qualify for disability payments.

Shougang then moved de la Cruz to an administrative job. By 2004, he was too sick to work, and he went on leave, Shougang's Vargas says.

"He was sick for a long time, but the company didn't do anything to help him," says de la Cruz's son, Elvis de la Cruz, 37. "For this company, no one ever gets sick."

Pineda, the lung specialist hired by Rimac, says Shougang may have kept sick workers on the payroll because putting a miner into a desk job costs the company too much. "That kind of relocation is expensive," Pineda says.

Chinese ownership of the mine has fueled years of conflict in San Juan de Marcona, says Mayor Joel Rosales. Shougang's offices burned down on April 12, 2007, as hundreds of people protested the firing of seven workers. Shougang supplies drinking water to the town, and it provides it for just four hours a day. Company executives get water around the clock, Rosales says. Raúl Vera, Shougang's adjunct general manager, says the company doesn't have more water for the town because the area is a desert.

"They don't invest in this community or even their mine," Rosales says. "They take all our natural riches to China and do nothing for us."

MICHAEL SMITH