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Uranium Enjoys a New Gold Rush

By **ROBB M. STEWART**
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JOHANNESBURG -- With uranium prices soaring, some of South Africa's largest gold miners are returning to their slurry heaps and long-mothballed underground mines to extract more of the radioactive metal they previously ignored or threw away.

Once a key producer of uranium -- used in nuclear weapons and nuclear-power plants -- South Africa at its peak had more than 30 uranium companies and plants working alongside many major gold mines. But when uranium prices began falling in the late 1970s, companies started to shut their operations. Today, only one uranium-processing plant is still operating in South Africa.

Nuclear energy is coming back into favor, though, and countries like China are planning to open many new nuclear-power plants. That's driving a sharp boost in the global price of uranium. Spot prices for the metal have jumped almost tenfold in five years, and more than doubled just in the past six months to more than \$100 a pound.

Mining companies from Australia to Canada have scrambled to meet the demand over the past two years. Companies like **Rio Tinto** and Paladin Resources Ltd. have bolstered their uranium operations, both in Australia and in sub-Saharan Africa. But until now, South African miners have been slow to get in on the action.

"I am surprised it has taken so long for these companies to do something, although I suppose it's better late than never," says Peter Major, a senior fund manager at Cadiz Specialised Asset Management in Cape Town, who blamed the delay on negative sentiment from a 20-year bear market.

Bernard Swanepoel, chief executive of **Harmony Gold Mining Co.** concedes he was late to realize the potential value of uranium in the company's tailings dams -- vast stretches of land where mining slurry is left to dry.

Mr. Swanepoel says he was approached several years ago by fund managers who forecast the value of uranium would climb and encouraged him to revisit the metal in waste at Harmony's South African mines. He ignored the advice.


Now, though, Mr. Swanepoel says Harmony, the third-largest gold producer in Africa and fifth globally, has selected 11 of its 56 tailings dams for sample drilling and is to issue a preliminary resource declaration by the end of June that will list the likely uranium at sites in South Africa's Free State province and its Randfontein mine in Gauteng.

Just one dam, the Cooke dump, is believed to contain 25 million pounds of uranium. (A pound is 0.45 kilograms.) Mr. Swanepoel has estimated that at \$113 a pound, the net value of Cooke is about 3.68 billion rand, or \$525 million. Even at \$65 a pound the uranium at this site could bring in about 886 million rand.

Extracting gold and uranium, either together or separately, involves wetting the dry mud in the tailings dams with water cannons to create slurry that can be pumped into a metallurgical facility. There, chemicals extract the minerals and the leftover slurry is pumped out.

Mr. Swanepoel estimates the cost of extracting the uranium at \$20 to \$30 a pound, higher than the \$15 to \$20

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some analysts estimate, but offering a decent return while uranium prices remain strong.

South Africa has about 341,000 metric tons of recoverable uranium, 7% of the world total and similar to levels in the U.S., according to the World Nuclear Association, a private-sector group that promotes nuclear power. Australia has the highest recoverable reserves, followed by Kazakhstan and Canada.

Cadiz's Mr. Major estimated that if output returned to levels near the peak of the 1980s, the metal could be worth some 13 billion rand a year to South Africa's economy.

South African annual output of yellowcake, or partially enriched uranium ore, peaked at about 7,000 tons in 1983, having risen steadily from 515 tons in 1953, the first year the Chamber of Mines collected data. Output fell to 795 tons in 2005, the most recent data available.

AngloGold Ashanti Ltd. operates South Africa's only uranium-processing plant, and is looking to further exploit its holdings. Chief Executive Bobby Godsell says the company is looking to raise its uranium output by some 40% by mid-2009 from a base of about 1.5 million pounds a year currently, partly by recommissioning its Vaal River plant.

Like Harmony, **Gold Fields** Ltd., Africa's second-largest gold producer behind AngloGold, is looking to exploit uranium on the surface and in mines like its Beatrix shaft.

DRDGold Ltd. is also considering reopening shuttered mines. Last month, it agreed to form a joint venture with Australia's **Mintails** Ltd., with each holding 45% and Mineral & Mining Reclamation Services the remaining 10%. The venture, which initially would be listed on the Australian Stock Exchange to raise at least \$6 million, aims to explore and potentially mine gold and uranium in South Africa's Witwatersrand Basin.

Harmony's Mr. Swanepoel estimated that some 54% of the uranium and 35% of the gold found in the Cooke tailings dump could be recovered over 10 years using conventional technology.

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