

## SUDAN

*By Neil Scott*

**A**lmost 20 years of conflict have passed, at least two million people have died, and the principal protagonists in Sudan's civil war - the Government and the Sudan People's Liberation Army - remain locked in combat, with neither side seeing the necessity for compromise. With emerging evidence of the government's widespread bombing of civilian targets and other civil rights violations, the situation does not look like improving in the immediate future. Khartoum has shrugged off international condemnation in the past, and has recently taken its diplomatic charm offensive to the EU. Under the Clinton administration, sentiment in the US was less benign - with Washington still seeing Sudan as being involved in international terrorism, a position it has maintained since 1997. Indeed, it recently signalled its displeasure by successfully blocking Sudan's application for a seat on the UN Security Council.

Sudan is considered to be vastly under-explored for oil and gas. Its oil resources are estimated at between 600 Mbbl and 1.2 Bbbl, with recoverable reserves estimated at greater than 800 Mbbl - but the final figure could be much higher. It is also rich in natural gas with resources estimated at 85 billion m<sup>3</sup>. Hydrocarbon companies active in Sudan include the Greater Nile Petroleum Operating Co. (GNPOC), Lundin Oil (IPC Sudan Ltd), Gulf Petroleum Corp. (GPC), the National Iranian Gas Co., OMV, and Shell. Others, including the Russian firm Slavneft, have had exploratory talks.

Sudanese oil output in 2000 was about 180,000 bbl/d but the Economist Intelligence Unit expects that this will rise to 200,000 bbl/d in 2001, with most production coming from the Helig and Unity fields. The principal producer is GNPOC.

Formed in 1996, it comprises the China National Petroleum Corp., Petronas, Sudapet and the Canadian group Talisman. Talisman had been under fire at the end of last year from pressure groups in Canada who argued that it was indirectly paying the Sudanese Government's arms bill. It was reported to be reconsidering its investment options in Sudan.

By contrast to this groundswell of hydrocarbon activity, solid minerals development in Sudan has been all but dormant over the past year. The most notable event was the privatisation of the Atbara cement plant, which was sold for US\$40 million to a local firm, Dal, and the French multinational Lafarge. The new owners propose to restore the plant's output to its design capacity of 360,000 t/y as soon as possible. At the moment output is less than 80,000 t/y. Elsewhere it has been a story of retreat, with La Source's withdrawal from its joint venture with the Ariab Mining Co., which produces 90,000 oz/y of gold from the Hadal Auatib, Oderuk and Adassedakh massive sulphide deposits in the Red Sea Hills. As reported last year, Billiton Sudan BV withdrew from the Hofrat-en-Nahas copper and gold project when it concluded that the deposit was not of a stratiform nature and consequently of more limited exploration interest than had been hoped. Resources at Hofrat have been reported as being 9.3 Mt at 4.05% Cu.

Apart from cement raw materials (limestone, clay and gypsum), the only other industrial mineral produced is chromite, with three small-scale mines in the Ingessana Hills producing from open-pit and underground operations using labour intensive methods. Resources of hard, lumpy metallurgical grade chromite are reported to be of the order of 2 Mt at

54% Cr<sub>2</sub>O<sub>3</sub> with a chrome/iron ratio of 3:1. In recent years, 10,000-15,000 t/y of hand-picked ore has been exported from Port Sudan. Prior to the outbreak of the civil war there had been proposals for establishing a small ferrochrome plant in the country, but these are now dormant.

Other undeveloped mineral deposits of commercial interest include the Jebel Eyab tungsten stockwork, the Dirbat Well wollastonite deposit, with an estimated 300,000 t at 70-90% wollastonite, and the Jebel Gerein kyanite deposit containing an estimated 450,000 t of kyanite.