

APPENDIX

Hydrocarbon Sector in Sudan

Indian Embassy

Khartoum

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Sudan is a hydrocarbon rich country. With a large part of the country still unexplored, its contribution to world oil production in future is likely to increase significantly. As per 2005 estimates, Sudan's crude oil reserves are about 5 billion barrels.

2. Oil exploration began in Sudan in 1959 when Italy's Agip was granted concessions in the Red Sea area. However, shallow drilling and inadequate technology failed to deliver. In the 1970s, Sudan asked China for help. Beijing reportedly responded that since Chinese oil technology was still immature, Sudan might turn to the USA. Chevron entered Sudan in 1974, and in 1978, as operator of a consortium in which Shell took a 25% stake, made an important strike in the Muglad basin stretching deeply into Western Upper Nile state, just below the historic border between North and South Sudan. A second important discovery was at Adar Yale in the Melut basin, and the following year struck black gold again at Heglig. The only significant offshore discovery was American company Chevron's Suakin gas discovery in 1976. In 1983-84, with the outbreak of the civil war, the Sudan Peoples Liberation Army kidnapped and released several Chevron employees, and killed some in an attack on Chevron's main base at Rubkona near Bentiu. Chevron suspended operations in 1984 and quit in 1990, under pressure from Khartoum to operate or quit, alleging a loss of nearly US\$ 1 bn.

3. Sudanese crude (Nile Blend) is light, sweet crude and has not been affected by the discounts built up against the Brent Blend which is a heavier crude (higher sulfur content and harder to refine). High oil prices (Brent Blend averaging more than US \$ 55/barrel during August-December 2005) have encouraged sharp growth in oil production. In 2006, despite a declining trend in international oil prices, Sudan's oil income could rise by over 60 % with oil production at over 500,000 bpd (one third for local consumption) by end 2006 (against 330,000 in end-2005) providing revenue of US \$ 5-6 bn. The increase has come from the Petrodar project in blocks 3 and 7 in southeast Sudan, originally scheduled to begin production last year.

4. Sudan's total reserves are now estimated at about 10 bn barrels compared to a 2002 estimate of 800 mn barrels by the Ministry of Energy and Mining. Despite political uncertainties, Sudan has drawn foreign investment in the hydrocarbon sector, primarily in oil. As of beginning 2007, some 11 consortiums are operating in oil exploration and development in Sudan (with participating companies from India, China, Malaysia, South Africa, Denmark, France, Germany etc.) Sudan has established very close relationships with energy firms in India, Malaysia and China, which have become the driving force behind Sudan's oil sector

5. The Greater Nile Petroleum Operating Company (GNPOC) in which OVL of India has a 25% interest, operates in Blocks 1, 2A and 4 (estimated reserves are over 3 billion barrels) in Muglad Basin of Higlig area (Unity State), around 680 km southwest of Khartoum.

6. In the Mallut (Melut) basin operated by Petrodar (China, Malaysia, and Sudan) oil production at Blocks 3 and 7 (Al Jabalain and Falij of White Nile and Upper Nile states) commenced in 2006. The current production from Block 3&7 is around 150,000 bpd which will be increase to 200,000 bpd by 2007.

7. The White Nile Petroleum Operating Company (WNPOC), majority owned by Petronas (with shares of OVL, Lunden and Sudapet) is developing block 5A and

exploring blocks 5B and 8 in the Blue Nile basin. In May 2004, OVL acquired 24.125% of Block-5A (along with Petronas and Sudapet) & 23.5% of Block-5B (with Petronas, Sudapet and Lundin) from OMV of Austria for US\$ 115 mn in the southern Sudan Lakes and Warab states. Block-5A (Tharjath field) came on line in June 2006 with an estimated 30,000 bpd rising to 80,000 bpd by end-2007.

8. Sudanese officials project an increase in total output to 1 million bpd in 2008.

9. The major Indian presence in the hydrocarbon sector in Sudan is ONGC Nile Ganga BV (ONGBV), a wholly owned subsidiary of ONGC Videsh Ltd., registered in Rotterdam (Netherlands). There were reports in late 2006 that Reliance Industries might get involved in two blocks in North Sudan.

10. The oil is transported through a 1,504 km 28" pipeline to the Red Sea Terminal near Port Sudan for export with about 65,000 bpd for inland deliveries to El-Obeid and Khartoum Refineries.

11. In a sign that demand for Sudanese fossil fuel assets remains strong, the Government announced in late August 2005 that it had awarded an E&P contract for Block 15 (on the Red Sea Coast near Port Sudan) to a CNPC/Petronas (35% each) led consortium. The two main stakeholders will together operate the concession. This is the first major contract for an offshore asset and the first for a concession expected to yield mostly gas rather than crude oil. The gas is likely to be sold in the domestic market to service local gas-fired ventures expected to utilize the output from the block. Gas Authority of India Limited (GAIL) has talked about the possibility of strategic investment in the Sudanese gas distribution network.

12. As part of the new political structure, the government appointed in late 2005 the National Petroleum Commission (NPC), tasked with overseeing the development of the oil sector in the south. Jointly chaired by the national President and the President of South Sudan, with an even number of northern and southern members, the NPC will try to

ensure transparency in awarding contracts and ensuring equitable distribution of revenue between the two governments and the producing province as specified in the Comprehensive Peace Agreement (CPA) of January 2005.

13. However, the NPC is not functioning fully. The report of the Abyei Boundary Commission (set up to decide whether the contested oil-rich Abyei region should be considered part of the south or the north for oil revenue-sharing purposes) was rejected by Khartoum. The Government of South Sudan still has minimal independent means of verifying whether Khartoum is in fact providing it with 50% of net revenue from all southern oilfields that is its due under the CPA. It wants the NPC to have an independent secretariat, while Khartoum would like the Ministry of Energy and Mining to provide the support. Officially, a dedicated oil unit in the Ministry of Finance and National Economy now publishes a monthly report on oil revenue with assistance from the Ministry of Energy and Mining. Few Southern officials believe the figures, and want the Abyei issue to be sorted out quickly.

14. The National Petroleum Commission's task is likely to be complicated by the South Government's decision to sign fresh oil development contracts for its areas that have already been awarded to others. It signed a deal for a large block (previously given to Total of France by the Sudanese Government) with the small White Nile Company of UK to form a consortium called Nile Petroleum Corporation in which the Government of South Sudan is an equal partner. In June 2005, the Government of Southern Sudan inked a deal with a Moldovan company, Ascom, for development of block 5B, already awarded to a Petronas-led foreign consortium since 2001. In both controversial blocks, the new concessionaires have begun seismic surveys. As of date, the right of the Government of Southern Sudan to award oil concessions remains unclear but drilling has commenced in both blocks. Legal action by Total in London has so far been unsuccessful.

15. In late 2006, another potential dispute loomed. A British Virgin Islands-based company, Jarch Management Group, claimed that the South Sudan Defence Force, a Nuer-dominated and Khartoum-backed militia (once linked with Dr. Riak Machar, now

Vice President of the Government of Southern Sudan), had awarded it an oil exploration licence for Block Ba, the same area claimed by White Nile within Block 5. Although the dispute is not significant, it illustrates the extent to which tribal and militia rivalries can impact on the oil sector, especially in the South.

16. Political risks associated with Sudan's energy sector include the risk of divestment campaigns by western institutions. Several US-based universities and funds have pulled out of foreign firms directly involved in the oil business in Sudan, claiming that oil revenues enable the Government to fund human rights violations in the country.

17. Based on a predictive analysis, the Embassy estimates that Sudan's presently known reserves at the projected rate of exploitation (excluding fields in the deeper South) should run out by 2015.

87. 60% of oil export earnings go to the Government, the rest to the oil companies. The Government's share will rise to 80% in due course under the E & PSA (Exploration and Production Sharing Agreements) that it has signed with oil companies. Half of net oil revenues from Southern oilfields are shared with the Government of Southern Sudan, in terms of the January 2005 North-South Comprehensive Peace Agreement.

19. Important contact numbers in the energy sector

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Partnership Position in different blocks of Sudan:

Sr.	Block	Partners	%age	Remarks
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No.				
1	1a&1b	CNPC (China)	40	3 Exploration and 2 Development Blocks operated by GNPOC.
2	2a&2b	Petronas (Malaysia)	30	
3	4	ONG BV (India) Sudapet (Sudan)	25 5	
4	5A	Petronas* (Malaysia) OVL (India) Sudapet (Sudan)	68.875 24.125 7	* Operator (WNPOC)
5	5B	Petronas* (Malaysia) IPC (Lundin) (Swiden) OVL (India) Sudapet (Sudan)	41 24.5 23.5 11	* Operator (WNPOC)
6	6	CNPC* (China) Sudapet (Sudan)	92 8	* Operator
7	3E	CNPC (China)	41	2 Exploration Blocks and 1 Development Block Jointly operated by PETRODAR (PDOG).
8	7E	Petronas (Malaysia)	40	
9	Adar-Yale or 3D	Sudapet (Sudan) Sinopec (China) Thani Corporation	8 6 5	
10	B	Total (France) Marathon (USA) Kuwait Sudapet (Sudan)	32.5 32.5 25 10	No activity (TOTAL renews license every year). Government of Southern Sudan has awarded same block to London-based White Nile Petroleum Company
11	C	Hitech (Sudan) Cliveden (Swiss) Sudapet- Khartoum State Hegleig (Sudan)	28 37 17 10 8	Operated by JV called Advanced Petroleum (APCO)

12	8	Petronas (Malaysia) Hi-Tech Group (Sudan) Sudapet (Sudan)	77 8 15	
13	9	ZPG (Pakistan) Sudapet (Sudan)	85 15	JV SUDAPAK
14	10	To be awarded in 2007		
15	11	ZPG (Pakistan) Sudapet (Sudan)	85 15	JV SUDAPAK
16	12A	Dindir Petroleum International (Jordan) Abdel Hadi Abdullah al-Qahtani (Saudi Arabia) Ansan Wikfs (Yemen) Sudapet (Sudan) Hi-Tech Petroleum Group (Sudan) All Africa Investment Corp (Libya)	15 33 20 20 7 5	
17	12B	To be awarded in 2007		
18	13(offshore)	To be awarded in 2007		
19	14	PetroSA (South Africa) Sudapet (Sudan)	80 20	
20	15(offshore)	CNPC (China) PCOSB Sudapet ((Sudan) Express Petroleum Hi-Tech Group (Sudan)	35 35 15 10 5	

****N.B: Please note that all information other than that for Blocks 1,2 and 4 is from diverse official and unofficial information and may not be authentic to use in any official documents/ communications with the Government. (updated March 2007)**

Block-10: Preliminary evaluation at ONGBV suggests that the block has only speculative potential and large tracts covered by igneous/metamorphic rocks/metasediments. Very High Risk.

The three remaining blocks to be awarded (12B, 10, 13) are subject to ongoing violence and political sensitivities. Block 12B (located just to the south of 12A) covers northern Darfur, most of Western Darfur, parts of Southern Darfur and North Kordofan). Following the September 2006 Eastern Sudan Peace Agreement, Block 10 is easier to award as it covers an area along the border with Ethiopia and Eritrea. Block 13 is partly offshore between Port Sudan and the Egyptian border.

Other Business interests of CNPC and Petronas:

CNPC:

CNPC laid & operates crude pipeline from Block 6 to Khartoum Refinery for evacuating their crude to Khartoum Refinery.

CNPC International's subsidiary BGP offers seismic acquisition and processing services to the operators of different blocks in Sudan.

CNLC provides wire line logging services and mud logging services to the operators.

Great Wall Drilling Company offers drilling and completion services in Sudan.

CPECC is the main EPCC contractor in oil industries in Sudan.

CPPE is the main Pipeline company active in Sudan

One Chinese construction company also actively participates in the construction of Roads and bridges in Sudan.

CNPC has also entered the Petroleum retail marketing sector with setting up of Petrol pumps.

Petronas:

Petronas has recently entered the retail marketing sector with the purchase of Petrol pumps owned by Mobil.

