Upholding the principle of mutually beneficial development in its international cooperation, CNPC conducts its business operations in strict compliance with the laws and regulations of the host country, and international standards. Together with its partners, CNPC has participated in and witnessed the entire process of constructing a modern, integrated oil industry in Sudan. Based on sincere mutual cooperation and utilization of complementary strengths, Sino-Sudanese petroleum cooperation has resulted in outstanding achievements, and has been acclaimed as “A Model of Sino-Sudanese Cooperation” by the leaders of the two countries.

CNPC has received accolades and approval for its high-quality and efficient work from the Sudanese government and our business partners for a broad range of petroleum industrial activities in Sudan involving exploration and development, pipeline transport, refining and chemicals, engineering construction and oilfield services. Our long-term goal is to make enduring efforts in petroleum cooperation on reliable business operation, and coordinated development among economy, environment and society.
Since 1995, through the Sudanese government’s international tendering process, CNPC has participated in a series of exploration and development projects in Block 1/2/4, Block 3/7, Block 15 and Block 13, as well as in refining, chemical and trading projects including the Khartoum Refinery, the Khartoum Petrochemical Plant and the Petrochemical Trading Company. In addition, CNPC has also undertaken several major petroleum engineering construction and oilfield service projects.

**Exploration and Development Projects**

**Sudan Block 6**
- Date of signing: September 26, 1995
- Block area: Approx. 17,900 km²
- Operator: Petro-Energy Operating Company (Petro-Energy)
- Shareholders: CNPC, by 95%
  - Sudapet, by 5%

**Sudan Block 1/2/4**
- Date of Signing: March 1, 1997
- Block area: Approx. 35,900 km²
- Operator: Greater Nile Petroleum Operating Company (GNPOC)
- Shareholders: CNPC, by 40%
  - Petronas, by 30%
  - ONGC, by 25%
  - Sudapet, by 5%

**Sudan Block 13**
- Date of signing: June 26, 2007
- Block area: Approx. 27,600 km²
- Operator: Coral Petroleum Operating Company (CPOC)
- Shareholders: CNPC, by 40%
  - Pertamina, by 15%
  - Sudapet, by 15%
  - Express, by 10%
  - Africa Energy, by 10%
  - Dindir, by 10%

**Sudan Block 15**
- Date of signing: August 30, 2005
- Block area: Approx. 24,400 km²
- Operator: Red Sea Petroleum Operating Company (RSPOC)
- Shareholders: CNPC, by 35%
  - Petronas, by 35%
  - Sudapet, by 15%
  - Express, by 10%
  - Hi-Tech, by 5%

**Sudan Block 3/7**
- Date of signing: November 11, 2000
- Block area: Approx. 72,400 km²
- Operator: Red Sea Petroleum Operating Company (RSPOC)
- Shareholders: CNPC, by 41%
  - Petronas, by 40%
  - Sudapet, by 8%
  - Sinopec, by 6%
  - TriOcean, by 5%

**Sudan Block 13**
- Date of signing: June 26, 2007
- Block area: Approx. 27,600 km²
- Operator: Coral Petroleum Operating Company (CPOC)
- Shareholders: CNPC, by 40%
  - Pertamina, by 15%
  - Sudapet, by 15%
  - Express, by 10%
  - Africa Energy, by 10%
  - Dindir, by 10%

**Refining, Chemicals and Trading projects**

**Khartoum Refinery Company (KRC)**
KRC is a joint venture between the Ministry of Energy & Mining of Sudan (MEM) and CNPC with a 50% share each. The first phase of construction started on May 26, 1998 and the refinery commenced production on May 16, 2000. After an expansion project was completed on June 30, 2006, KRC’s crude processing capacity was increased to 5 Mt/a.

**Khartoum Petrochemical Company (KPC)**
KPC was registered and incorporated on October 18, 2001, with CNPC holding 95% and the Sudanese MEM holding 5%. KPC has a polypropylene production capacity of 20 kt/a, producing 20 million standard-sized woven sacks annually.

**CNODC Petrochemical Trading Company**
CNOC’s solely-owned trading company was established in May 2000. Possessing six service stations and one product oil depot, the company’s annual sales of gasoline and diesel oil reached 100,000 tons.
During the onset of the Sudanese oil projects, the most pressing challenge facing CNPC and its partners was to obtain a quick and thorough understanding of the geological conditions and reserves in the area in order to lay solid foundations for future development.

Block 1/2/4 is located in Sudan’s Muglad Basin. Before 1997, 10 years of exploration resulted in discovery of only two small oilfields, with total annual production below one million tons. However, after GNPOC took over the project, the block had been confronted with poor and inadequate geological information. CNPC experts including Su Yongdi and Xu Zhiqiang developed geological and accumulation models based on passive rift basin theory instead of shallow tertiary rift overlap theory. They completed 126 km² of 3D seismic interpretation in the Unity oilfield and developed structural maps for the five main target formations in just two months, with a 100% success rate of locating wells. In 2003, the “Theory and Practice for High-Efficiency Exploration and Development of the Sudan 1/2/4 Project in Muglad Basin” project was honored with a First-Class China National Science and Technology Advance Award. By 2009, GNPOC had discovered 68 oil and gas reservoirs in Block 1/2/4, increasing the recoverable reserves by 3.2 times.

Before the take-over, recoverable reserves of less than 7 Mt had been identified in the Block 3/7 Melut Basin in southeastern Sudan. Although at first, the joint operating company-PDOC was facing the challenges of a low-degree of previous exploration and lack of relevant geological data, CNPC applied its technical strengths and investigated the block’s characteristics. In December 2000, just one month after winning the contract, CNPC began seismic operations, which then enabled the operator to obtain first-hand data. Two months later, CNPC started drilling as a result of its fast reserve evaluation techniques. The world-class Palogue Oilfield was discovered in 2003 in Block 3/7, followed by the 100 Mt Moleeta Oilfield and several smaller oilfields of around 10 Mt.
Exploration laid a solid foundation for oilfield development. Taking advantage of CNPC’s integrated oilfield development services and technical strengths, the operator soon carried out ground engineering construction. In addition, CNPC adopted a series of mature domestic technologies to effectively increase the production capacity of the oilfield. The annual production capacity of Block 1/2/4 was increased to 10 Mt in eighteen months. Furthermore, Block 3/7, with an annual capacity of 10 Mt, was put into production in August 2006.

Meanwhile, relying on its engineering and construction strengths, CNPC won the Sudan government’s international bids for the contracts to construct crude oil pipelines from Block 1/2/4 and Block 6, and participated in Block 3/7 pipeline construction, all of which were completed with high quality and efficiency. With these three crude oil pipelines, Sudanese petroleum infrastructure took shape, allowing Sudan to export its crude oil and refined products.

The Block 1/2/4 crude oil pipeline starts from the southern part of the Muglad Basin, runs through the Heglig tropical rainforest and marsh, the Saiyala Desert and the world’s longest river—the River Nile, the Red Sea mountains before reaching Port Sudan in the north. From May 1998 when construction started, it took the CNPC pipeline builders only 11 months to complete the 1,506 km crude oil pipeline with advanced Chinese pipeline technologies, after solving the challenges in pipeline transportation, rock excavation, engineering in a rainforest, lack of water sources, and river crossing. Since June 1999, the pipeline has maintained safe and stable operation, becoming Sudan’s most important energy transmission channel.
CNPC engineering and construction teams provide drilling services in Sudan
After less than two years of construction, Khartoum Refinery, jointly operated by CNPC and the Sudan Ministry of Energy and Mining, was completed in Jerry Town, about 70km north of Khartoum, with annual crude processing capacity of 2.5 Mt/a. The operation of the refinery put an end to Sudan’s long history of dependence on imported oil products. Throughout the construction process, the refinery adopted state-of-the-art technology. On June 30, 2006, the extension project of the Refinery, using advanced international technologies, inventions and materials enabled its processing capacity to jump up to 5 Mt/a, and significantly strengthened Sudan’s oil industry. The Khartoum Refinery became known as a “Pearl on the African Continent”.

Through an international tendering process, the Sudan Branch of CNPC Engineering & Construction Company Limited (CPECC) won a contract for the construction and, later on, expansion of the Khartoum Refinery. Despite being in the deep Gobi desert and faced by a multitude of challenges, this modern refinery was completed in just 20 months, winning the praises of the Sudanese government and its people. As part of the expansion construction, the world’s first delay-coking unit to process sour heavy oil with a high-calcium was developed for the Khartoum Refinery, solving the challenge of processing crudes from Block 6, enabling the utilization of Sudan’s precious petroleum resource.

During its operation, the Refinery upgraded its management system to meet international standards. At present, the Refinery has achieved advanced economic and technological status, maintaining 10 years of stable and safe operation. In 2009, the yield of light oil reached 73%, with a commercial yield exceeding 92% and a processing loss ratio of less than 0.7%.

Khartoum Refinery is capable of providing a diverse range of high-quality oil products, from gasoline, diesel, and aviation kerosene, to LNG, heavy fuel oil and petroleum coke, accounting for over 80% of the total oil product supply on the Sudanese market. Carrying out its strategy of clean production, the Refinery has passed ISO 9001 certification, providing low-sulfur and unleaded products, including diesel which meets Euro IV standard requirements and gasoline which is all unleaded. As a result, Sudan became the first African country to produce and market unleaded gasoline. In addition, Khartoum Refinery was invited by the African Refiners Association to be an observer at its Quality Committee.

A number of organizations such as the CNODC Petrochemical Trading Company and the Khartoum Petrochemical Company have set up near the KRC. Not only does this strengthen Sudan’s oil industry, but also it supports its economic development by supplying high standard products.

Since 2001, the CNODC Petrochemical Trading Company has built six refueling stations and one fuel depot, marketing about 100,000 tons of gasoline and diesel annually. Khartoum Petrochemical Company’s Polypropylene Plant became operational in January 2002, and expanded its annual capacity to 20 kt/a in 2008. In April 2004, KPC’s Plastic Processing Plant was put into production, with an annual production capacity of 20 million standard-sized woven sacks. As a result of these projects, Sudan had become the third African country to manufacture and export polypropylene and woven sacks, and by the end of 2009, KPC had cumulatively produced 141,000 tons of polypropylene and 113 million standard-sized woven sacks.
① The President of Djibouti visiting the Khartoum Refinery  
② The President of the Central African Republic visiting the Khartoum Refinery  
③ The Vice President of Indonesia visiting the Khartoum Refinery  
④ The Khartoum Refinery is known as “the Pearl on the African Continent”  
⑤ The 2nd phase coking unit of the Khartoum Refinery  
⑥ Loom Workshop of the Woven Sack Plant at the Khartoum Petrochemical Plant