The success story of a Sudanese oil operating company: Greater Nile Petroleum Operating Company (GNPOC)

By

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Greater Nile Petroleum Operating Company (GNPOC)

The views expressed are those of the author and do not necessarily reflect the views of UNCTAD.
The success story of a Sudanese Oil Operating Company;

Greater Nile Petroleum Operating Co.Ltd. (GNPOC).

Presented by: Mr. Alfatih Yousif Tamim Fartak
Outlines

☑ Introduction
☑ Objectives
☑ GNPOC Chronology
☑ Business dimension and Technology
☑ HSE and Community Development
☑ Manpower and Training
☑ Challenges
Objectives

• To highlights GNPOC responsible business process.
• To reflect the appreciations granted by international bodies to GNPOC on the sound HSE operation manner.
• To share GNPOC experience in oil business as a pioneer oil company in Sudan with local and regional companies.
GNPOC a Premier Petroleum Operating Company in Sudan

- GNPOC was incorporated on June 18, 1997, to operate oil concession area located in south Kordofan State.

- Concession area comprises blocks 2 (2A, 2B)& 4 which are located 800 km southwest from Khartoum with a total acreage of 29,893 Km². Oil extraction processes are governed by an Exploration & Production Sharing Agreement (EPSA).

GNPOC Partners
CNPC - China (40%)
Petronas - Malaysia (30%)
ONGC - India (25%),
Sudapet - Sudan (5%).
Technology achievements

- ENMAX Technology
- Production Data Management System
- Crude and gas utilization on power generation
- Intelligent Pigging, PSV certification & Inspection

- Applying latest geophysical data acquisition technology; gravity/magnetic survey, dynamite/ vibroseis 3D seismic etc
- Advanced geological workstation with international standard workflow

- Flow jet pump for testing new well.
- Multi Packer completion.
- Production logging tools.
- Dual ESP, ESP, RESP, BPU & PCP for tapping oil.
- Chemical & Mechanical water shut off.
- Cyclic Steam Stimulation (CSS).
- Miscible Gas injection.
- Water Injection.

- Utilizing recycled silicate mud for vertical development wells
- Utilizing the Power. V to reduce drilling time by increasing ROP
- Using Gel mud to drill surface hole instead of KCL polymer
- Changing Bit design to achieve shoe to shoe drilling
GNPOC adopted bioremediation method for treating the produced water based on the root system mechanism.

The bacteria found in the soil are enhanced by association with specific plants. It treat organic pollutants in waste water into harmless compounds by a process known as biodegradation.

The resulting products can be carbon dioxide and water. Bacteria that consume petroleum are known as “hydrocarbon Oxidizers” because they oxidize compounds to bring about degradation.

*Phragmites australis* is planted in reed beds. These plants transfer atmospheric oxygen down through their roots in order to survive in waterlogged conditions. This creates both aerobic and anaerobic soil conditions, allowing an extraordinary diverse range of microbial species to flourish.
The Bioremediation Network

Three stage process from the CPF/ FPF to treated water outlet
✓ Transfer of produced water from the CPF/FPF ponds to the Bioremediation storage lagoons
✓ Transfer from Lagoons to Reed beds
✓ Transfer from Reed beds to Balancing Canals
Heglig Bioremediation: harmful water changed to useful water
Ecology Performance

To date 109 species of birds have been photographed in and around the Heglig bioremediation system.

Bioremediation has provided a niche wetland habitat for a wide variety of species.

Wetland habitats are under threat across Africa and the world.

This project can provide a permanent wetland habitat for a variety of birds.

IUCN Registered Species observed at Heglig

(International Union for the Conservation of Nature)

<table>
<thead>
<tr>
<th>Species</th>
<th>Status</th>
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</thead>
<tbody>
<tr>
<td>Black Crowned Crane</td>
<td>Near Threatened</td>
</tr>
<tr>
<td>(from Toma Nar ‘11)</td>
<td></td>
</tr>
<tr>
<td>White-headed Vulture</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Rüppell's Griffon Vulture</td>
<td>Near Threatened</td>
</tr>
<tr>
<td>Black-tailed Godwit</td>
<td>Near Threatened</td>
</tr>
</tbody>
</table>
Forestry Project

- Utilize treated produced water for irrigation & plantation.
- Create job opportunities for the locals.
- Restore the habitat for wildlife.
- Reduce Greenhouse Gasses emitted in the Petroleum area.
Waste Management

Waste Management from Scrap to Useful Product

Resizing of waste

Transportation

Product

Recycling process
Environmental Campaigns

**Participants:** Contractors, Local Community Leaders & Members of the Youth Union

General housekeeping & Plastic campaign at Neem

Campaign for Collection of Used Plastic Bags
basic school at Tuti

Shoreline Clean Up Campaign

Environmental and Cleaning Campaign at SWAKIN Municipality
### Patients Occupational Pattern
#### Heglig Hospital & Field clinics

<table>
<thead>
<tr>
<th>YEARS</th>
<th>GNPOC</th>
<th>CONTRACTORS</th>
<th>LOCALS</th>
</tr>
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<tbody>
<tr>
<td>2010</td>
<td>3,814</td>
<td>28,809</td>
<td>101,047</td>
</tr>
<tr>
<td>2011</td>
<td>4,390</td>
<td>28,959</td>
<td>77,449</td>
</tr>
<tr>
<td>2012</td>
<td>3,157</td>
<td>17,726</td>
<td>31,463</td>
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<tr>
<td>2013</td>
<td>3,972</td>
<td>19,785</td>
<td>72,134</td>
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<tr>
<td>2014</td>
<td>4,170</td>
<td>18,491</td>
<td>80,586</td>
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#### Bar Chart

- **LOCALS**
- **CONTRACTORS**
- **GNPOC**

![Bar Chart showing patient numbers by year with color coding for locals, contractors, and GNPOC]
Half Million plus treated at Heglig Hospital

Heglig Hospital

Outpatient

Medical Laboratory

Pharmacy
The UNEP detailed finding relate only to the Heglig oil production facilities.

UNEP finds environment related standards Management practices of these facilities to be of high standard and equivalent in several areas to best international practice.

The reed bed system for treatment of produced water as was the advanced stage of implementation of ISO -14001 certified environmental. was particularly noteworthy. sites visited were notably clean of oil spillage or other evidence of oil losses to the environment.

Very little information is publicly available on these aspects since practices themselves were of a high standard, we felt that the company could have advertised its efforts more to increase awareness and take credit for its efforts.

Andrew Morton UNEP, Wed, April 19, 2006
We Take Pride in Our Operations

On Mon. May 21, 2007, 12 members of the Assessment & Evaluation Commission (AEC) visited Heglig (GNPOC Bioremediation Project) and Faryang (Community Development Programs)

Dr. Yousif Mohamed Ahmed
Vice President
Greater Nile Petroleum Operating Company Limited
Khartoum Tower
Al Gamboria Street
Khartoum

May 22, 2007

Dear Dr. Yousif,

On behalf of the Working Group on Wealth Sharing of the Assessment and Evaluation Commission, I would like to thank you and your colleagues at GNPOC for the field trip to Heglig on May 21. The excellent arrangements for the aircraft, the vehicles, the presentations and site visits to the community and the bioremediation project demonstrate a real effort by GNPOC to make the visit a success. The information provided during the visit greatly assists the members of the Working Group to better understand the situation on the ground and to see first-hand the challenges facing Sudan. I believe it is always best to visit the field and to see the situation in person. Thank you for making the visit of our group possible.

Your offer to host the visit to Heglig and your superb organization of the visit underlines the commitment by GNPOC to work with the CPA process and build peace in Sudan. Your efforts in this regard are deeply appreciated by the members of the Assessment and Evaluation Commission.

The Working Group will report on the results of its visit to Heglig at the next AEC plenary session.

I wish you and your colleagues at GNPOC all success in your future endeavors in the petroleum sector in Sudan.

Sincerely,

Roberto Powers
Charge d’Affaires a.i.

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Dr. Yousif Mohamed Ahmed
Vice President
Greater Nile Petroleum Operating Company Limited
Khartoum Tower
Al Gamboria Street
P.O. Box 12527
Khartoum

May 23, 2007

Dear Dr. Yousif:

I am writing to express my personal appreciation to you for organizing the trip to the Heglig oil fields on May 21th.

The trip was one of the highlights of my time in Sudan. It was also very important for the work of the Assessment and Evaluation Commission. The trip provided the opportunity for me to see first-hand the impact of the oil industry on the local community. I was especially impressed by the efforts to assure that benefits flow to all ethnic groups and to all parties. The fact that hundreds of people are returning to the areas around the Heglig oil fields is visible evidence that there has been an improvement in the conditions there.

Please extend my thanks to all the employees of GNPOC who worked to make the visit an outstanding success. The arrangements for the transportation, site visit to the bioremediation project and the Faryang community were all excellent. The driver of our vehicle, Khalid, should be commended for his safe driving. I regret that it was not possible to visit the hospital or to tour the Central Processing Facility, but perhaps on a future visit this could be arranged.

Again, thank you for making the trip possible. I hope to keep in touch with you in the future.

Sincerely,

Curtis Stewart
Economic Officer
Mr Ibrahim Yusuf Gamil,
Field Base Manager,
Heglig Field,
Greater Nile Petroleum Operating Co. Ltd
Sudan

7th March, 2010

Dear Ibrahim,

My colleagues in the UN Global Compact as well as the investors representing signatories to the Principles for Responsible Investment are extremely grateful for the hospitality you showed us during our visit to the Heglig Field operations, as well as for the open and frank way in which both you and Mohamed Kamal, the head of HSE, addressed our many questions. Please pass my thanks on to him also.

Both I and the investors representatives were very impressed by the water treatment process. I have often heard allegations about the quality of discharged oilfield water in Sudan but as someone who has spent a lifetime in the hydrocarbon industry I can say that the quality of discharged water in the GNPOC operations is extremely high and indeed sets world class standards. In this way, far from causing a problem, it is providing a benefit to forestry and wildlife. As experience develops, I am sure that ways will be devised to ensure that the benefits from the supply of water are maximized and are channelled in directions which will be sustainable after the life of the oilfield. The work done by GNPOC and Oceans, the supplier of the technology, is very thorough and clearly includes thorough tests for any potentially damaging residues from the water.

In our discussions you made very plain the approach which the company takes to security and relations with communities. Your company security personnel are unarmed and the operation clearly depends on the good will of the people. Your approach to facilitating the resolution of disputes within and between communities appears very commendable to me, although we did not have the opportunity to visit a community or to see examples of the many schools and medical clinics which you have delivered in the area. These are clearly a great contribution to the local community and economy. The approach to training members of the local communities so that they may be employed on a temporary basis by subcontractors to GNPOC is an ingenious and effective approach to a community where many of the people are nomadic. The economic effect of this approach is probably to spread the benefits more widely than would be the case through a small number of permanent jobs.

We did have the opportunity to visit Heglig hospital and we were all extremely impressed by the enthusiasm of the four Sudanese doctors who have served for many years in the area.

..as someone who has spent a lifetime in the hydrocarbon industry I can say that the quality of discharged water in the GNPOC Operations is extremely high and indeed sets world class standards

The work done by GNPOC and Oceans, the supplier of the technology, is very thorough and clearly includes thorough tests for any potentially damaging residues from the water.
Dongfeng auger rig Drilling Shot hole

Puma Helicopter Supporting Swamp Operations

Dolphin Helicopter landing in the field.

Recording group laying out cables

Survey group staking line using Hug land

Steel Wheel Buggy Crossing swampy lake

Loading Crew Loading dynamite

Surveyor read position coordinate

Survey group staking line using Hug land
Main road and branches in GNPOC concession.

Main roads constructed in the field to support exploration, production and serve the surrounding community; around 800 km of elevated gravel roads and about 1050 km branch roads; below is details of the main roads:

- Mugal – Heglig Road, **245km**, extended up to Bentuo **90km**.
- Heglig – Keilak- Um Addara **140 km**.
- Eldebab – Elsutabe Elmairam **110km**
- Njama – Diffra – Abyei- Elbantoon **100km**.
- Shalangoo – Neem Balila **75km**
- Valve 1- Abu Kadama **90km**
- Neem- Abu Lukri **30km**
- In addition to around 100 water pits and Hafiers. **40 %** has been selected by CD programs and 60 % water pits constructed during construction stage by reshaping of the quarrels along the roads.
- Also a lot of pads for new villages and internal roads in towns (Mugal, Debab, Suttabe, Abyei, Keilak Elbhaira, Lagawa).
GNPOC Community Development Programs: Water Projects

- Drilled 165 Water wells
- Drilled 23 Water Ponds
- Donated 282 Hand pumps
GNPOC Community Development Programs: Education

- Built 90 Schools
- Donated 629 Villages with school furniture
- Donated 47,080 Schools uniform
GNPOC Community Development Programs: Health

Built #7 Hospitals.

Built #90 Clinics.

Supported #834 Days of Mobile Clinics.

Supplied medicines to #400 Villages.
GNPOC Sudanized 94% of its positions since inception year to date.
GNPOC Career Development

<table>
<thead>
<tr>
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<th>Programs Planned</th>
<th>Programs Achieved</th>
<th>% Achieved</th>
<th>Participants Attended</th>
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<tbody>
<tr>
<td>In - House</td>
<td>99</td>
<td>86</td>
<td>86.90%</td>
<td>4,170</td>
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<tr>
<td>Overseas</td>
<td>675</td>
<td>613</td>
<td>91.70%</td>
<td>604</td>
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GNPOC Developed its own training Center.
GNPOC focused on in-house for basic training and send staff for overseas training for advanced training.

Intakes Batch Training

<table>
<thead>
<tr>
<th>Year</th>
<th>1st Intake</th>
<th>2nd Intake</th>
<th>3rd Intake</th>
<th>4th Intake</th>
<th>5th Intake</th>
<th>6th Intake</th>
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<tbody>
<tr>
<td></td>
<td>119</td>
<td>155</td>
<td>149</td>
<td>231</td>
<td>171</td>
<td>67</td>
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<td>(2003)</td>
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<td>(2005)</td>
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<td>(2007)</td>
<td></td>
<td></td>
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Production maintenance trainee.

On job training – Heglig field
Challenges

- Limited choice of technologies
- Decline of the oil price; revenue loss
- Power stability