Initiatives/Policies to promote involvement of indigenous service providers in Africa's oil and gas industry

Mr. Etienne Hamman
Local Content Manager
Total E&P
France
16 October 2014
TOTAL E&P PAST ACHIEVEMENTS
EXAMPLE OF ANGOLA
TOTAL HAS ACHIEVED MAJOR TECHNOLOGY TRANSFERS IN ANGOLA

<table>
<thead>
<tr>
<th>Specific Item</th>
<th>GIRASSOL</th>
<th>DALIA</th>
<th>ROSA</th>
<th>PAZFLOR</th>
<th>CLOV</th>
<th>KAOMBO</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Exploration &amp; Appraisal</strong></td>
<td></td>
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<tr>
<td>Drilling &amp; completion</td>
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<tr>
<td>Wells / SPS</td>
<td>X-mas trees</td>
<td>Supports and assembly</td>
<td>Test</td>
<td>100% Assembly and test</td>
<td></td>
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<tr>
<td>Manifolds</td>
<td></td>
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<tr>
<td>Well Jumper</td>
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<tr>
<td>SURF</td>
<td>Riser Towers</td>
<td>Production of sub-sea injection and production pipeline</td>
<td>All produced locally</td>
<td>All produced locally</td>
<td></td>
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<tr>
<td>Pipelines</td>
<td></td>
<td></td>
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<tr>
<td>Umbilicals / Flowlines</td>
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</tr>
<tr>
<td>FPSO</td>
<td>Buoy</td>
<td>Production</td>
<td>Production (4)</td>
<td>All produced locally</td>
<td>All produced in Angola</td>
<td></td>
</tr>
<tr>
<td>Anchors</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Modules</td>
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</tr>
</tbody>
</table>

LC Exploration is delegated to service companies and seismic companies

LC Drilling & completion is delegated to service companies

- Most manifolds produced
- Mostly produced locally
- All produced locally
- All produced locally

Assembly of flowline bundles:
- Production of most static production and injection umbilicals
- Most produced locally
- All produced locally

Fabrication of loading buoys:
- Production
- All produced locally
- All produced locally

Fabrication of suction anchors:
- Production of 12 anchors
- Mooring production
- All produced locally
- All produced locally

Installation of heavy modules in between existing facilities

Water treatment module
- Lay down area module
- Production of 6 modules and integration

UNICTAD 15-16 OCT 2014 – E. HAMMANN 3
WITH ASSOCIATED EMPLOYMENT (DEEPWATER PROJECTS IN THE GULF OF GUINEA)

Constant increase in the number of local man-hours...

Number of local Man-hours per project
In million of man-hours

"More than 800 jobs created at Lobito during the peak activity"

EGINA

GIRASSOL DALIA ROSA PAZFLOR CLOV¹ KAOMBO¹
IN ORDER TO IMPROVE, WE WANT TO FOCUS MORE ON PLANNING

EXAMPLE OF UGANDA INDUSTRIAL SURVEY
INDUSTRIAL SURVEY UGANDA

Industry Demand

The survey highlights industries whose capacity or compliance with oil & gas standards require future support in order to avoid massive imports.

Mapping of industries requiring future support:

- Meeting Oil & Gas standards
  - Manpower agency
  - Mechanical construction services
  - Road construction
  - Transportation & Logistics (Goods)
  - Work safety
  - Production products operation services
  - Hazardous waste management
  - Light equipment manufacturing

- Domestic waste management
- Bulk construction materials
- Reinforcement steel manufacturing
- Domestic Airlines Services

- Fuel wholesale
- Food supply
- SMS
- Technical consultancy

- Security
- Cement manufacturing
- Facility Management
- Vendor representation services
- Furniture manufacturing

**Needs support to be ready for Lake Albert Basin Development projects**

Future Gap
- >100% of current supply
- 10%-100%
- <10%
Some sectors will need a complete transformation to be able to cope with future needs, like transportation & logistics (goods) industry.

Freight transport by road, warehousing and storage, lifting services, and other transportation support activities (clearing, customs, forwarding).

**Industry Demand Analysis**

<table>
<thead>
<tr>
<th>Year</th>
<th>Demand of Trucks *</th>
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<tbody>
<tr>
<td>2013</td>
<td>200</td>
</tr>
<tr>
<td>2014</td>
<td>300</td>
</tr>
<tr>
<td>2015</td>
<td>400</td>
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<td>2019</td>
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<td>400</td>
</tr>
<tr>
<td>2028</td>
<td>300</td>
</tr>
<tr>
<td>2029</td>
<td>200</td>
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</tbody>
</table>

**Quality**
- CSC Producers Land transportation safety recommended practice: n° 365, revision 1.1 + Guidance Note 6
- At least ISO 9001

**Assumptions on Demand**
- Trucks for bulky material capacity = 15m³
- Trailer for equipment capacity = 20 tons
- Truck for food = 20 tons
- Rotation time for Mombassa = 15 days, for Uganda = 7 days

Source: SRC analysis
Note: * Trucks include heavy duty vehicles required for transportation of equipment, raw bulky material and food & water.
INDUSTRIAL SURVEY UGANDA

Main Issues

Ugandan companies call for more visibility over the future needs of the oil and gas projects and support from large companies, banks and public authorities.

Main issues to be addressed for enhancement of capacity building in Uganda (descending order as per suppliers’ answers):

1. Visibility over demand
2. Access to finance
3. Improvement of infrastructures
4. Administration
5. Training of skilled people
6. Reinforcement of O&G certification process
7. Increase capacity of suppliers

Source: BIC analysis, Survey of Ugandan companies, 2014
Note: *Process of obtaining required approvals (party, environmental, electricity installation, investment, etc.) from the public administration
INDUSTRIAL SURVEY UGANDA

Out of total manpower required, 15% are engineers & managers, 60% are technicians and craftsmen and 25% are people without any educational background (‘unskilled’).

Manpower split by skill level

Cumulative number of people (FTE)

- Managers
- Engineers or equivalent
- Technicians or equivalent
- Unskilled people

Source: SOG analysis, ONOOC: Total, I: c. Total: FTE. Note: manpower quantities were obtained under assumption of “forklift” approach to construction, as opposed to “skipchute” approach. Year 1 (Y1) represents the starting point of the Lake Albert project construction phase.
INDUSTRIAL SURVEY UGANDA

EDUCATION FOCUS WILL HAVE TO BE ON CIVIL CONSTRUCTION, ELECTRICAL AND MECHANICAL FIELDS

Manpower split by broad education background

Cumulative number of people (FTE)

- Other certifications*
- Chemical
- Petroleum engineering
- Geoscience
- CIVIL
- Electrical
- Mechanical
- Non-technical education
- Not required
TOTAL WANTS TO PROGRESS MORE THROUGH INNOVATION
TOTAL WANTS TO PROGRESS MORE THROUGH INNOVATION

- **INDUSTRIAL SURVEY**
  - CONCEPT TESTED – BEING IMPLEMENTED

- **E LEARNING THROUGH TABLETS PILOT TEST TO ENHANCE ACADEMIC LEVEL AT TECHNICAL HIGH SCHOOL ADMISSION.**
  - PILOT SHOULD START SEPT 2015

- **AGREGATION OF A DATABASE OF O&G QUALIFIED SUPPLIERS ABLE TO ESTABLISH TECHNICAL TRANSFER PARTNERSHIPS X**
  - GO LIVE SCHEDULED SUMMER 2015

- **SPONSORSHIP OF A DOCTORATE DESIGNED TO MEASURE VALUE CREATION THRU LOCAL CONTENT**
WHAT MAKES A GREAT O&G PRODUCING NATION
WHAT MAKES A GREAT OIL PRODUCING NATION 1/2

- REQUEST IOCs TO PRODUCE FIELD DEVELOPMENT MANPOWER CURVES BY JOB TRADE AND SKILL LEVEL AT PRE-FEED STAGE
- DEVELOP TECHNICAL COLLEGE TO O&G INTERNATIONAL STANDARDS ACCORDINGLY FOR LOCAL WORKFORCE TO PARTICIPATE. FOCUS ON SKILLED TECHNICIANS
- REQUEST IOCs TO PRODUCE INDUSTRIAL DEMAND AT PRE-FEED STAGE AND PUBLISH IT.
- DEVELOP LESS SOPHISTICATED INDUSTRY SEGMENTS FIRST (MAYBE AGRICULTURE FOR CATERING)
- PROMOTE DFI: ALLOW FOR O&G DEVELOPMENT AREAS WITH
  - CHEAP AND ABUNDANT LABOR
  - TRAINING INFRASTRUCTURES
  - INFRASTRUCTURES, IN PARTICULAR POWER
WHAT MAKES A GREAT OIL PRODUCING NATION 2/2

● PROVIDE FOR DOMESTIC GAS (IF APPLICABLE) AND POWER GENERATION (IF APPLICABLE) IN THE PSC / MINING LEASE WHEN SPECIFYING LOCAL CONTENT

● ACCEPT TO BROADEN THE LOCAL CONTENT CONCEPT TO LOCAL VALUE CONCEPT (POWER GENERATION, LOCAL INFRASTRUCTURES, TRAINING, INDUSTRIAL PARKS,…) LEVERAGING SYNERGIES WITH THE PROJECT.

● BE OPEN TO TRADE OFFS OFFERED BY IOCs FROM ONE REQUIREMENT TO ANOTHER OFFERING MORE VALUE

● SPECIFY WORK TO BE PERFORMED IN-COUNTRY RATHER THAN BY COMPANIES OWNED BY LOCALS.

● SET UP A LOCAL CONTENT MEASUREMENT METHOD CONSISTENT WITH THE COUNTRY DEVELOPMENT STRATEGY