NATIONAL PETROLEUM INSTITUTE

OVERVIEW OF OIL AND GAS IN MOZAMBIQUE

IPAD - MOZAMBIQUE POWER AND GAS FORUM

Maputo, October 2013
INTRODUCTION
**Location:** South-Eastern Africa

**Land area:** approximately 800,000 Sq.km

**Coastline:** Approximately 2,700 Km

**Natural Resources:** Hydropower, natural gas, coal, minerals, raw wood, agriculture and fertilizer

**Capital:** Maputo (about 2 million people)

**Population:** 22.8 million (2011)
- 70% live in the countryside
- 30% live in urban area

**Official Language:** Portuguese

**Independence:** 1975

**President:** Armando Emilio Guebuza
## MACROECONOMIC DATA

<table>
<thead>
<tr>
<th>INDICATORS</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP Nominal (USD billion)</td>
<td>7.3</td>
<td>7.8</td>
<td>8.32</td>
<td>8.70</td>
<td>10.42</td>
<td>13.74</td>
</tr>
<tr>
<td>GDP per capita (USD)</td>
<td>367</td>
<td>370</td>
<td>457.7</td>
<td>500</td>
<td>526</td>
<td>625</td>
</tr>
<tr>
<td>Average Exchange Rate (USD/MZM)</td>
<td>25.5</td>
<td>25.8</td>
<td>25.9</td>
<td>26.71</td>
<td>32.83</td>
<td>27.14</td>
</tr>
<tr>
<td>GDP Growth Rate</td>
<td>7.9</td>
<td>7.3</td>
<td>6.7</td>
<td>4.5</td>
<td>6.8</td>
<td>7.2</td>
</tr>
<tr>
<td>Average Annual Inflation</td>
<td>12.6</td>
<td>8.2</td>
<td>12.5</td>
<td>10.69</td>
<td>12.7</td>
<td>10.8</td>
</tr>
</tbody>
</table>
- Optimal resource recovery of all petroleum resources
- Securing resource rent
- Allowing Industrial development
- Retain an efficient Petroleum regulatory and administrative regime
- Ensure production projects development and revenue collection
INSTITUTIONAL/REGULATORY FRAMEWORK
INSTITUTIONAL/REGULATOR FRAMEWORK

Act
Secondary Legislation
Model Contract

Model Contract

Secondary Legislation

Act

INSTITUTIONAL/REGULATOR FRAMEWORK
EXPLORATION ACTIVITIES
SEDIMENTARY BASINS

- Rovuma Basin
- Mozambique Basin
- Maniamba Basin
- Middle Zambeze Basin
- Lake Niassa Basin
SEDIMENTARY BASINS

Rovuma Basin

Location: Along the Eastern margin of Northern Mozambique and Southern Tanzania

Basin type: Passive Margin Continental

Area: 29.500 Sq Km
  • Onshore – 17.000 Sq Km
  • Offshore – 12.500 Sq Km

Mozambique Basin

Location: Occupies the broad costal plain and continental shelf of Southern Mozambique.

Basin type: Passive Margin Continental

Area: 500.000 Sq.km
  • Onshore – 275.000 Sq Km
  • Offshore – 225.000 Sq Km
EXPLORATION ACREAGE

**Pande - Temane**
- ENH (25%)
- IFC (5%)
- Sasol (70%)

**16 & 19**
- ENH (15%)
- Sasol (50%)
- Petronas (35%)

**Buzi**
- Buzi Hydrocarbons (75%)
- ENH (25%)

**Area A**
- Sasol (90%)
- ENH (10%)

**Onshore Rovuma**
- Anadarko (35.7%)
- PTT (10%)
- ENH (15%)
- Maurel & Prom (24%)
- Wentworth (15.3%)

**Area 1**
- Anadarko (36.5%)
- Mitsui (20%)
- ENH (15%)
- Bharat P. C. (10%)
- Videocon E. R. (10%)
- PTT (8.5%)

**Area 4**
- Eni (50%)
- CNPC (20%)
- ENH (10%)
- Galp (10%)
- Kogas (10%)

**Area 2 & 5**
- Statoil (40%)
- Impex (25%)
- Tullow (25%)
- ENH (10%)

**Area 3 & 6**
- Petronas (50%)
- Total (40%)
- ENH (10%)
NATURAL GAS DISCOVERIES IN MOZAMBIQUE

Rovuma Basin (discovery years: 2010/13)
- About 10 offshore discoveries:
  - Prosperidade
  - Mamba
  - Golfinho/Atum

Mozambique Basin

Onshore
- Pande field (1961)
- Buzi discovery (1963)
- Temane field (1967)
- Temane East discovery (2003)
- Inhassoro discovery (2003) (includes oil)

Offshore
- Njika offshore discoveries (2008-9)
Area 1

- **100 tcf** in place (18-36 Tcf recoverable) in Area 1

Area 4

- **90 tcf** in place in Area 4
MOZAMBIQUE BASIN

Pande/Temane PSA (in Place)

- 1.3 – 10.4 tcf in place
- 11- 400 MMbbls Condensate in place

Pande/Temane PPA

- 3.5 tcf recoverable
A total of 189 wells drilled

More than 100,000 km of 2D

Approximately 20,000 Sqkm of 3D
5th Licensing round to be launched 2013

More licensing rounds to follow after the new data acquisition
NATURAL GAS VENTURE
865 KM NATURAL GAS PIPELINE MOZAMBIQUE SOUTH AFRICA
STRUCTURE OF NATURAL GAS VALUE CHAIN

**Field**
- Sasol Petroleum Temane 70%
- Moz Govt 25% (Via ENH/CMH)
- World Bank / IFC 5%

**CPF**
- Sasol Petroleum Temane 70%
- Moz Govt 25% (Via ENH/CMH)
- IFC 5%

**Pipeline (ROMPCO)**
- Sasol Gas Holdings (50%)
- SA Govt 25% (Via CEF/Gas)
- Moz Govt 25% (Via ENH/CMG)

**Market**
- Sasol Gas external markets
- Sasol Gas internal markets:
  - Spring Lights Gas (49%)
  - Sasol Synfuels
  - Sasol Oil
    - Tshwarisano 25%
    - LFB 75%
  - Sasol Chemical Industries

INP (Regulator in Mozambique)

NERSA (Regulator in SA)
In 2004 Mozambique became a producer and exporter of natural gas from Pande & Temane in the centre of the Mozambique.

Actual annual production:

- Rump up from 120 MGJ to 149 MGJ

Total investment:

- $1 billion
UTILIZATION OF NATURAL GAS
NATURAL GAS UTILIZATION
LNG PROJECTS
MARKET OPPORTUNITIES
INVESTMENT OPPORTUNITIES - LNG
INVESTMENT OPPORTUNITIES - LNG

- Petrochemical
- Pipeline
- Power Generation
- Rail Transportation
- Accommodation
- Health Care
- Air Transports
- Ports
- LNG Development
- Railway
- Power Generation
GAS MASTER PLAN
GAS MASTER PLAN

Objectives:

- An understanding of gas-utilization sector (net-back analysis) to assess the options for local development in Mozambique
- A strategy for the optimal location of gas off-take and development poles consistent with current development planning
- Address optimal pricing structures and mechanisms for the use of gas revenue streams by Mozambican interests (GoM and others)
- A roadmap for promoting social improvements (employment, education, environmental protection, tourism) consistent with GoM Plans.
CHALLENGES

- Construction of natural gas pipelines and LNG facilities
- Distribution systems (villages and remote locations)
- Local processing of natural gas in different industrial products
- Guarantee competitive prices for the natural gas in the local market
- Training and employment of local staff in natural gas related industries
- Ensure local content in provision of goods and services
FINAL REMARKS
FINAL REMARKS

- Underexplored sedimentary basins with active petroleum systems offshore Rovuma and Mozambique Basins
- Huge natural gas discoveries offshore Rovuma Basin Areas 1 and 4
- Potential markets for consumption of natural gas close to Mozambique
- Investment in logistics, constructions, telecommunications
- LNG Projects will boost industrial development
- Favorable legal, regulatory and fiscal framework
- Political stability
THANK YOU VERY MUCH