



Natural Gas in Developing Countries: Investment Needs and Opportunities for International Cooperation

Natural Gas Development in Mozambique

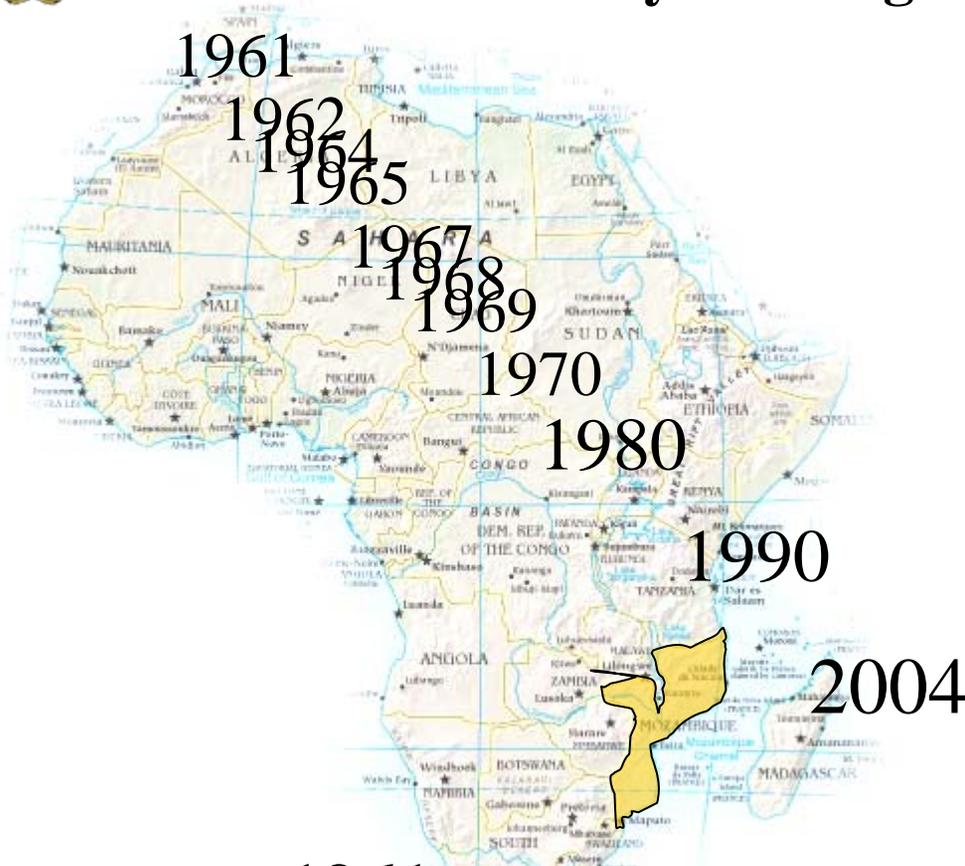
by

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Chairman of INP



Development of gas discoveries in virgin territory is a long term business.



1961: First discovery of gas in Mozambique

2004: Start of first commercial production

Gas in Mozambique

FIELDS

Pande - 1961

Buzi - 1962

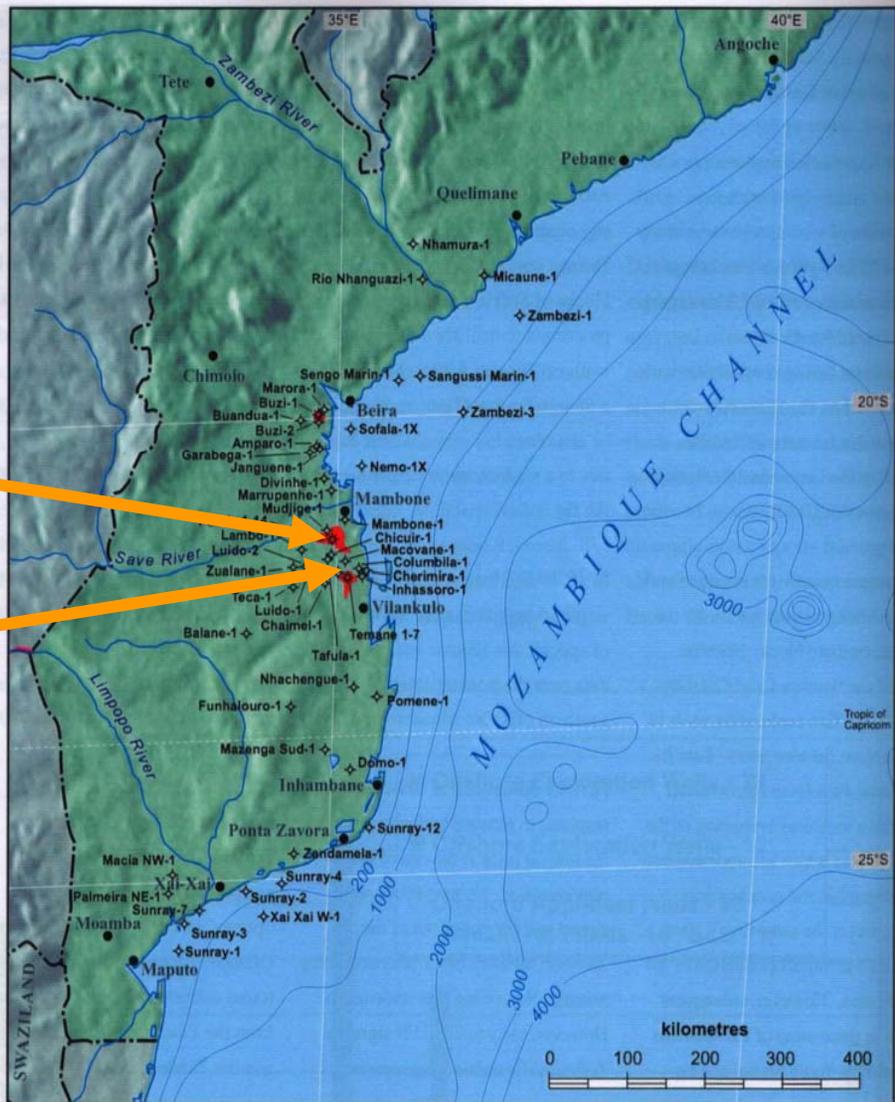
Temane - 1967

Inhassoro - 2003

RESERVES

Pande - 2.7 TCF

Temane - 1.0 TCF

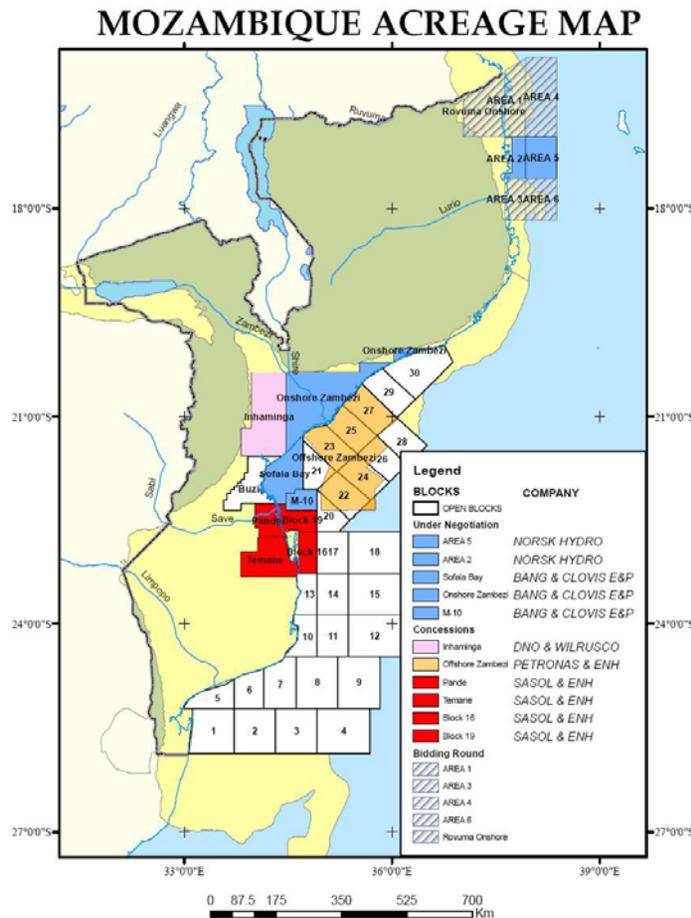


Mozambique Basin - Exploration Database: Wells

Figure 20

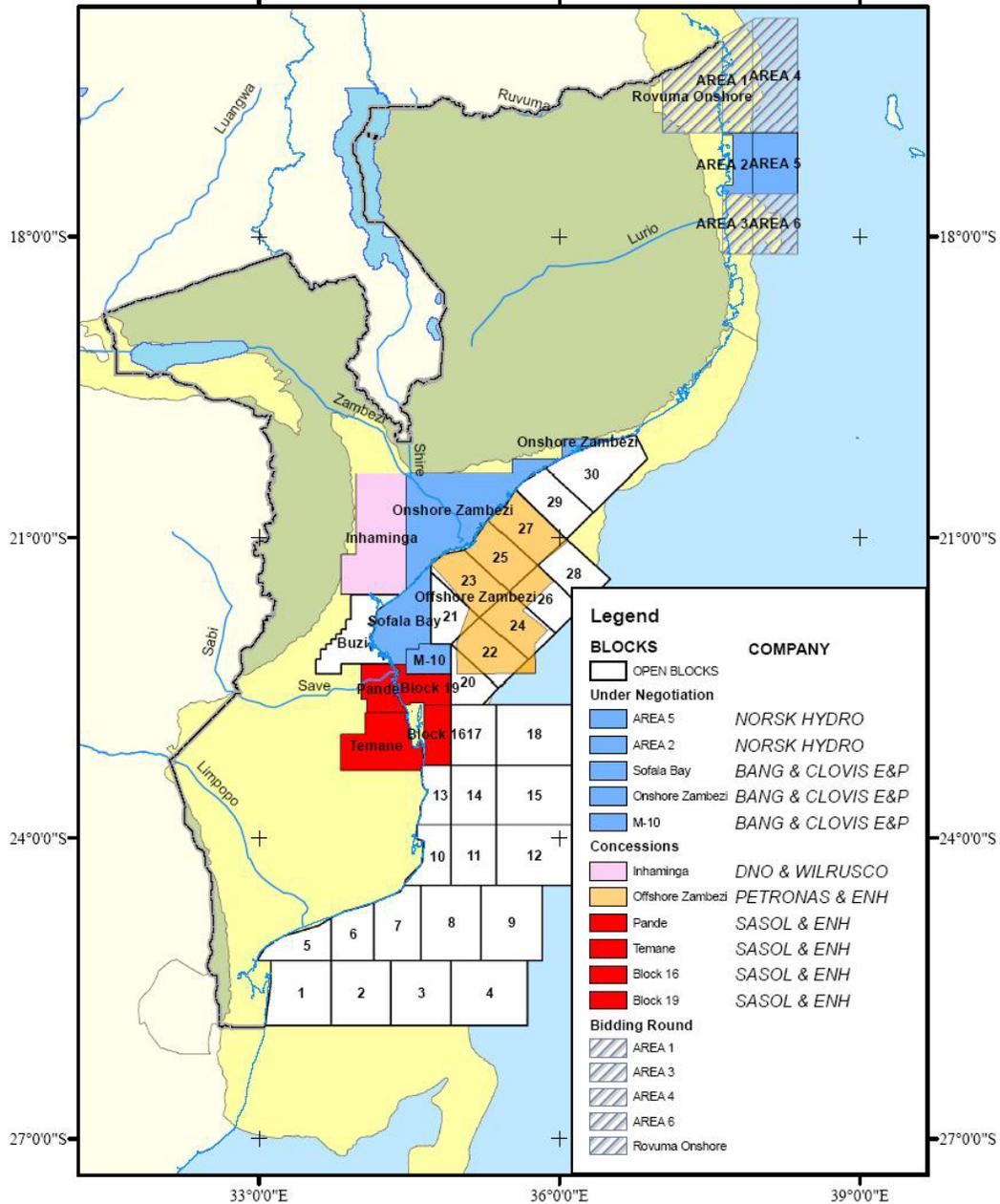


Hydrocarbon Potential in Mozambique



- 82 exploration wells drilled
- 20 wells have shows of gas, asphalt/ traces of dead oil
- Numerous gas and oil seeps
- Exploration for more gas near Temane and Pande. Additional prospects are identified to the north and east (offshore).
- Several companies are exploring for oil and gas in the Beira region.
- Concession awards this year in Rovuma basin.
- Potential for more hydrocarbons discoveries, including crude oil.

MOZAMBIQUE ACREAGE MAP





Why were natural gas resources in Mozambique locked up for decades?

- In the 1960-ies companies only drilled for crude oil in remote regions like Mozambique.
- Natural gas discoveries were not perceived as having any commercial potential; because:
- No markets for natural gas existed (except limited coal gas distribution in a few cities in South Africa).
- From 1981-96 the Mozambican Government evaluated many gas-consuming industrial possibilities (LNG, fertiliser, iron reduction, power generation).
- The Maputo Iron and Steel Project was economically feasible until the steel market crack in 1997.
- Then in 1998 Sasol proposed to pipeline Temane and Pande gas to their petrochemical plants in South Africa.



Regulatory Cooperation Mozambique – South Africa



- To facilitate the Gas Project, the two Governments initially aimed only at a cross-border treaty for the pipeline, but ended up negotiating a general “Bi-lateral Agreement on Natural Gas Trade”.
- Overall objective of this treaty is to promote and facilitate gas trade between the two countries, and to be an “umbrella agreement” for specific gas trade projects
- It sets up a Gas Commission to oversee all cross-border gas trade and be the forum of communication between the two countries.
- A key element is harmonisation of regulatory requirements.
- Other elements include taxes and custom duties, metering, inspection, safety and environmental protection.
- Common objective at high political level is to develop Mozambican gas resources for markets in both countries.

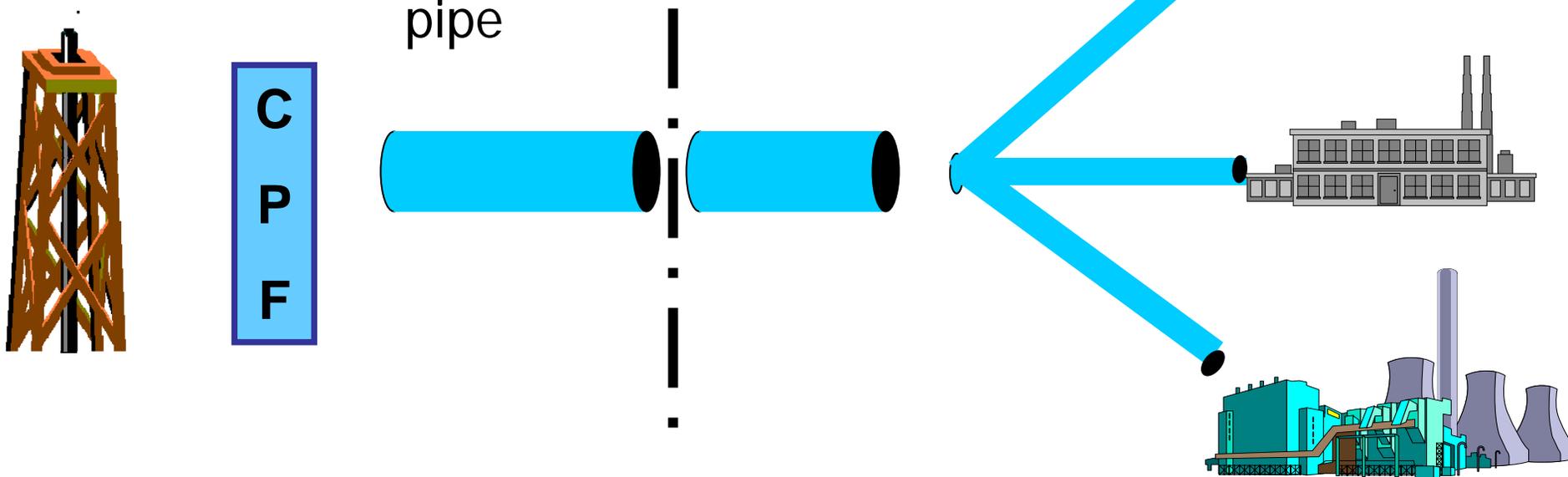


Mozambique – RSA Natural Gas Project

- Co-ordinated development of both Pande and Temane gas fields (total of 34 producers)
- One central gas processing facility (the “CPF”)
- An 865 km- 26” diameter steel pipeline to Sasol’s coal-to-liquids complex at Secunda in South Africa (531 km on Mozambican side)
- System capacity: 120 Mill GJ/year (3 billion cu.m/yr) (pipeline capacity can be doubled by installing three compressor stations).
- Production period: 25 years from start in Jan 2004.
- Gas buyer: Sasol Gas
- Market: Sasol’s petrochemical factories and conversion of the syntetic gas distribution system to natural gas.



Natural Gas Project - Gas Chain



CMH 30%
Sasol 70%

Sasol 100%
CMH 30%
Option

Sasol
CMG

iGas (CEF)

BEE + privatisation

50%+

up to 25%

up to 25%

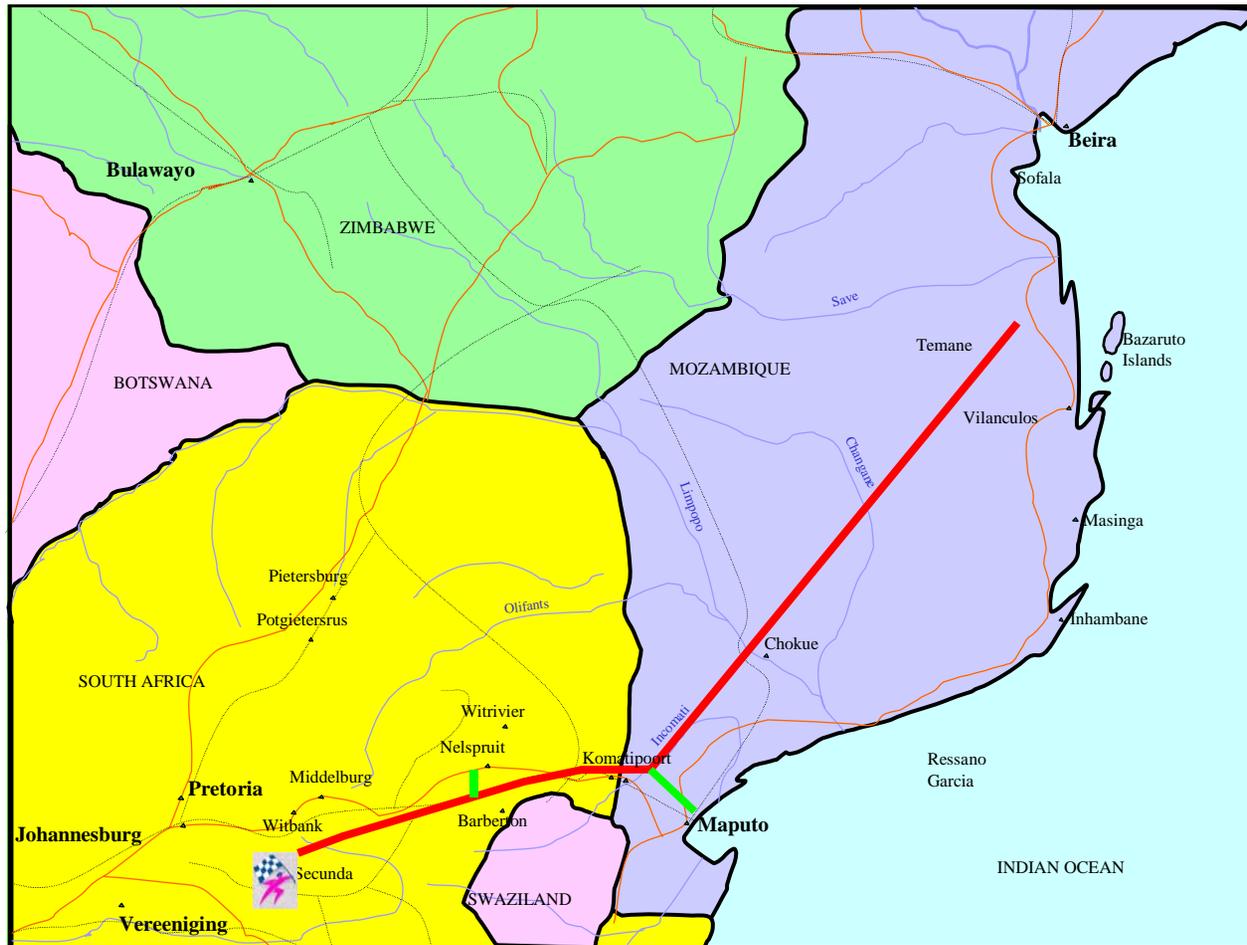
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Sasol Gas internal and external markets





GAS PIPELINE: TEMANE- SECUNDA ROUTE





The Mozambique – RSA Natural Gas Project





Gas to Mozambican Markets



- Government's policy is to maximise use of indigenous gas to create economic/ industrial development in Mozambique.
- Government can take its 5% royalty in-kind (royalty gas) and wishes to use this facility to “kick-start” a local gas consuming industry.
- Has so far granted concessions to distribute gas in Vilankulo/Inhassoro (near the gas fields) and in Matola/Machava (the country's main industrial area).
- Studying other opportunities to market royalty gas for industrial, commercial and domestic use in Mozambique



Gas to Mozambican Markets-2



- Matola Gas Company buys royalty gas taken off the main pipeline at Ressano Garcia and pipe it in a 75 km-10" line to Matola (the industrial suburb of Maputo).
- The “anchor” customer is Mozal- an aluminium smelter (output 800 tons/year refined aluminium).
- Many smaller industrial and commercial enterprises are now switching from heating oil or diesel to indigenous natural gas. The customer base is steadily expanding.
- Natural gas also benefits the local population through small “community kitchens”.
- Models for further gas distribution are being considered.



Gas pipeline Temane – Secunda





Gas Market in Mozambique



Metering Station at Mozal Aluminium Smelter



Gas Market in Mozambique



PRS-1 Ressano Garcia



Gas Market in Mozambique



PRS-1 Ressano Garcia



PRS-2 Matola



Gas Market in Mozambique



PRS-1 Ressano Garcia



Temane and Pande Fields - Mozambique's first Gas Producers

- The Mozambique – South Africa Natural Gas Project is a success story
- Completed on time and within budgets
- Availability of gas in the market creates new demand, both in RSA and in Mozambique
- New gas resources will expand the national gas production
- Very positive effects on growth and generation of revenue to the state



**THANK YOU
FOR YOUR ATTENTION**

