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PANDE TEMANE GAS EXPORTS TO SOUTH AFRICA:

First major extractive sector projects fails Mozambique

Natural gas is said to be Mozambique's future, but the first gas project – Pande Temane – has generated virtually no government revenue. By removing production sharing from the petroleum agreement and agreeing to an abusive pricing formula, the government gave away most of its share at the start. Aware of these unfair terms, MIREM, the IMF and the World Bank still forecast substantial government revenues that have never arrived. The annual sale value of Mozambique gas in South Africa is now more than $800 million per year while total government revenue over the first eight years of the project is less than $50m.

Summary

Despite being the 6th largest exporter of natural gas in Africa, Mozambique receives no significant government revenue. Gas worth more than $700 million per year across the border yields less than $10 million each year here at home.

Most of the government's revenue was lost in negotiations in 2000 and 2002.

The petroleum sector in Mozambique is based on a production-sharing scheme where the main source of government revenue comes from an increasing share of the petroleum produced. Yet after gas was found, the government agreed in 2000 to remove the production-sharing component without securing a compensating increase in royalty and corporate income tax rates.

The unreasonably low royalty and corporate income tax rates that remained in place have then been fundamentally undermined by an abusive pricing agreement in 2002 that allows Sasol to purchase gas in Mozambique for 1/5th the price that it sells the gas for in South Africa. In 2009, for example, Sasol purchased natural gas in Mozambique for $1.44 and sold it to customers in SA for more than $7.00.

The bad deal that Mozambique negotiated suggests that, like Mozal, the Pande Temane project was never designed to make any money for the government. Yet even knowing the terms of the agreement, MIREM and the World Bank claimed that the government would make around $2 billion from the project over its 25-year lifecycle.

This is information that the government does not want you to know. The core terms of the agreement are held in confidential contracts and sales agreements. Repeated requests to government Ministries and the World Bank to provide comprehensive data on government revenues met with outright refusals. Good governance in the extractive sector demands external oversight. The government should commit to full disclosure of all extractive sector contracts – past and future – and to publish all relevant revenue data.

Based on this analysis, the Centre for Public Integrity calls on the government to: renegotiate the terms of the Pande Temane project to (1) compensate for the loss of revenue that would have come from production sharing and (2) base the gas sale price on the value of Mozambican gas in South Africa;

demand that MIREM, the IMF and the World Bank explain their flawed revenue projections, and ensure that these errors do not compromise current projections on coal from Tete and gas from Rovuma; and

revise the draft Petroleum and Mining laws to ensure that extractive sector contracts, annexes and sales agreements are fully disclosed and available to Mozambicans to assess whether the country is getting a "fair "deal.

Introduction

There is a lot of talk about the extractive sector in Mozambique. Most of the talk is about what the future will look like. Very little is said about the only real experience Mozambique has with the extractive sector: the Pande-Temane gas fields in Inhambane Province.

Most observers see natural gas exports to South Africa as one of the first generation mega-projects designed not to generate government revenue but to generate investor confidence in post-civil war Mozambique. Generous fiscal terms were offered, it is said, in order to attract inward investment.

The World Bank states in a recent analysis that, "these investments [Mozal and Sasol] received substantial concessions from Government *in order to* demonstrate that Mozambique's 'doors were open for business,' and the approach has started to pay off."[1]

By this logic, the project was not designed to generate significant government revenue and no one should now be surprised by the marginal annual payments.

It seems to makes sense, but it is also untrue. CIP can find no evidence in project documents to suggest that minimal government revenue was to be expected. In fact, the documents show exactly the opposite. The government and donors, including the IMF and the World Bank, explicitly justified their support for the project in terms of government revenue.

The initial World Bank project, launched in 1994 to promote the development of the gas fields, stated "The principal justification for the development project is the foreign exchange and tax revenue likely to accrue to Mozambique.[2]" The same was true when a second phase of support from multiple arms of the World Bank Group was launched in 2004: "The South Africa Regional Gas Project (SASOL) aims to generate substantial revenues through the development and export of natural gas between Mozambique and South Africa."[3]

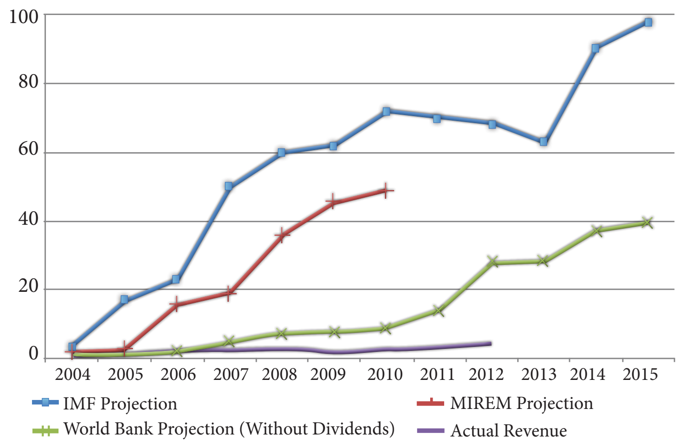
Supporters of the project – government and donors – provided forecasts of likely government revenue. Projections from the World Bank and the International Finance Corporation were the most cautious, suggesting lifetime government revenue of nearly $500 million, in addition to dividend payments from CMH.

Others were much more optimistic. The Multilateral Investment Guarantee Agency (MIGA), a member of the World Bank Group, justified their contributions to the project by saying that "the country will receive significant royalty payments as well as dividends, production bonuses, and corporate taxes in excess of US$2 billion over the 25-year lifetime of the project."[4] MIREM generated its own projections suggesting the project would generate close to $2 billion dollars for the government.[5] In 2007, three years after the project had begun, the IMF reported "the total value of government revenue is estimated to be around US$2.14 billion."[6]

These projections were not rough estimates. They were based on detailed modeling of production volumes, capital costs and estimated prices. Those involved in projecting revenues had access to the specific terms of the contracts governing the gas fields and the pipeline - in most cases they were commercial partners in the venture. Figure 1 shows how revenue projections including royalties, corporate income tax and dividend payments compare with actual government receipts.[7]

option. Although the government approached dozens of international oil companies in 1990, none of them expressed interest in developing the project. In 1994, the World Bank initiated a project to support the search for interested investors and the negotiation of commercial agreements.

Figure 1: Projected Government Revenue versus Actual Revenue

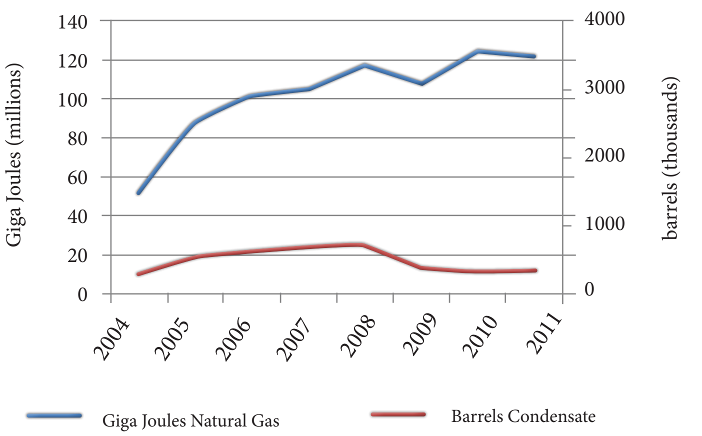


The only viable destination for the gas was South Africa. But separate early negotiations with Sasol and Enron both faltered on the unacceptably low price of $1.6-1.7 per giga-joule of gas that the companies seemed willing to pay.[9] In 1996, Sasol reconsidered the project and acquired the exploration and development rights to the Temane and Pande fields from Arco and Enron. Two years later, in 1998, they signed an initial Production Sharing Agreement for the Pande fields. Successful exploration led Sasol to propose a pipeline from the gas field in Inhambane to their petrochemical plants in Secunda, South Africa. In 2000 a Petroleum Production Agreement was signed for the gas fields of Pande and Temane, and a new Production Sharing Agreement was signed to cover the surrounding area.

According to the documents, the analysts did not believe they were being optimistic. The World Bank analysis concludes, "As the base case has made certain conservative assumptions, the true economic benefits realized by the Project could be much higher."[8] The World Bank projection would certainly have been much higher had they anticipated the massive spike in international oil prices. While their model assumed a price of around $20 per barrel of oil, the actual price between 2004 and 2012 averaged $73.

The projected was formally approval in September 2001 and construction began in July of 2002. It was completed on schedule, though with substantial cost overruns. In February

Figure 2: Natural Gas and Condensate Production



Background

The Temane and Pande gas fields in Inhambane Province, operated by the South African energy company Sasol, are the only source of natural gas in Mozambique.

Gas was first discovered in Pande in 1961, but it was not until the mid-1990s that commercial production became a serious

2004, gas began to flow from the fields in Inhambane Province, through the 860km pipeline, to Sasol's Secunda plant in South Africa.

In 2007, Sasol proposed a $400 million expansion of the Pande and Temane project, increasing the production capacity of the Central Processing Facility by 50% from the original 120 million giga-joules (mGJ) to 183 mGJ. The proposal was approved in 2009 and increased production began to come online in May 2012.

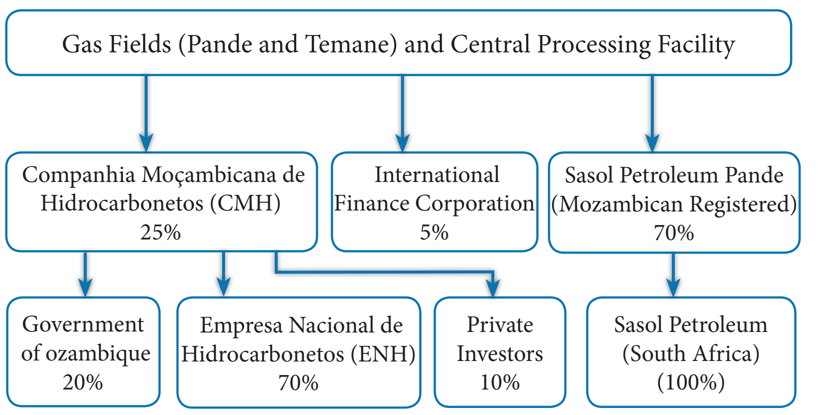
Ownership Structure

The ownership structure for the Pande and Temane gas fields and the central gas processing facility is laid out in Figure 3.

Sasol Petroleum Pande (SPT), a Mozambican subsidiary of Sasol Petroleum International of South Africa, owns 70% of the gas fields and central processing facility.

ENH had the right to a 30% share. As part of the financing deal, 5% was transferred to the International Finance Corporation (IFC). The ENH share is held by the subsidiary Companhia Mocambicana de Hidrocarbonetos (CMH).

Figure 3: Ownership Stakes



CMH itself was originally owned 80% by ENH and 20% by the Mozambican government. Mozambican individuals and companies were offered a 10% stake in 2008, resulting in a current split of 70% ENH, 20% Government and 10% individual shareholders.

A series of contracts signed between 2000 and 2002 set the terms for 25-30 years of the production, sale and export of natural gas.

Table 1: Contracts for Pande Temane Natural Gas

Contract	Description
Petroleum Production Agreement (26 October 2000)	Gives SPT/CMH exclusive rights to produce petroleum in the Pande Temane Fields
Pipeline Agreement (26 October 2000)	Authorizes ROMPCO to construct, own and operate the gas pipeline
Gas Sales Agreement (27 December 2002)	Sets the price for gas between Sellers (SPT/CMH) and Buyer (Sasol Gas of South Africa
Joint Operation Agreement (27 December 2002)	Establishes rights and obligations of owners of gas fields and Central Processing Facility

Sources of Government Revenue

The three partners in the unincorporated joint venture – SPT (70%), CMH (25%) and the IFC (5%) –provide payments to the Government of Mozambique under three main categories: royalties, corporate income tax and dividends.

Royalties: The royalty rate is set at 5% and can be taken either "in kind" (the Government receives natural gas) or "in cash." Royalty payments are shared between the three owners according to their percentage stake.[10]

Corporate Income Tax: The income tax rate for SPT is set at 17.5% for the first six years of production. This 50% reduction from the previous 35% income tax rate was a routine investment incentive during in the early 2000s. After the six-year tax holiday, the rate reverts to the prevailing rate of 32%. Although CMH is mostly government-owned, it pays corporate income tax like any other company according to the same terms as SPT. The IFC is an international organization owned by its member states and as a result it pays no income tax.

record of payments received beyond what has been published in Mozambique's EITI reports.

The data compiled below in Table 2 is drawn from what we believe to be all available public information including reports from the IMF and the annual financial statements from CMH. Specific requests to the Mozambican authorities and the IFC to either verify or contest these figures were also denied.

Table 2: Actual Government Revenue from Pande Temane[11]

	2004	2005	2006	2007	2008	2009	2010	2011	2012	TOTALS
SASOL Petroleum Temane										
Royalty Payments	1.2	0.9	1.8	1.8	2.4	1.6	2.7	2.7	3.2	18.2
Corporate Income Tax	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CMH										
Royalty Payments			0.6	0.7	0.9	0.6	1.0	1.0	1.1	5.8
Corporate Income Tax					2.8	2.3	0.0	1.1	4.7	10.8
Dividends (20% Government Share)	0.0	0.0	0.0	0.0	0.0	0.4	0.2	0.5	0.2	1.3
Internacional Finance Corporation										
Royalty Payments			0.1	0.1	0.2	0.1	0.2	0.2	0.2	1.2
Corporate Income Tax	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
REVENUE TOTAL	1.2	0.9	2.5	2.6	6.2	5.0	4.1	5.3	9.4	37.3

Dividends: Mozambique also receives dividend payments based on profits generated by CMH. Dividends are divided according to the share of ownership of the company: 70% to ENH, 20% to the Government of Mozambique and 10% to private Mozambican shareholders.

Accounting for Minimal Government Revenues

There is no reliable source of information on government revenue from the Sasol gas project. Repeated requests to relevant government ministries and agencies as well as to the IFC were met with explicit refusals to provide

How can it be that the government receives so little revenue from a profitable operation now more than one-third of the way through the 25 years of the project lifecycle? Three factors are most important: the removal of production sharing provisions for the gas producing areas of Pande Temane; the acceptance of an abusive pricing formula to determine the sale price of gas; and significant capital cost overruns.

Before looking at the specifics, it is important to review the dynamics of these negotiations. In essence, the Pande Temane agreements set the terms for the sale of natural gas by Sasol Petroleum Temane (the Mozambique subsidiary) to Sasol Petroleum International (the South African based owner of Sasol Petroleum Temane). The solution to this clear conflict of interest was to have CMH negotiate on behalf of the "seller" with Sasol negotiating only as the buyer.[12] Perhaps CMH inexperience explains how Mozambique ended up with such a bad deal. Outside technical assistance did not seem to help much either. World Bank experts "examined whether there were any obligations of the GoM that were particularly onerous or whether there was any fundamental imbalance in any of the documents to which the GoM is a party. It was concluded that this was not the case."[13]

No Production Sharing

Petroleum operations in Mozambique are normally governed by Production Sharing Agreements. Government revenue is based on three main sources: royalty payments calculated as a percentage of the value of the gas produced; income tax payments at the established corporate rate; and a growing share of the gas produced based on the profitability of the project. As the name implies, the majority of government revenue comes from the share of gas production allocated to the government.

A Production Sharing Agreement signed in 1998 governed Sasol's exploration of the Pande area. But this agreement was superseded by two new agreements as the project moved towards development.

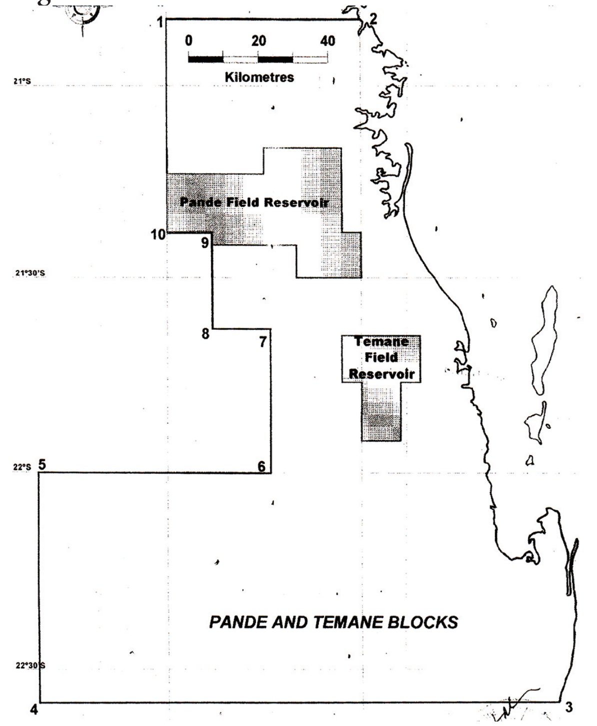
In 2000, a revised Production Sharing Agreement was signed for the non-gas producing areas of the Pande and Temane block. The terms of this agreement are: a royalty rate of a modest 5%; an the income tax rate of the then-normal 35% with a 50% reduction for the early years; and a "profit" petroleum split providing the government with only 5% at the outset and rising to a ceiling of only 40%. By international standards these terms would be considered favorable for the company and unfavorable for the government.

But the Production Sharing Agreement of 2000 is an irrelevant document because it does not cover the areas of Pande and Temane where gas is actually produced.

A separate Petroleum Production Agreement was put in place at the same time to cover the Pande and Temane field reservoirs (See Figure 4) where gas was going to be produced. Here the "production sharing" element – the main source of government revenue – was simply removed, while royalty and tax rates remained unchanged.

There is nothing inherently better about a production-sharing agreement in comparison to a system based only on royalties and income tax. They can both be designed yield the same "government take" – the same proportion of profit that goes to the government. The difference is simply that royalty and income tax rates must be substantially increased to offset the loss of the government's share of "profit" petroleum.

Figure 4: Gas Fields v. Concession Block



Yet in the case of the 2000, Petroleum Production Agreement for Pande and Temane, the profit-sharing component was abandoned with no corresponding increase in the royalty or income tax rates. The government simply gave away its main source of revenue from the project for the two specific areas where commercially viable gas had been found.

Table 3: Fiscal Terms for Pande-Temane

	Gas Producing	Surrounding Area
Royalty	5%	5%
Corporate Income Tax	17.5% - 32%	17.5% - 32%
Starting Sharing of Gas	5%	0
Eventual Share of Gas	40%	0

An Abusive Price Formula

The price at which SPT, CMH and the IFC sell gas to Sasol in South Africa is based on a complicated pricing formula set out in the Gas Sales Agreement negotiated in 2002. The sale price is calculated by combining a "wellhead" price and a central processing facility (CPF) "handling fee."[14] Both prices are based on formula benchmarked against three separate international petroleum prices.

The wellhead price takes as its base reference price $0.50/GJ that is then adjusted according to a weighted average of crude oil, diesel and fuel oil. For the first ten years of production, however, the wellhead price is capped with a ceiling of $0.67.[15]

The CPF handling fee is based on a reference cost of $0.35 and is then adjusted by an inflation factor (weighted at 59%) and a fuel price factor (weighted at 41%). No price ceiling applies to the calculation of the handling fee. The inclusion of international fuel prices in Central Processing Facility handling fee is highly unusual, as noted in a previous study of the gas sector in Mozambique, as these prices have no bearing on the costs of production.[16]

According to the Gas Sale Agreement formula, the anticipated base price was a mere $0.85 ($0.50 wellhead + $0.35 handling fee). Given the massive spike in international oil prices and adjustments for considerable inflation, the two prices combined have resulted in an average gas sale price of just over $1.40/GJ during the first nine years of production. As international petroleum prices have exceeded the price ceiling throughout the entire period of operations, the wellhead price has been a consistent $0.67. The CPF handling fee therefore has accounted for more than half of the overall sale price of Pande and Temane natural gas since production began.

As Figure 5 illustrates, the price paid for Mozambique gas is far below European or Asian benchmark prices.[17]

Figure 5: Mozambique Gas Price compared with European & Asian Benchmarks

Inflated Expenses?

A third reason for minimal government revenue is the higher than expected expenses that offset project income. Extractive sector projects often generate less government revenue than expected because of a combination of capital cost overruns and the common inclusion of deductions involving ineligible or inflated expenses.

Capital costs for the first phase of the project were far higher than originally forecast. MIREM projections for example were based were based on capital cost estimates of approximately $600 million. In 2003, the World Bank projections were based on cost estimates of $721 million with $317 million for upstream (field development and the central processing facility) and $404 million for the pipeline.[18]

According to ENH, final costs for the upstream portion were $446.5 million and pipeline costs were $753.5 resulting in a $1.2 billion total.[19] This represents an increase over initial estimates of 66%. The projections and actual costs are set out in Table 4. Capital cost overruns on large infrastructure projects are not unusual, but miscalculations of more than 60% suggest serious mistakes in forecasting, or significantly inflated expense claims (or both).

A second set of capital costs came with the project expansion. In this case, construction costs came in under-budget. CMH borrowing initially suggested that expansion would cost $400 million. In fact, increasing capacity from 120mGJ per year to 183mGJ per year cost only $307 million.[20]

The scale of these expenses reduces the amount of income tax that Sasol Petroleum Temane (SPT) and Companhia Mocambicana de Hidrocarbonetos (CMH) will pay. As Table 2 shows, for CMH this has meant that corporate income tax payments have been modest.

In the case of SPT, however, they have not paid any corporate income tax at all. How can one partner in the unincorporated joint venture pay corporate income tax (CMH) and the other not pay corporate income tax (SPT) when their share of income and expenses in the project should be proportional? The answer seems to be that unlike CMH, SPT can write off expenses from exploration in other concessions in Mozambique against revenue generated in Pande and Temane.[21] A tax audit of Sasol was conducted in 2012. But there is no public information on either the scope of the audit (did it include a review of massive capital cost overruns, did it look for inflated prices where goods and services were provided by affiliated companies in South Africa?) or the results.

Table 4: Capital Costs ($ millions)

	Projected	Actual	% Over
Upstream Costs	$317	$446.5	40%
Pipeline Costs	$404	$753.5	87%
Total	**$721**	**$1,200**	**66%**

Impact on Main Sources of Government Revenue

Low tax rates, higher than expected capital costs, and a very low gas sale price have major effects for each of the four sources of government revenue.

Royalty Payments: Royalty payments are the one sure source of government revenue in the early years of a project. They begin with production and are simply a percentage of the sale value of the natural gas. In the absence of a production-sharing scheme, a royalty of 5% is very low by international standards. Furthermore, the royalty payment is based only one component of the overall sale value: the wellhead price.

The royalty can be taken either "in kind" (the government receives natural gas) or "in cash." In 2012, just over half of the royalty payment was taken "in kind." When the Government takes the payment "in kind," it is required to pay the handling fee as well as a transportation tariff. The gas is sold to the Matola Gas Company at cost. Government revenue from royalty gas taken "in kind" therefore is only $0.67/GJ.

The other half of the royalty payment is taken in cash. Once again, the wellhead price is the reference point for the calculation. This price is capped at $0.67 for the first ten years. Deductions are made for the costs of gathering, processing and transportation before the royalty is assessed.

SPT Income Tax Payments: Corporate income tax payments from SPT were a significant component of all of the projections for government revenue. All indications suggest that eight years into production, SPT total corporate income tax payments are $0. Income tax is assessed on income less eligible expenses. Given the benefits of accelerated depreciation of capital costs, extractive companies never pay income tax in the first years of a project. The income tax rate of 32% is low in comparison with peer countries that do not also have a production-sharing scheme. Furthermore, due to the very low sale price of natural gas, Sasol generates little income in Mozambique. The income that they do generate has been more than offset by capital costs from the major overruns in the initial project and the costs of the recent expansion. And it is likely that Sasol is also able to deduct exploration costs for other concessions in Mozambique against Pande--Temane income.

CMH Income Tax Payments: The main source of government revenue other than royalty payments is income tax payments from CMH. But company income is again limited by the disadvantageous sale price. Overall revenues could easily be doubled or tripled under a more favorable pricing formula. There is a certain irony that the only organization linked to the Sasol project providing the government of Mozambique significant revenue is the government of Mozambique.

CMH Dividends: Dividends were another major source of potential government revenue that has yet to materialize. Modest dividends have been declared: $33.6 million from 2006 through 2011. But only $7.2 million has actually been paid because lenders from the first phase had the right to veto dividend payments until the loans were fully paid. Lenders for the expansion phase will allow dividend payments up to a limit of $2.5 million per year on the condition that a series of commercial benchmarks are met. As Table 5 illustrates, even if these dividends were paid annually, they would not generate substantial government revenue.

Table 5: CMH Dividends

Financial Year	General Assembly date	% Dividends on profit	Total Declared dividends	Paid dividends
FY06*	12/14/2007	49%	6 427 076	2 217 820
FY07*	6/19/2008	50%	2 911 101	-
FY08**	12/11/2008	25%	5 253 297	5 000 000
FY09**	11/26/2009	25%	4 427 978	-
FY10**	11/11/2010	45%	4 171 003	-
FY11**	29/11/2011	45%	10 420 453	-
Total			**33 610 907**	**7 217 820**

* ENH (80%) and Mozambique (20%)
** ENH (70%), Mozambique (20%), Investors (10%)

Current Prospects for Government Revenue

In 2007, three years into the project, the IMF continued to hold out hope that the project would generate significant government revenue. They noted that the project was in a period of "cost recovery and high debt service, therefore government revenues have been modest." But still they maintained that the project "should yield a share of revenues for the government that is competitive (both for government and companies) by international standards."[22]

It may have been possible to be hopeful about government revenues in 2007. It is not possible anymore. The National Oil Institute (INP) now says that significant government revenue will not begin until at least 2018, when the debt taken on to secure Mozambique's share of the project is paid off.[23]

Project expansion is forecast to result in increased annual gas production from 120mGJ to 183mGJ. The expansion will generate an additional 3mGJ of royalty gas. The remaining extra production is split between Sasol exports of 27mGJ and an equal allocation of 27mGJ reserved for the Mozambican domestic market. The terms of the sale for this additional gas are set in the second Gas Sales Agreement and the Mozambican Market Gas Sales Agreement.

The formula for calculating the sale price remains the same in the second Sales Agreement as in the first. The only change is that the caps on the international benchmarks have been lifted yielding an increased sale price. The average price since the second agreement has been in force has been about $2.50/GJ. As of 2014, the ten-year period of capped prices will expire on the first Gas Sales Agreement and the international benchmark prices will take full effect. Given the very low base price of $0.85/GJ, however, the effects of incorporating the international benchmark prices are modest. The sale price for Mozambique gas will still be only a fraction of the price of gas in other countries.

The Mozambican Market Gas Sales Agreement governs the sale of the 27mGJ allocated for domestic sales. Mozambique has used only about 3mGJ per year of Inhambane gas, although it has had the right to 6mGJ as its 5% royalty. The quantity of royalty gas will increase by another 3mGJ as a result of expanded production, resulting in a total royalty volume of 9mGJ. Even when the Ressano Garcia power station is fully operational in 2014, domestic consumption will be less than 15mGJ per year. It will likely be some time before all of the additional 27mGJ agreed in the Mozambican Market Gas Sales Agreement are consumed within Mozambique. In the meantime, some gas allocated for the Mozambique market is exported to South Africa. The price paid for this gas is not publicly known, but there are indications that Sasol pays substantially less than the $1.40 average price paid under the first Gas Sales Agreement.

Accountability for Flawed Revenue Projections

The factors that result in minimal government revenue are relatively straightforward: the removal of provisions for production sharing, an abusive pricing formula, and excessive project expenses. None of these however account for the staggering mismatch, shown in Figure 1, between Government, IMF and World Bank revenue projections and actual government revenues. The analysts who prepared these projections were fully aware of the fiscal terms governing the project. Yet they still managed to massively over-estimate the economic benefits for Mozambique.[24]

Projections often falter on price forecasts. But that cannot explain the massive over-estimation of future government revenues. The fact that international benchmark oil prices were three times higher than the price used in the forecasts should have made the estimates of government revenue too low rather than too high.

Without access to the models on which the projections were based, it is impossible to explain how otherwise reputable agencies could make miscalculations on this scale. MIREM, the World Bank and the IMF must formally account for the mismatch between their projections and the actual government revenue. This is not just a matter of basic accountability to the people of Mozambique. It is also essential to ensure that the underlying flaws in their models are corrected so that similar mistakes are not made projecting coal revenues from Tete and gas revenues from Rovuma.

Who Benefits from Pande Temane Gas?

The problem with the Pande Temane gas project is not that it does not generate profit, only that almost none of the profit remains in Mozambique. The essence of the problem is the pricing formula. Defenders of the project will point out that there is no open market for natural gas. The gas was "stranded" in Mozambique, far from potential markets and of no use to anyone. International comparisons, they would say, are irrelevant. The only relevant price is the one that a viable investor was willing to pay.

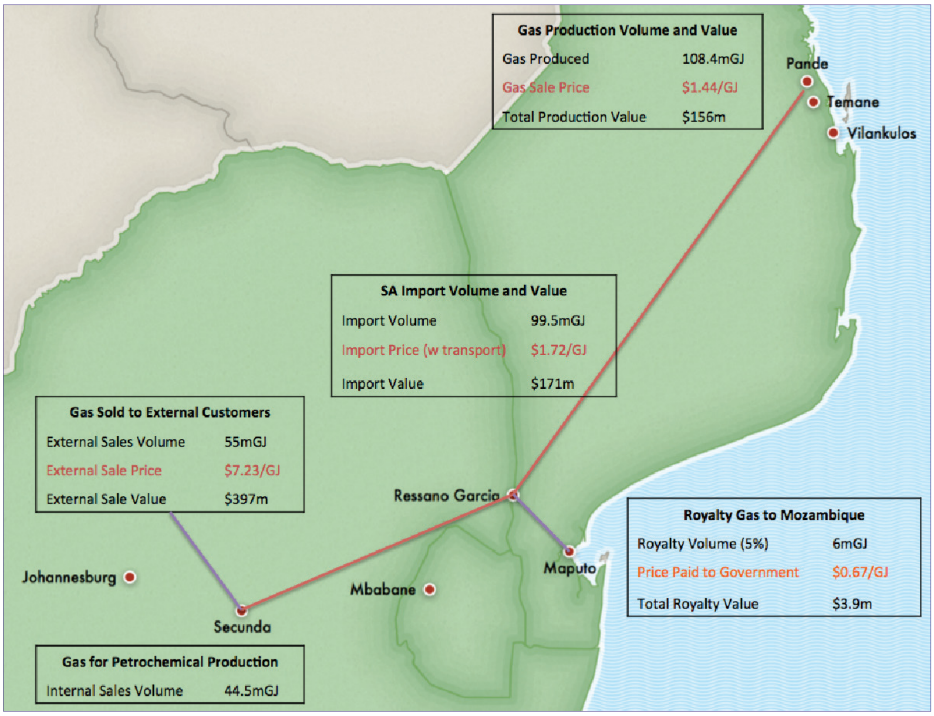
There is at least one other price that must be relevant in assessing whether Mozambique is getting a fair deal – the value of Mozambique gas in South Africa. When the project was launched, it was assumed that Sasol would use most of the gas for petro-chemical production. In fact, nearly 60% of Mozambican gas is now sold directly to South African commercial and residential consumers.[25]

Sasol Petroleum International, the purchaser of Mozambican gas, generates considerable profit by buying gas cheaply in Mozambique and selling it for much more in South Africa.

In 2009, for example, the average sale price of Mozambican gas in South Africa was more than \$7/GJ, five times the sale price used to calculate royalties and income tax in Mozambique.[26] Measured by the sale price in South Africa, Mozambique gas exports to South Africa in 2009 alone were worth nearly \$800 million.

Figure 6 provides an overview of the relative gas prices and sales values in Mozambique and in South Africa for 2009.

Figure 6: Sales Prices for Mozambique Gas for 2009[27]



With the removal of the price cap in 2014, it might seem that the gap between the price paid in Mozambique and the price charged to South African consumers will narrow. However, in late 2012, Sasol applied to the energy regulator in South Africa for an increase in the price they can charge consumers for Mozambique gas. The result of the application was an increase in the maximum sale price that Sasol can charge to more than \$12/GJ.[28] At that price, Mozambican gas exports valued at less than \$200m, would have a sale value in South Africa of nearly \$2 billion.

As the uncapped sale price in Mozambique is expected to be approximately $2.50/GJ, the five-fold gap between purchase price in Mozambique and sale price in South Africa is likely to hold true in the future as well.

There is one other potential beneficiary of Inhamane gas - the government of South Africa. Valuable gas moves from Mozambique to South Africa for a fraction of its real value. The sale of that gas in South Africa should generate substantial income on which Sasol South Africa should pay tax. In fact, Sasol has publicly estimated South African government revenue over the lifetime of the project at $3.2 billion.[29] It could be then that South Africa will generate substantial revenue at Mozambique's expense. The more likely alternative is that this is simply another case of inflated estimates of government revenue coming in the early phases of an extractive sector project. The $3.2 billion estimate is probably no closer to reality than the ones produced for Mozambique by MIREM, the World Bank and the IMF. It will be hard to determine the truth. South Africa is not a member of the Extractive Industries Transparency Initiative and apparently has no plans to join.

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The revenue projections that sounded impressive ten years ago have turned out to be an illusion. The first big extractive sector project in Mozambique has not benefited the people of Mozambique.

Could it happen again? The experience of Pande Temane should make people suspicious about optimistic revenue projections. At the very least, four lessons stand out:

it is not uncommon for there to be no relationship between revenue projections in advance of a project and actual revenues received;

capital costs are almost always underestimated when projects begin and cost overruns have a major impact on early government revenue;

valuation is as important as core fiscal terms – locking in a price below market value can fundamentally undermine government revenues;

dividends from state owned companies are an unreliable source of government revenue, particularly when participation is debt financed.

The Sasol case illustrates how easy it is for proponents of extractive sector projects - companies, government and donors - to project vast government revenues. Projections are easy while actually generating and collecting the revenue is not. It is a lesson that other resource rich countries have learned through bitter experience. It is a lesson that the government and donors should consider as they risk making the same mistakes again over coal from Tete and LNG from Rovuma.

Notes

1 World Bank, Project Appraisal Document – Mining and Gas Technical Assistance Project (No: 74011-MZ), 1 March 2013, p. 1

2 World Bank, Proposed Credit to Mozambique for Gas Engineering Project (No: P-6299-MOZ), 19 May 1994, p. 7.

3 World Bank Group, "Infrastructure Action Plan Update," included in "Executive Directors' Informal Meeting – April 8, 2004," (SecM2004- 0182) 20 April 2004, p. 12.

4 Project Brief: Sasol Petroleum Temane, Multilateral Investment Guarantee Agency, World Bank Group, 2004.

5 Per-Åke Andersson, The impact of the mega projects on the Moçambican economy, Discussion Paper No. 18, Gabinete de Estudos, Ministério do Plano e Finanças, República de Moçambique, Marco de 2001, p. 11.

6 Note that this projection was published three years into production. Government revenues were already substantially inconsistent with projections (i.e. Sasol had paid no corporate income tax payments) when they were provided to the Government of Mozambique. See, Philip Daniel, Ana Paula Dourado, Diego Mesa Puyo and Alistair Watson, "The *Petroleum Sector*: *Fiscal and Economic Terms*," Aide-Mémoire of the Fiscal Affairs Department, IMF, 2007, p. 14.

7 Revenue projections sources: IMF data from Philip Daniel et al, "The *Petroleum Sector*: *Fiscal and Economic Terms*," 2007, p. 15; MIREM data from Andersson,

"The impact of the mega projects on the Moçambican economy" p. 11; World Bank data from Project Appraisal Document – Southern African Regional Gas Project (No: 26757-MOZ) 22 October 2003, p. 65. The data for actual government revenues is drawn from Table 2 of this document.

[8] Project Appraisal Document – Southern African Regional Gas Project (No: 26757-MOZ) 22 October 2003, p. 64.

[9] See World Bank, Implementation Completion Report – Gas Engineering Project (No: 27480) 15 March 2004, p. 11. A joule is an international unit of energy defined as the energy produced from one watt flowing for one second. Giga denotes a measure of a billion. Standard conversions are: one gigajoule = 0,96 million cubic feet (mcf) = 0,95 million British thermal units (MMbtu).

[10] EITI data for Mozambique is misleading on royalty payments as SPT is recorded as paying royalties for the entire project. As an unincorporated joint venture, all partners are responsible for paying their own share according to the 70:25:5 split.

[11] Data sources include: for 2004-2006 Jean Clement and Shanaka Peiris, Sustaining Growth Takeoffs: Lessons from Mozambique, in Shanaka Peiris, Post Stabilization Economics in Subs-saharan Africa: Lessons from Mozambique, IMF, 2008, p. 46; for 2007-2010 data from Alistair Watson, Mozambique: Reforming the Fiscal Regimes for Mining and Petroleum, IMG Fiscal Affairs Department, June 2012, p. 13. For recent years, the most important source of revenue data are annual financial statements from CMH. However these report payments on a financial year July-June rather than a calendar year resulting in unavoidable inaccuracies.

[12] World Bank, Implementation Completion Report, 15 March 2004, p. 24.

[13] World Bank, Implementation Completion Report, 15 March 2004, p. 56.

[14] The Wellhead Price formula and the CPF handling fee formula below are found in IPA Energy + Water Economics, "Domestic Natural Gas and Condensate Market Study for Mozambique," Mozambican Ministry of Energy and ERAP, September 2009, p. 37 and 38. Wellhead Price Formula:

$$0.50 * \left[\frac{0.45 * \text{Current Crude Oil Price}}{25.00} + \frac{0.40 * \text{Current Diesel Price}}{31.00} + \frac{0.05 * \text{Current Fuel Oil Price}}{23.00}\right]$$

Central Processing Facilities (CPF) Handling Fee Formula

$$0.35 * \left[\begin{array}{c} \left[0.59 * 0.25 * \dfrac{\text{RSA PPI (Current)}}{\text{RSA PPI (Base)}} + \dfrac{R/_{USD}\text{ (Base)}}{R/_{USD}\text{ (Current)}}\right] \\ + \left[0.59 * 0.75 * \dfrac{\text{US PPI (Current)}}{\text{US PPI (Base)}}\right] \\ + \left[\dfrac{0.17 * \text{Current Crude Oil Price}}{25.00} + \dfrac{0.17 * \text{Current Diesel Price}}{31.00} + \dfrac{0.07 * \text{Current Fuel Oil Price}}{23.00}\right] \end{array}\right]$$

[15] Maximum prices for the first ten years are capped at: crude oil $34; diesel $40; and fuel oil $32.

[16] "Domestic Natural Gas and Condensate Market Study for Mozambique," Mozambican Ministry of Energy and ERAP, September 2009, p. 153.

[17] Data on international benchmark prices from BP Statistical Review 2012. Data on Mozambique is for gas sold under the first Gas Sales Agreement from the IMF and CMH.

[18] The World Bank Project Appraisal Document reports total expected capital expenses of $721 million. See Project Appraisal Document – Southern African Regional Gas Project (No: 26757-MOZ) table p. 57. However, the World Bank was already aware of significant cost overruns by this time. The document notes increased financing costs for Sasol ($130 million) and losses due to currency fluctuations ($150 million).

[19] ENH Presentation Mozambique Hydrocarbon Potential and Natural Gas Utilization. *Issufo Abdula,* Maputo 14 May 2004.

[20] CMH Annual Financial Statement 2011-2012, p. 15.

[21] Sasol also has the rights to a series of onshore and offshore concessions in the Mozambique Basin: Blocks 16&19, Sofala, S-10, and Area A.

[22] See Mozambique: Selected Issues, IMF Country Report No. 07/258, July 2007, p. 23.

[23] Statement by Arsénio Mabote, National Oil Institute (INP), "Natural gas exploration in Mozambique expected to provide State revenues only in 2018," Macauhub News Agency, 10 September 2012.

[24] World Bank projections suggested for example, "Mozambique will receive 63.87% of the economic take." PAD p. 63.

[25] According to the South African regulator, consumption of piped gas by Sasol's External Customers was just under 55 million GJ in 2008-09. See National Energy Regulator of South Africa "The Price Capping Mechanism For The Financial Years 2008/2009 - Agreement Concerning The Mozambican Gas Pipeline Between The Government Of The Republic Of South Africa And Sasol Limited," 10 March 2010, p. 5.

[26] The average price during 2008-09 was R63.28/GJ. See National Energy Regulator of South Africa, "The Price Capping Mechanism For The Financial Years 2008/2009," p. 1.

[27] The Gas Master Plan estimates that actual transport costs to export Mozambique gas are about $0.28/GJ. See Gas Master Plan, 2013, p. 6-12.

[28] See National Energy Regulator of South Africa,

Sasol Gas Maximum Price Approval, 26 March 2013, p. 1.

[29] Sasol, "Case Study: Mozambique Natural Gas Project," prepared for the World Economic Forum on Africa – Tanzania, 2010, p. 6.

Good Governance, Transparency and Integrity

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