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REPORT DECEMBER 2021

THE FAILURE OF 'GAS FOR DEVELOPMENT'

MOZAMBIQUE CASE STUDY

JONATHAN GAVENTA

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E3G is an independent climate change think tank accelerating the transition to a climate-safe world. E3G builds cross-sectoral coalitions to achieve carefully defined outcomes, chosen for their capacity to leverage change. E3G works closely with like-minded partners in government, politics, business, civil society, science, the media, public interest foundations and elsewhere.
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SUMMARY

Since natural gas was first discovered off the coast of northern Mozambique a decade ago, it has become central to the country's development strategy. Revenues from gas – it was hoped – would catapult one of the least developed countries in the world to become a middle income country by the 2040s. Gas production and exports were expected to spur widespread industrialisation, fund public investment and pay down debt.

10 years later, this story of 'gas for development' is failing. Conflict, corruption and economic distortion have meant that the promised economic benefits have not materialised. Meanwhile, a global shift in climate and energy policies mean the outlook for future gas demand is shrinking. This increases the downside risks of the gas projects, and greatly reduces the potential benefits. In turn, lower revenues will narrow the options for responding to resource curse issues and addressing Mozambique's pressing development needs.

A reset of expectations on the role of gas in Mozambique's development is needed. For the Mozambican government, this means lowering dependence on increasingly uncertain gas revenues, and seeking out alternative pathways to prosperity.

For the international partners, donors and financial institutions that enabled and encouraged the gas projects, it means re-evaluating assumptions on the development benefits of gas, and redirecting financial support to more inclusive and sustainable economic sectors.

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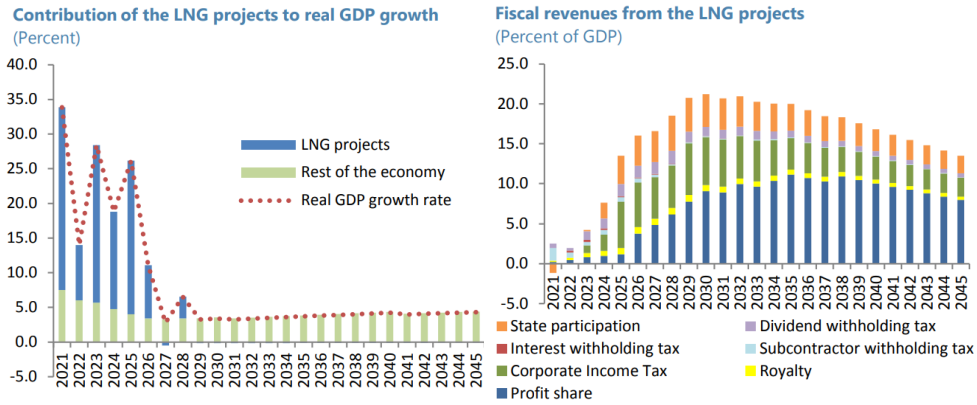
THE INFLATION OF HOPE

In 2016, the IMF made a set of striking projections. Production from Mozambique's sizeable gas reserves – first discovered in 2011 – would start in 2021, and rise to 89 million tonnes per annum (MTPA) by 2028. This would make Mozambique the third largest LNG exporter in the world behind Qatar and Australia.[1]

The economic windfall of the gas production was set to be "tremendous". The total fiscal revenue, the IMF projected, could reach half a trillion dollars over the LNG projects' lifetime. GDP growth would surge 34% in 2021 alone. For Mozambique – one of the poorest countries in the world with an annual GDP of just $14 billion – this revenue would be transformational.

Figure 1: 2016 IMF projections of GDP growth and fiscal revenues



Beyond government revenues, gas production was also expected to support wider economic development. The gas was to help industrialise Mozambique, including through supplying fertilizer manufacturing and a gas-to-liquids plant. It was also hoped that gas resources would help to address energy access: 70% of households in Mozambique lack electricity. Local content requirements on the gas projects were expected to support local businesses and jobs, while earnings from the project could be re-invested to diversify into other promising sectors such as agriculture and tourism.

[1] IMF (2016) **Republic of Mozambique: Selected Issues**

With expectations running high, it is unsurprising that gas extraction has become a core part of Mozambique's economic and development strategies. To date, however, these expectations have not been realised.

Overview of gas projects in Mozambique

Mozambique currently has three major LNG projects in development, and one smaller scale gas project already in operation:

Mozambique LNG is operated by Total. It reached FID in 2019 and project financing was agreed in July 2020. Work on the project has been halted repeatedly due to the conflict in Cabo Delgado. *Force majeure* was declared in April 2021, and the project has been paused ever since. If works re-start in 2022, the project could be completed in 2026. *Initial volumes: 12.9 MTPA of LNG; potential for another 10 MTPA in the next phase.*

Rovuma LNG is operated by Exxon and Eni. Although an "initial investment decision" ceremony was held a week before the Mozambican elections in October 2019, the FID has been repeatedly delayed and does not appear imminent. *Initial volumes: 15.2 MTPA of LNG; potential for further extension.*

Coral South FLNG is a smaller project operated by Eni. It is a floating offshore LNG project, so the gas does not need to be taken onshore to be processed. The FID was in 2017, and first gas is expected in 2022. *Initial volumes: 3.4 MTPA of LNG.*

Pande-Temane is an onshore gas field in southern Mozambique, far smaller in scale than the LNG projects. It was developed in 2004 by a consortium led by South African chemicals company SASOL. The vast majority of the gas produced is exported to South Africa by pipeline. *Volumes: 147 GJ/year of pipeline gas.*

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OUTCOMES SO FAR HAVE BEEN BLEAK

Five years on, and the reality Mozambique faces is very different to the initial projections. Conflict and corruption scandals have rocked the country and the expected economic windfall from the gas projects is yet to materialise. A mere 3.4 MTPA of LNG production is on track to be developed, with other major projects paused indefinitely.

Conflict triggered a humanitarian crisis and stopped work on the LNG projects

Violent conflict in the vicinity of the gas projects has escalated into a serious humanitarian crisis. An Islamist insurgency began in Cabo Delgado in 2017, and has progressively worsened. 750,000 people have been displaced (>2% of Mozambique's population) and 900,000 are severely food insecure.[2] Over 3,400 people have been killed in the violence.[3]

The conflict has local roots but has become internationalised. The insurgents are well-armed, and ISIS claims responsibility for their attacks (although the strength of the link is unclear). Meanwhile, SADC and Rwanda have sent direct military support and US and EU have provided military training. Mercenaries from Russia, Ukraine and South Africa have also been involved in the conflict.

The drivers for the conflict are complex and are rooted in economic and political grievances driven by poverty and deep inequalities.[4] This includes grievances over unequal access to opportunities from natural gas, gemstones and other resources. It is increasingly clear that the conflict was not directly caused by the gas exploration, but the arrival of the gas projects inflamed an already-fragile

[2] UN OCHA (2021) **Mozambique: Cabo Delgado, Nampula & Niassa Humanitarian Snapshot - September 2021**

[3] Cabo Ligado (2021) **Cabo Ligado Weekly: 25-31 October 2021**

[4] Sheehy, T (2021) **Five Keys to Tackling the Crisis in Mozambique's Cabo Delgado**. United States Institute of Peace (usip.org)

context.[5] This follows a pattern of violence and insecurity that has been seen in other resource conflicts.[6]

In March 2021, a major attack on Palma, the nearest town to the LNG site, halted work on the LNG projects and caused Total to declare force majeure and evacuate its staff. Although government forces have reclaimed Palma and the insurgent base in Moçimboa da Praia following arrival of Rwandan and SADC troops, the conflict remains ongoing.

Corruption has damaged development prospects

As well as the conflict, Mozambique has been rocked by a "hidden debts" corruption crisis that has caused severe economic hardship. In 2013, European bankers, a middle-eastern business and corrupt Mozambican officials conspired to organise $2 billion in secret loans (equivalent to 12% of GDP) to Mozambican state owned companies without approval of the Mozambican parliament. The money was meant to be used for maritime security and a tuna fishing industry but the projects have delivered few benefits to Mozambique; meanwhile, millions in bribes and corrupt payments were siphoned off by officials and bankers.

When the scandal emerged, the IMF and other donors withdrew direct financial support for Mozambique, plunging the country into an economic crisis. Mozambican NGO CIP estimates that the economic costs of the hidden debt scandal have reached $12 billion (equivalent to 80% of Mozambique GDP in 2019) and tipped an additional 2 million people into poverty. If Mozambique repays the loans, it faces a further $4 billion in debt servicing costs.[7]

This corruption crisis is not the direct outcome of the gas discoveries. No gas companies are known to be involved. Nevertheless, it appears the hidden debts were enabled by an expectation from lenders and officials that coming gas revenues could be used to repay the loans. This follows a familiar pattern of the 'pre-source curse' effect: increase indebtedness, corruption and instability

[5] Ratner, S (2020) **Natural Gas and War in Mozambique.** JIA SIPA, Columbia.

[6] Schrijver, A (2020) **Natural Gas: The new 'green' resource curse?** Planetary Security Initiative, Clingendael Institute.

[7] Center for Public Integrity (2021) **Costs and Consequences of the Hidden Debt Scandal of Mozambique**

frequently follow major oil and gas resource finds, even before production begins.[8]

The repayment schedule for the debts was re-structured in expectations that gas revenue would arrive promptly: repayments rise from 5% to 9% in 2024. Following delays to the gas projects, increased repayments on the loans are now due before Mozambique LNG or Rovuma LNG are likely to come on stream – deepening risk of debt distress.[9]

The economic realities are very different from the expectations

The economic growth projected for Mozambique has not materialised. In sharp contrast to the IMF's projections in 2016 for 34% GDP growth in 2021, actual economic growth in Mozambique is likely to be around 2.5%.[10] Annual growth rates have progressively fallen in the decade since the gas was discovered, rather than rising. Mozambique is not an outlier in this respect: IMF analysis shows that in countries with weak governance, economic growth rates tend to fall not rise in the years following a major oil or gas discovery.[11]

In contrast to hopes for development, Mozambicans are now on average poorer than they were a decade ago. 75% of Mozambicans spend less that $1 per day, and 90% are under the international poverty line of $1.90. Cabo Delgado, where the gas projects are based and site of an ongoing violent conflict, has been hit the worst: household spending has dropped by 38% in the last 5 years. Inequality is rising: the richest 10% of population account for 43% of expenditure, while the poorest 10% account for just 0.8% - and are poorer than they were a decade ago.[12]

[8] Frynas, J, and Buur, L. (2020) **The presource curse in Africa: Economic and political effects of anticipating natural resource revenues.** *The Extractive Industries and Society* 7(4): 1257-1270

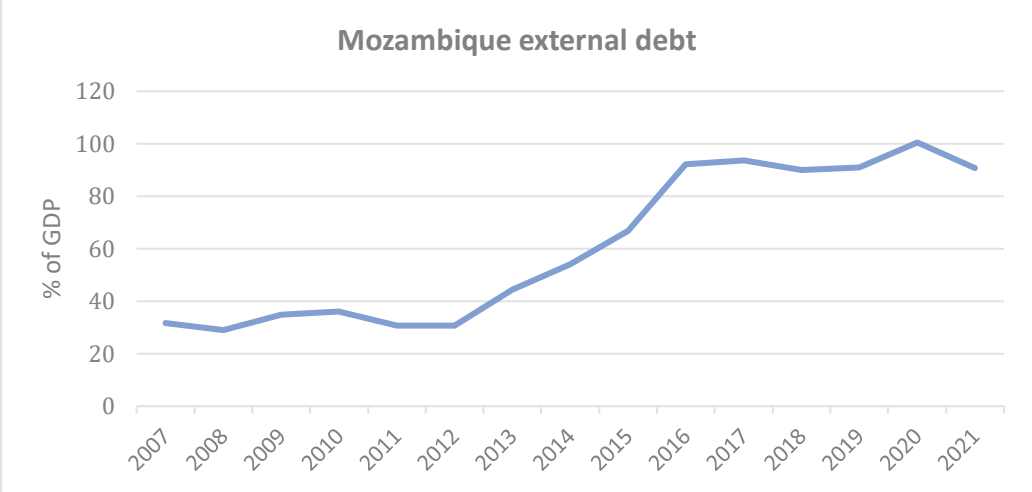
[9] Bloomberg (2021) **'Mozambique Rules Out Debt Restructuring Despite Gas Production Delays'**

[10] IMF (2021) **Republic of Mozambique: At a glance**

[11] Cust, J and Mihalyi, D (2017) **The Presource Curse.** *Finance and Development* 54(4)

[12] Hanlon, J (2021) **Huge drop in spending shows Mozambicans poorer than a decade ago - Zitamar.**

Figure 2: Mozambique external debt as a proportion of GDP[13]



Instead of increasing following the gas discoveries, Mozambique's fiscal space has shrunk considerably. External debt as a proportion of GDP has trebled since the initial gas discovery, reaching 91% in 2021.[14]

Part of this increase in debt is directly driven by the gas projects, through public financing for Mozambique's national oil company ENH. In 2019, the Mozambique government issued a $2.2bn sovereign guarantee to enable ENH participation in the Mozambique LNG project.[15] Further sovereign guarantees will be needed for ENH to participate in the Rovuma LNG project if it goes ahead. However, ENH is in poor financial health: the World Bank forecasts that ENH will remain a source of public debt until 2047 if Rovuma LNG does not go ahead.[16]

Climate disasters and the Covid crisis have reduced Mozambique's fiscal space even further. Cyclones Idai and Kenneth in 2019 caused over $3bn in economic losses, and the Covid crisis has pushed Mozambique into an economic contraction in 2020.

Many of the expected side-benefits of the gas projects are now looking questionable. Industrial projects for fertiliser and gas-to-liquids had been planned in order to take advantage of domestic gas allocations. However, the

[13] St Louis Fed (2021) **Official External Debt: Debtor Based for Mozambique**

[14] St Louis Fed (2021) **Official External Debt: Debtor Based for Mozambique**

[15] CIP (2019) **The Mozambican Hydrocarbons Company (ENH) Could Become a Burden for the Government**

[16] World Bank (2021) **Mozambique Economic Update: Setting the stage for recovery**

sponsoring companies abandoned these investments as uneconomic well before the 'force majeure' declaration from Total, and most of the domestic gas allocation will be sold overseas.

It is unlikely that new gas production will directly support increased energy access in Mozambique. New gas power plants are planned in Matola and at Nacala, but they will use LNG rather than connecting directly by pipeline to the gas extraction sites. The key barrier to providing electricity to the 70% of Mozambican households who lack access, however, is not an absence of power generation capacity but a lack of grid connections, particularly in rural areas.

Local businesses complain they are not seeing the expected benefits from local content provisions in the gas exploration contracts. As revealed by Mozambican NGO CDD, the gas multinationals have successfully lobbied the Mozambican government to limit the legal force of local content laws on gas – relying instead on voluntary promises.[17] Meanwhile, Mozambican companies that did win contracts were left in limbo (and often without payment) after Total declared force majeure.[18]

The gas projects also introduce new economic risks to the country. The scale of the gas projects mean that they create path dependency and monopolize talent, finance and government attention, often to the detriment of other sectors. 'Dutch disease' – when currency appreciates as a result of natural resource exports – remains a real risk for when the gas projects start.[19]

[17] Centro para Democracia e Desenvolvimento (2020) **Lobbying that hinders the Local Content Bill in Mozambique**

[18] Club of Mozambique (2021) **CTA, Total create 'task force' to address late payments "nightmare" – Lusa report**

[19] Bucane, A and Mulder, P (2007) **Exploring for natural resources in Mozambique: will it be a blessing or a curse? Instituto de Estudos Sociais e Economicos**

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FUTURE GAINS FROM GAS MAY BE LIMITED

Meanwhile, the global context has changed. The international energy transition and new global climate ambitions are limiting the space for new gas projects to come on stream. This has profound implications for the potential development impacts of Mozambique's gas export projects.

Viability of future projects is uncertain

The gas projects in Mozambique were first developed under an expectation of strong global gas demand growth and corresponding high prices for LNG exports. Those assumptions are now looking questionable. As a result, post-FID projects face significantly higher risk and there is high uncertainty about whether pre-FID projects will go ahead at all.

Rapidly falling costs for wind, solar and batteries mean that renewables are now cheaper than new gas generation in most regions, and growing electrification may limit gas demand in the industrial sector. This changes the outlook for future gas demand growth. While BP's 2016 Energy Outlook projected gas demand projected a 50% growth in gas demand by 2035, for example, DNV's Energy Transition Outlook (which takes into account falling costs of clean technology) projects that gas demand has already peaked, following current trends.[20]

As governments strengthen their climate policies, the outlook for future gas demand shrinks considerably – increasing the risk of stranded assets. The IEA Net Zero pathway, consistent with the Paris Agreement goal of aiming to limit global warming to 1.5°C observes that no new oil and gas fields are approved for development beyond projects already committed as of 2021 – and "some fields may be closed prematurely". In this pathway:

> *Any LNG projects with a break-even price of more than USD 5 per million British thermal units (MMBtu) would be at risk of failing to recoup their investment costs … Most of the 200 bcm worth of LNG projects currently*

[20] DNV (2021) **DNV Energy Transition Outlook 2021**; BP (2016) **BP Energy Outlook - 2016 edition**

under construction do not recover their invested capital, with the total stranded capital estimated at USD 75 billion.[21]

In the Net Zero pathway, the LNG projects in Mozambique would be unlikely to break even. In 2019 (before the force majeure declaration and delays from the conflict) Rystad estimated breakeven for the Mozambique LNG project at $5.5/MMBtu and for Rovuma LNG at $5.9/MMBtu.[22] While this would make them viable in a business-as-usual scenario, in the Net Zero pathway, gas prices in Mozambique's main markets of Europe and Asia range from $3.8 - $5.2/MMBtu in 2030 – and continue to fall thereafter. [23]

Even in a 2°C scenario, Wood Mackenzie models suggest LNG expansion in Mozambique is unlikely to materialise.[24] Globally, three-quarters of new LNG projects would be left stranded, and 12 trillion cubic metres of gas would need to be left in the ground.

As a result of these trends, the Wall Street Journal recently reported, the Exxon board is now reconsidering Exxon's involvement in the Rovuma LNG project – a report swiftly denied by Exxon management.[25]

Revenues will be lower than expected

Even where projects are developed, the revenues they generate for the government of Mozambique are likely to be far lower than previous expectations.

This is likely to be the case even without accounting for energy transition risks. An analysis of major oil and gas discoveries in Africa shows that government revenues tend to be far lower – and the projects take significantly longer to develop – than initially projected.[26]

[21] IEA (2021) **World Energy Outlook 2021**

[22] Rystad (2019) **North America to drive global LNG supply growth**

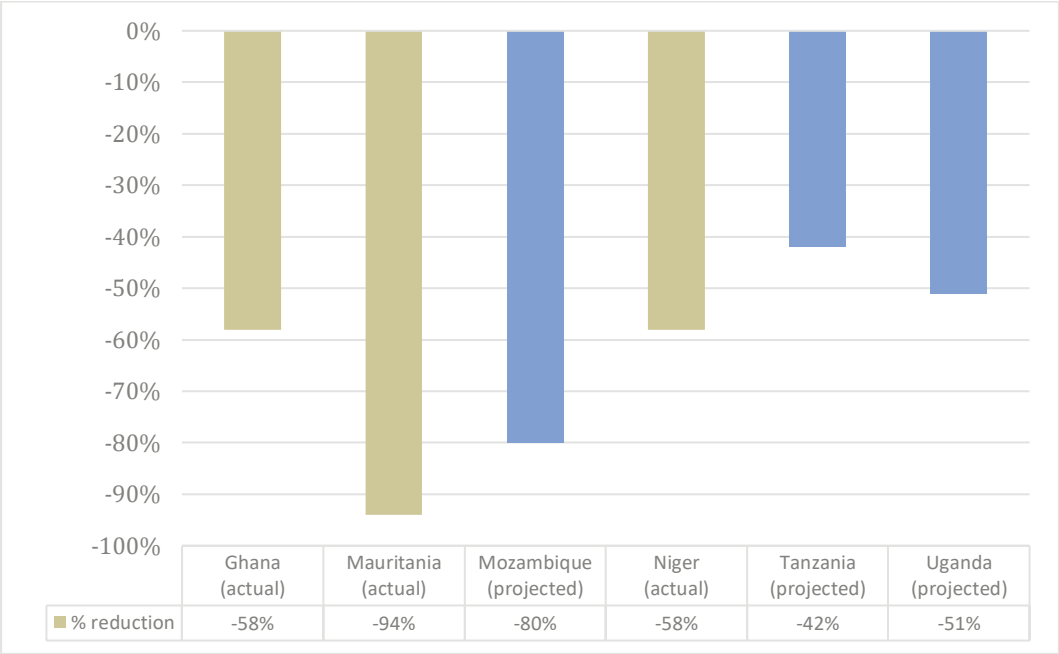
[23] IEA WEO 2021. In the IEA STEPS scenario, gas prices in Mozambique's main markets range from $7.5 (EU) to $8.9 (Japan) in 2030

[24] Wood Mackenzie (2021) **Over three quarters of new LNG supply could be impacted in 2-degree world**

[25] IEEFA (2021) **WSJ: ExxonMobil board mulls scrapping Vietnam, Mozambique projects**

[26] **How Africa's prospective petroleum producers fell victim to the presource curse - ScienceDirect**

Figure 3: Actual revenues from oil and gas projects in Africa are consistently lower than initial expectations[27]



In Mozambique, the potential revenues from the gas projects appear to have been overestimated from the outset. Independent analysis for Oxfam of the contract terms for the Coral South LNG projects shows that Eni overstated potential revenues to Mozambique by 38%, if global oil prices average $70 per barrel. Revenue estimates from the Mozambican energy ministry are more than double what is likely to materialise.[28]

The situation looks even worse for government revenues in a lower demand scenario (triggered, for example, by stronger global climate policies). If oil prices drop to $55 per barrel, the Oxfam analysis shows, government revenues from Coral South will be cut by half. By contrast, in the IEA Net Zero pathway, oil prices fall to $36 per barrel in 2030 and only $24 per barrel by 2050 – far below the levels used to evaluate the Mozambican gas projects.

Similar analysis of the Rovuma and Mozambique LNG projects by independent thinktank OpenOil reached similar conclusions. Its models estimate revenues 60% below government expectations and only a fraction of those predicted by Total. “The ENH stake is virtually worthless and could be a liability,” it argues,

[27] Mihalyi, D and Scurfield, T (2021) ***How Africa's prospective petroleum producers fell victim to the presource curse***

[28] Oxfam (2019) **Government Revenues from Coral FLNG**

and its modelling suggests that most of Mozambique's gas resources are already potentially stranded.[29]

The structure of gas contracts makes this situation more challenging: they are designed so that investors and project developers recover their initial outlay first and significant government revenues only start to accrue later. In baseline scenarios, most government revenues do not arrive until 15 years after construction starts on the project and 10 years after the first gas starts to flow (Figure 4). Cost over-runs and project delays could push back revenues even further. For the Mozambique LNG project – assuming construction restarts in 2022 and first production is achieved by 2026 – significant government revenues are now unlikely before 2035 at the earliest. By OpenOil's estimation, 70% of revenues will only accrue after 2040. As a result, the modelled revenues of $18 billion have a net present value of only $3.4 billion assuming a discount rate of 10%.[30] For context, this is less than a quarter of Mozambique's current national debt – and a far cry from the tens to hundreds of billions of revenues originally claimed.

Government projections for future revenues were made on the presumption that the sale price of LNG would rise progressively over time. However, the contract structure makes Mozambique particularly exposed to risk if future prices fall rather than rise. In the IEA Net Zero pathway, gas demand, LNG trade and gas prices all fall rapidly from the late 2020s onwards – but Mozambique's revenue hopes from the gas projects are dependent on strong gas prices all the way to 2050.

[29] OpenOil (2021) **Too Late to Count: a financial analysis of Mozambique's gas sector**

[30] OpenOil (2021) **Too Late to Count: a financial analysis of Mozambique's gas sector**

Figure 5: Sales price for LNG in Mozambique government economic evaluation[31]

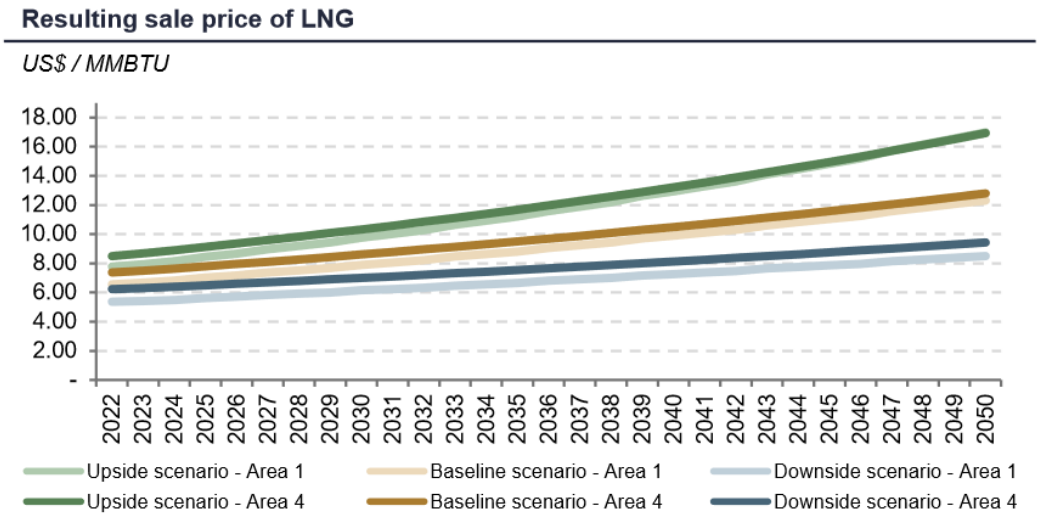
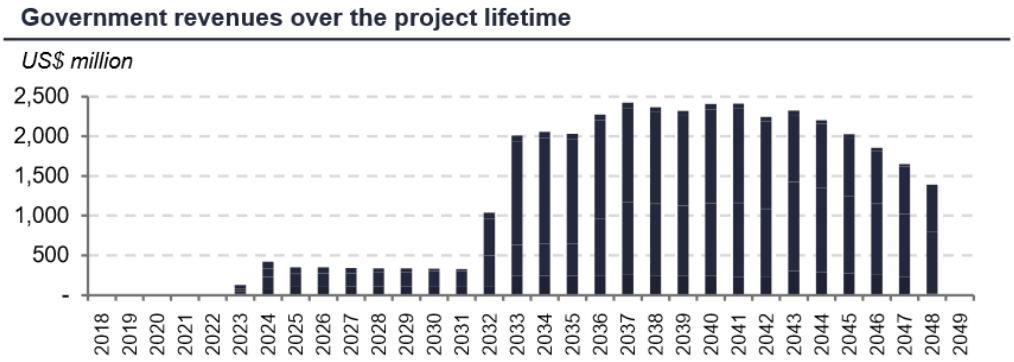


Figure 6: Estimated government revenues for Area 1[32]



Political economy factors can also contribute to lower-than-expected government revenues. Mozambique's first significant gas project – the Temane / Pande field – has "generated virtually no government revenue" despite gas exports worth $700m per year.[33] Revenues achieved from Temane – Mozambique's biggest existing gas field – have been negligible as a result of poor contract terms with Sasol and rent-seeking from domestic ruling elites.[34] Meanwhile, Sasol sells the gas in South Africa for 5 times what it pays Mozambique.

[31] Republic of Mozambique (2018) **Projected government revenues from gas projects**

[32] Republic of Mozambique (2018) **Projected government revenues from gas projects**

[33] CIP (2013) **Pande Temana Gas exports to South Africa by Sasol: First major extractive sector projects fails Mozambique**

[34] Salimo, P et al (2020) **The politics of domestic gas: The Sasol natural gas deals in Mozambique.** The Extractive Industries and Society 7(4)

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The consequences of lower revenues are serious for development outcomes

Lower and later revenues from the gas projects will have significant impacts on Mozambique's development pathways. Fiscal revenues from the projects were expected to be used to support accelerated development outcomes across the country, including through investment in sectors such as agriculture where most people work.

Lower revenues will also limit options for responding to 'resource curse' phenomena and negative impacts of the gas developments. Defusing the underlying grievances that have caused the war in Cabo Delgado will require sustained investment in employment and infrastructure; it's now not clear where the revenues come from.

The negative economic impacts of the gas projects include exposure to volatile oil and gas prices. A Sovereign Wealth Fund has been proposed to help manage this volatility from year to year; this has been supported by technical assistance from the USA, Norway and the IMF. However, while a Sovereign Wealth Fund can manage temporal volatility of revenues, it will do little to address the risk of revenues not materialising. (In any case, Mozambique may be better off using any revenues to pay down expensive debt rather than investing in an SWF).[35]

If LNG prices achieved by Mozambique's gas projects are lower than expected, there is a significant risk that the gas investments will add to rather than reduce Mozambique's debt burden. Mozambique has issued large sovereign guarantees to enable the participation of its national oil company ENH in the gas projects. However the potential financial returns for ENH are highly uncertain; analysis by Open Oil finds: "there are scenarios in which ENH never earns net revenues out of these projects - if interest rates are higher, for example, or gas prices go lower, or there are significant further execution delays."

Lower gas prices are a key risk factor. The Natural Resource Governance Institute estimates that the total value at risk from ENH capital expenditure in a 2°C pathway is equivalent to 179% of Mozambique's total annual government expenditure.[36] The gas projects are a 'risky bet' for Mozambique's fiscal health.

[35] Natural Resource Governance Institute (2021) **How Mozambique Could Strengthen its Proposed Sovereign Wealth Fund**

[36] Manley, D and Heller, P (2021) **Risky Bet: National Oil Companies in the Energy Transition**. National Resource Governance Institute

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Energy transition offers some new economic opportunities

While the global energy transition lowers the outlook for Mozambique's gas and coal resources, it also presents new economic opportunities for Mozambique.

Mozambique has very high renewable energy potential – estimated at over 23 GW of deployable potential.[37] Falling costs for solar and wind technologies increases the possibility to use renewables to increase energy access, power Mozambique's economy and export excess electricity to neighbouring countries. To date, however, renewable energy has received only a fraction of the focus and finance of the gas projects. The total international support for all renewable energy projects in Mozambique is $230 million – one-sixtieth of the volumes of public finance provided to the Mozambique LNG project alone.[38]

Mozambique is also endowed with extensive deposits of critical minerals that will play a key role in the global energy transition, such as lithium, graphite and copper. These are poised to become more valuable; in the IEA's Net Zero pathway demand for critical minerals in the energy sector increases by 6 times compared to today.

Green hydrogen exports are also under exploration, including in conjunction with the new Mphanda Nkuwa large-scale hydropower dam in central Mozambique.[39] However, exporting hydrogen is far from simple and there are very large uncertainties on the future internationally-traded market for green hydrogen.[40]

Some caution is needed. No single resource is likely to reach the scale of revenues that Mozambique had expected from the gas projects; however a mix of resources may be able to manage volatility better than over-dependence on the gas projects. And while these 'energy transition' resources present economic opportunities, Mozambique's experience of a resource-extraction-based economic model has not proved successful so far – whether with coal, gas or gemstones. Its mineral and green hydrogen resources should feature within a broader approach to diversifying and industrialising Mozambique's economy, rather than replacing one form of resource-dependence with another.

[37] ALER (2017) **Energias renováveis em Moçambique: Relatório nacional do ponto de situação**

[38] ALER (2021) Resumo: Energias renováveis em Moçambique 2021

[39] Hanlon, J (2021) **Could Mozambique become a hydrogen hub? Mozambique news reports and clippings.**

[40] Gaventa, J (2020) **Will the dash for hydrogen benefit sub-Saharan Africa?** *Energy Monitor*

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RESETTING EXPECTATIONS

The outcomes Mozambique has experienced so far and changing global context means that expectations need to be reset on the role of gas in development. For the Mozambican government, this means pursing alternative pathways to prosperity and lowering reliance on increasingly uncertain future gas revenues.

For the myriad international actors who enabled, encouraged and financed the gas projects in Mozambique, it means re-assessing the impacts that fossil fuel extraction has in developing countries and changing the way international support is evaluated and prioritised.

Government of Mozambique

For the Mozambican government, gas investment was seen as an opportunity to generate revenue, address balance of payments issues and attract new industries – and ultimately, shift Mozambique from a low-income to a middle-income country. In a political system dominated by patronage, the arrival of the gas projects also presented the potential for the ruling party to administer contracts, and control opportunities and resources.

The Mozambican government proved itself willing to work effectively with international institutions and international oil companies to create a favourable legal and tax regime for the oil projects to go ahead. Compared to Tanzania – which shares the same gas fields but has moved far slower to develop them – gas projects in Mozambique have progressed more rapidly as a result of this favourable environment (including lower government revenues).

More of the national conversation on gas in Mozambique has focused on managing gas revenues – for example through a sovereign wealth fund – rather than on the risk of the gas revenues failing to materialise.

In recent months, there has the been the beginnings of a new conversation on climate and gas in Mozambique that recognises energy transition risk. Mozambique's president Felipe Nyusi has recognised that global commitments to renewable energy is reducing demand for gas.[41] The energy minister has said

[41] O Pais (2021) **'PR diz que gás deve beneficiar a todos os Moçambicanos'**, 21 April 2021

that Mozambique is committed to 'gas decarbonisation' in order to export carbon-free natural gas.[42]

However it is clear that Mozambique still expects large-scale benefits from gas production. At COP26 in Glasgow, the Mozambican prime minister requested financial support in order for Mozambique to keep developing gas and coal.[43] Mozambique is also continuing to issue permits for further oil and gas exploration and production.

A deeper reset of expectations is needed about the role that gas will play in Mozambique's development. Mozambique should recognise the increased risk environment faced by the gas projects – including the risk that they will produce low or no government revenues – and seek to manage political and public expectations. [44] Ultimately, a shift in focus will be needed onto non-extractive sectors as the primary engine for sustainable growth.

Mozambique is a low income country with very low historical responsibility for climate change. Nevertheless, the global energy transition means that Mozambique's considerable fossil fuel resources could be left stranded. In contrast with the current approach of seeking international financing to ensure these resources continue to be developed, there is a strong case for international financial support for an equitable and just transition for Mozambique – that recognises these fossil resources will stay in the ground.

Oil and gas companies

International oil and gas companies have played key roles in exploration for gas resources, structuring the gas production projects and engaging with government to create a favourable environment for gas extraction. This is led by major US and European oil companies (such as Exxon, Eni, Anadarko, Total and Galp) who seek to develop 'frontier markets' and increase their reserves. Companies including Shell, BP and Centrica are significant buyers of the gas. Asian oil and gas companies such as China National Petroleum Corp, Korea's KOGAS, Japan's Mitsui and India's ONGC and Bharat Petroleum hold significant minority stakes in the projects. Mozambique's proximity to growth markets in Asia and swing markets in Europe was seen as an advantage for developing Mozambique's gas resources.

[42] Club of Mozambique (2021) **'Mozambique: Government committed to produce zero carbon natural gas'**

[43] O Pais (2021) **'Moçambique vai negociar para continuar a explorar gas e carvão',** 3 November 2021

[44] NRGI (2021) **How Mozambique Could Strengthen its Proposed Sovereign Wealth Fund. Natural Resource Governance Institute**

The oil and gas companies assert that the LNG projects will contribute to Mozambique's development, including through revenue generation. But the approach they have taken weakens local benefits. The Mozambique LNG project adopted complex tax structures with its legal entities set up in Dubai – a move that will be estimated to cost Mozambique over $5 billion in government revenues.[45] The companies also successfully lobbied against legally-enforceable local content rules.[46]

Many of the oil and companies involved in the projects (including Total, Eni, Shell, BP, Galp) have adopted Net Zero 2050 targets. However, the projects under development – if they go ahead – are likely to still be operational after 2050. Companies like Eni are also still exploring for new oil and gas supplies in Mozambique, which would continue producing well into the second half of the century.[47]

To attempt to square the circle of continued gas production with carbon neutrality, several of the companies are looking to generate carbon credits from forestry in Mozambique to zero out emissions from gas. However there are serious concerns over the emissions accounting of this approach – and previous offset projects have contributed to land use conflicts.

Exxon is also looking at adopting carbon capture and storage (CCS) at its Rovuma LNG project.[48] However this would only capture the emissions from production and liquefaction, while the majority of gas emissions comes from its eventual combustion. CCS is a complex undertaking, not only in technology and engineering terms but also for governance. Legal and financial arrangements are needed to guarantee that captured carbon is kept underground indefinitely. This is even more challenging for countries like Mozambique with weaker economic and enforcement capacity.

Notably, few of the oil and gas companies are investing in renewables in Africa.[49]

[45] OpenOil (2021) **Too Late to Count: a financial analysis of Mozambique's gas sector**

[46] CDD (2020) **Lobbying that hinders the Local Content Bill in Mozambique**

[47] Diario Economico (2021) '**ENI Confirms Start of LNG Exploration next Year and Wants to Produce Biofuels'**

[48] Zitamar (2021) **Exxon looking to capture carbon from LNG project, Mozambique confirms - Zitamar**

[49] Akinosho, T (2021) **Oil majors won't lead Africa's transition into renewables**. *Africa Oil and Gas Report*

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International partners and donors

Mozambique's international partners also contributed to inflating expectations on the gas projects, including through diplomatic engagement. The UK, US, France, Italy and other governments have publicly promoted the gas projects (including in conferences and their own events) and pushed gas as an economic development opportunity.

Commercial diplomacy is a key driver for this stance. Governments seek to secure contracts for their own national companies, and use finance and diplomacy to advance these interests.

Several of these governments saw gas as a solution to make Mozambique less reliant on aid: as gas revenues increased, it was hoped, donors could redirect aid money elsewhere.

International aid was also used to try to make the gas projects more beneficial for Mozambique. The UK is funding training programmes to enable more Mozambicans to gain employment in the gas sector, for example. [50] Norway's 'Oil for Development' programme – now discontinued due to climate and energy transition concerns – focused on maximising tax revenues and prudent management of the gas resources.[51]

By contrast, climate diplomacy initiatives into Mozambique have largely avoided engaging on gas issues or on Mozambique's exposure to energy transition risk. Climate diplomacy, energy diplomacy and commercial diplomacy (including from UK and European governments) have appeared highly disjointed and sometimes contradictory – limiting their effectiveness. Stronger consistency is needed, including by ensuring climate is considered across all forms of diplomatic engagement.

[50] Club of Mozambique (2021) '**New 3t EnerMech joint venture secures vital work with UK Government and Mozambique's oil and gas sector**'

[51] Bistands Aktuelt (2021) '**Fra olje til energi for utvikling**'

Figure 7: Until recently, the LNG projects received active and public support from the UK High Commission and other diplomatic delegations

International public financing

International public finance has played a critical role for enabling the gas projects in Mozambique.

For the Mozambique LNG project, around $14 billion of the overall $24 billion project costs are met by finance from export credit agencies and the African Development Bank.[52] A further $2.25 billion was underwritten by the Mozambican government to guarantee the participation of ENH. Commercial banks provided $1.35 billion in loans, with the remaining equity finance coming from project partners. A similar structure dominated by public finance was also followed for the Coral South LNG project. Rovuma LNG has already secured $1.5 billion in political risk insurance from the US Development Finance Corporation.

[52] FTI Consulting (2020) **Project Financing: Review of Mozambique LNG**

Figure 8: International public financing for Mozambique LNG[53]

Type	Country	Lender	Amount (bn USD)
Direct loans	USA	US Exim	4.70
	Japan	JBIC	3.00
	-	AfDB	0.40
	Thailand	EXIM Thailand	0.15
ECA covered loans	Japan	Nexi	2.00
	UK	UKEF	1.15
	Italy	SACE	0.95
	South Africa	ECIC	0.80
	Netherlands	Atradius	0.64
Total			**13.79**

These loans represent serious failings in project evaluation – both on security and climate grounds.

Security risks from the conflict in northern Mozambique were already well known in August 2020, when the ECAs and AfDB signed their commitments – but due diligence procedures did not stop the investments. Documents from US Exim highlighted that insurgency is the "primary security threat" to the project's "schedule and costs, not to mention potential threats to life," and also recognised perception from local Mozambicans that they are not seeing benefits from the project as a key factor in insecurity.[54] Nevertheless Exim proceeded with its $5 billion investment. Similarly, the Netherlands' Atradius export credit agency ignored warnings from the Dutch embassy that "the security situation is

[53] FTI Consulting (2020) **Project Financing: Review of Mozambique LNG**

[54] Bloomberg (2021) '**US ExIm Bank Warned on Mozambique Gas Project Risks Before Loan'**

deteriorating by the day" and agreed to contribute hundreds of millions of public financing.[55]

These public lenders also failed to assess the projects against scenarios compatible with the Paris Agreement, despite several of the governments having committed to net zero targets. UKEF assumed that the "project will at least result in some displacement of more polluting fuels, with a consequence of some net reduction in emissions".[56] These simplistic assumptions meant that the risks to the gas projects – and the negative climate impacts that the gas projects pose - were severely underestimated.

However, this picture is now changing. Four of the governments who provided public finance to the Mozambique LNG project (UK, US, Italy, Netherlands) have now committed to end international public finance for fossil fuels entirely – in recognition of the need for consistency with the Paris Agreement.[57] Other governments and lenders may follow. As these lenders withdraw from fossil fuels, it will be essential that they redirect their financing into clean investments and economic diversification in Mozambique and other developing countries, rather than exiting these countries entirely.

International Monetary Fund

IMF modelling was a key factor in inflating the bubble of expectations on gas in Mozambique. While the IMF has stepped back from its projections of half a trillion dollars in revenue from the gas projects, it continues to frame LNG as an opportunity while understating the risks.[58] The gas projects are presented as critical for Mozambique's debt sustainability – while the debt incurred by Mozambique's national oil company ENH is assumed not to be a concern due to the future revenues it will earn from the gas investments.[59] This echoes analysis from ActionAid and the Bretton Woods Project that found that IMF country-specific policy advice to over half of its members has recommended expansion of fossil fuel infrastructure – even after the Paris Agreement was signed. [60]

[55] NRC (2021) '**The Netherlands ignored warnings about kidnappings and beheadings in Mozambique during gas project'**

[56] UK Export Finance (2020) **Category A project supported: Mozambique Liquified Natural Gas (LNG) Project**

[57] **Statement on International Public Support for the Clean Energy Transition - UN Climate Change Conference (COP26).**

[58] 360 Mozambique (2021) '**It is Unwise to Limit Gas Projects in Mozambique – IMF'**

[59] IMF and IDA (2020) **Joint World Bank-IMF Debt Sustainability Analysis**

[60] ActionAid USA and the Bretton Woods Project (2021) **IMF Surveillance and Climate Change Transition Risks: Reforming IMF policy advice to support a just energy transition**

Given this context, there is a clear need for the IMF to incorporate a stronger understanding of climate and transition risk across its operations, which it has now started to do. The IMF is currently updating its guidance on macroeconomic surveillance.[61] However, this focuses narrowly on the 20 largest greenhouse gas emitters, while for other countries the approach will be left to the discretion of IMF country teams. The IMF should guide their staff to initiate a conversation in countries - like Mozambique - which are not necessarily large emitters but which risk undermining their fiscal sustainability in the near future due to ongoing fossil fuel investment. This is a basic issue of avoiding overinvestment in shrinking sectors.

The IMF also needs to move away from a silo approach between climate and development: in Mozambique and similar economies, climate action and long-term fiscal sustainability are inherently linked. The IMF has signalled that it will start to incorporate climate risk concerns into debt sustainability analysis, but its approach on evaluating transition risk for debt sustainability of fossil fuel producers is not yet clear.[62]

World Bank

The World Bank has been involved with promoting gas extraction in Mozambique since 1994, initially focusing on Temane / Pande and then the Rovuma fields in northern Mozambique.[63] While the World Bank no longer finances upstream exploration and production, it invested heavily in regulatory reform and technical assistance in areas such as tax and contracting to enable the gas projects to go ahead. This support has come under criticism: the World Bank's budget support for Mozambique in 2014 was contingent on adopting a new Petroleum Law, which gave considerable tax breaks for the gas developers.[64] Meanwhile, the law firms appointed by the World Bank to advise the Mozambican government in contract negotiations also advised multiple gas companies involved in developing the LNG projects, raising conflict of interest concerns.[65]

[61] IMF (2021) **2021 Comprehensive Surveillance Review— Background Paper on Integrating Climate Change into Article IV Consultations**

[62] IMF (2021) **IMF Strategy to Help Members Address Climate Change Related Policy Challenges— Priorities, Modes of Delivery, and Budget Implications**

[63] CIP (2013) **Pande Temana Gas exports to South Africa by Sasol: First major extractive sector projects fails Mozambique**

[64] Bretton Woods Project (2021) **World Bank and IMF lend support to mega-gas project in Mozambique, undeterred by growing risks**

[65] Urgewald (2020) **World Bank involved in conflict of interest cases in Mozambique LNG development.**

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As with the IMF, there is a strong need to update expectations of how gas resources relate to macroeconomic stability and risk for producer countries, in the context of increasing volatility of gas prices and the potential for demand-side disruption as the global energy transition deepens.

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CONCLUSION

Mozambique is among the least developed countries in the world. The discovery of gas off the shores of northern Mozambique 10 years ago appeared to signal the potential to supercharge Mozambique's economic development and catapult it into becoming a middle income country.

The realities, however, have been deeply challenging. Conflict, corruption and economic distortion have hindered development gains, and much of the population is poorer than they were a decade ago.

Future prospects for gas resources to deliver positive development outcomes look equally bleak. Mozambique is a low-emitting country and has very low historical responsibility for climate change. In the context of an accelerating global energy transition, however, the key barrier to Mozambique's gas production is not moral but economic: as gas demand becomes lower and prices more volatile than expected, the expected revenues and associated development gains are now unlikely. There is even a real prospect that the gas projects will worsen rather than alleviate Mozambique's debt distress.

Mozambique and its international partners need to reset their assumptions on gas and development, and re-focus on other economic pathways. Redirecting and significantly expanding international financing will be crucial for this – in recognition of the need to accelerate Mozambique's development even though most of its gas and coal resources will stay in the ground.