

## Research Article

# Reforming Tanzania's oil and gas sector: Strategic analysis of commercialization constraints and future prospects

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## ABSTRACT

Tanzania's vast natural gas reserves offer significant potential for economic transformation, yet commercialization efforts have consistently failed. Despite numerous regulatory and institutional reforms, the sector remains hindered by fragmented policies, inadequate infrastructure, weak governance, and limited investor confidence. These challenges have delayed critical projects such as the Liquefied Natural Gas (LNG) plant and constrained the sector's capacity to support industrial growth and energy security. This study examines key barriers to commercialization, focusing on five interrelated challenges: policy incoherence, limited infrastructure, weak investment facilitation, ineffective local content and corporate social responsibility (CSR) frameworks, and inadequate environmental governance. A particular concern is the inefficiency of the national oil company (NOC), burdened by non-commercial responsibilities and limited operational flexibility. To address these issues, the study proposes a shift from state centric control to a transparent, investor-responsive, market-driven framework. Recommended reforms include restructuring the NOC, strengthening regulatory autonomy, expanding private public partnerships, aligning local content policies with domestic capacity, and introducing financial risk management tools to protect the sector from global shocks. Unlocking Tanzania's commercialization potential depends on institutional realignment and effective policy execution. Bridging the gap between reform ambition and implementation is essential to transforming the oil and gas sector into a foundation for long term, sustainable development.

**Key words:** Oil and natural gas, Regulatory and policy reforms, National oil company, Public private partnership, Investor confidence

## INTRODUCTION

Oil and natural gas resources are strategically important drivers of economic transformation in many resource-rich countries. In Tanzania, these resources are central to its goals for industrial growth, energy security, and regional influence. As a developing country with objectives for industrialization, regional leadership, and energy self-sufficiency, the successful exploitation of these resources could diversify national revenue, reduce dependency on hydroelectric power, and stimulate infrastructure and growth of employment. The presence of over 57 trillion cubic feet (Tcf) of proven natural gas reserves positions Tanzania as a potential energy hub in East Africa, capable of meeting both domestic energy demands and supplying regional and global markets (Ledesma, 2013; Nakanwagi, 2021).

Despite this promising resource base, Tanzania continues to face a persistent commercialization gap. While significant natural gas discoveries have been made since the 1970s, the country has struggled to convert these reserves into sustained economic benefits (Bishoge *et al.*, 2018). Delays in infrastructure development, inconsistent regulatory environments, and wavering investor confidence have all contributed to slow progress (Demierre *et al.*, 2015). Furthermore, Tanzania's policy direction has often oscillated between protectionist resource nationalism and liberal market participation, leading to uncertainty and project delays, as

vividly the case of the \$42 billion liquefied natural gas (LNG) Plant export terminal in Lindi (Barlow, 2024).

Tanzania's journey in the oil and gas sector began in 1974 with the discovery of natural gas at Songo Songo Island by AGIP. This was followed by further discoveries at Mnazi Bay in 1982, and in the 2000s, more reserves were identified in Mkuranga, Kiliwani, Ntorya, and offshore blocks (Table 1). The country has seen a great transition in gas reserve expansion from 8 Tcf in 2003 to 57 Tcf in 2025 (Ministry of Energy and Minerals, 2025). The construction of key infrastructure, such as the Mtwara–Dar es Salaam gas pipeline represented a step forward. However, five decades after the first discovery, the country still struggles with delayed investment decisions, poor local content integration, and a lack of downstream industrialization to match its upstream potential.

This study, therefore, investigates the underlying challenges inhibiting the full commercialization of Tanzania's oil and gas sector. The study assesses institutional, infrastructural, environmental, and policy constraints, and suggests strategic recommendations to bridge the commercialization boundary and unlock the sector's full potential.

## Study background

Natural resource discoveries, especially hydrocarbons, have historically shaped the economic paths of developing

nations. However, the presence of such resources doesn't guarantee social or economic prosperity. Poor regulatory environments, institutional inefficiencies, and inconsistent revenue management have often obstructed the path to commercialization (Bishoge *et al.*, 2018; Chuwa & Perfect-Mrema, 2023; Chuwa, 2023).

Tanzania offers a compelling example of this energy paradox. As a key player in East Africa's petroleum landscape, the country has made significant progress in resource identification, remarkably expanding its proven natural gas reserves from 8 trillion cubic feet in 2003 to over 55 trillion cubic feet by 2015 (Marwa & Mwanga 2023; Tumbu, 2024). Despite this growth, commercialization outcomes have remained limited. Major infrastructure projects, such as the Mtwara–Dar es Salaam pipeline, have improved capacity, but actual realization in domestic and international markets has lagged behind expectations.

These shortcomings are not simply contributed by physical or geological barriers. Market structure issues and structural and institutional constraints such as regulatory uncertainty, policy volatility, and the dominance of foreign investors continue to undermine sector growth. Tanzania's oil and gas sector has evolved under multiple regulatory reform phases, including the introduction of the Model Production Sharing Agreement (MPSA), periodic legislative updates, and the enactment of the 2015 Petroleum Act (Pedersen & Bofin, 2015; Jacob & Pedersen, 2018; Bofin *et al.*, 2020). However, weak implementation and enforcement, combined with limited domestic industrial absorption, have prevented these reforms from yielding significant commercial returns.

Tanzania's oil and gas sector has evolved through five key phases (Table 2) of exploration and development since 1952 (Nakanwagi, 2021; Tumbu, 2024). Each phase brought new discoveries, policy adaptations, and growing investor interest but also recurring setbacks that hindered effective commercialization.

The first phase (1952–1954) began under British colonial administration when Shell and British Petroleum (BP) conducted geological surveys along the coastal regions of Mafia, Pemba, and Unguja islands. Despite early optimism, the exploration efforts yielded no commercially viable discoveries. The lack of modern technology and limited geological data constrained success during this initial phase, and activity soon stalled (Roe, 2017).

The second phase (1969–1979) marked a turning point when AGIP (Azienda Generale Italiana Petroli), an Italian oil company, discovered natural gas at Songo Songo Island in 1974 (Tungaraza, 2015). This occurred during the global oil crisis, which elevated interest in alternative energy sources. However, the Tanzanian government lacked both the technical expertise and capital to exploit the discovery. Moreover, institutional frameworks were underdeveloped, and regulatory structures for foreign investment were weak, leaving the discovery

largely dormant for years (Vassiliou, 2009; Tungaraza, 2015; Fjeldstad *et al.*, 2019).

The third phase (1980–1991) saw the discovery of natural gas at Mnazi Bay in 1982 (Komba *et al.*, 2015). In response to rising global interest, Tanzania introduced its first Model Production Sharing Agreement (MPSA) in the late 1980s to attract international oil companies (IOCs) with a more rules-based approach. However, the effort coincided with a global oil price downturn, discouraging investor participation. Several companies including Shell, Elf, and AMOCO were granted licenses, but many later withdrew due to economic instability and low return prospects (Komba *et al.*, 2015; Bishoge *et al.*, 2018).

During the fourth phase (1992–1999), exploration activities resumed with renewed momentum, driven primarily by donor supported, liberalization initiatives and policy efforts aimed at reviving private sector participation in the energy sector (Komba *et al.*, 2015). Tanzania issued new exploration licenses to Tanganyika Oil, Antrim Resources, and Shell firms. Deep offshore basins were mapped using seismic data, revealing further hydrocarbon potential (Davison & Steel 2018; Barongo, 2024). However, rigid contract terms and bureaucratic difficulties remained obstacles. Despite minor policy revisions to the MPSA, Tanzania failed to capitalize fully on this international interest due to administrative inefficiencies and weak fiscal incentives (Augé, 2015).

The fifth phase (2000–present) has been the most dynamic in Tanzania's oil and gas sector. With the advent of advanced seismic imaging and deep-water drilling technologies, major offshore gas discoveries were made in Blocks 1, 2, 3, and 4 (Figure 1) by companies including Statoil (now Equinor), BG Group (now Shell), and Ophir Energy. Among these, the 2012 Zafarani discovery in the southern coast offshore remain one of the largest in East Africa (Pirker & Badmaeva, 2021). In response, the government introduced comprehensive reforms including the Petroleum Act of 2015, the Oil and Gas Revenue Management Act, and Local Content Regulations aimed at elevating state control, enhancing transparency, and ensuring local communities benefit from resource extraction (Tungaraza, 2015; Barongo, 2024).

However, while these policy responses were ambitious, implementation has stalled, and key investment decisions such as the Final Investment Decision (FID) for the LNG export terminal in Lindi have been continually delayed. To date, critical agreements like the Host Government Agreement (HGA) remain unsigned, underscoring persistent regulatory and institutional bottlenecks. Generally, uncertainty around the HGA, policy volatility, and global energy transitions toward renewables have further stifled investor enthusiasm (Fjeldstad *et al.*, 2019; Poncian 2019; Elewa, 2022).

## Regulatory and policy frameworks

Tanzania's oil and gas sector has seen significant regulatory evolution since the establishment of the Tanzania Petroleum Development Corporation (TPDC) in 1969, which laid

the foundation for state-led resource management. The introduction of the Model Production Sharing Agreement (MPSA) in 1989 aimed to provide clear guidelines for partnerships with international oil companies (IOCs).

Over the years, Tanzania has enacted a series of legal reforms to enhance sector transparency, fiscal management, and national benefit. These include the Petroleum Act of 2008, the National Natural Gas Policy of 2013, the Local Content Policy of 2014, the Oil and Gas Revenue Management Act of 2015, and the Petroleum Act of 2015. Collectively, these instruments emphasized corporate social responsibility (CSR), local content enforcement, and equitable revenue distribution (Bofin & Pedersen, 2017; Bishoge *et al.*, 2018; Jacob & Pedersen, 2018). The Natural Wealth and Resources Contracts (Review and Renegotiation of Unconscionable Terms) Act of 2017 further empowered the government to renegotiate agreements deemed unfavorable, marking a shift toward protecting resource nationalism and enhanced sovereignty over extractive contracts.

Despite these legislative reforms, implementation has remained inconsistent and slow, undermining the objectives they sought to achieve. For example, the 2017 Natural Wealth Act introduced ambiguous criteria for determining “unconscionable” terms resulting in extended contract reviews and regulatory paralysis. This has directly contributed to the prolonged delay of critical investments, notably the USD 42 billion LNG plant in Lindi, whose Host Government Agreement (HGA) expected in 2018 remains unsigned as of 2025. Coupled with volatile global LNG prices (averaging USD 7–8/mm Btu against Tanzania’s viability threshold of USD 14/mm Btu), the legal uncertainty has discouraged investor commitment (Deus, 2024).

Moreover, frequent policy reversals such as the government’s 2020 pivot toward hydropower and shifting investment narratives have promoted perceptions of regulatory instability. This uncertainty has driven several IOCs, including Equinor, Shell, and ExxonMobil, to slow down operations or reallocate investments to more predictable environments like Mozambique, where agreements have progressed more swiftly.

The complexity and unpredictability of Tanzania’s regulatory framework have, therefore, limited the sector’s commercialization potential. While policies like the 2013 National Gas Policy and 2015 Petroleum Act were designed to promote local content and transparent revenue management, weak institutional capacity and underdeveloped infrastructure have hindered their success (Henstridge, 2020). In Mtwara, for example, unmet expectations of economic spillovers in agriculture, construction, and hospitality have led to declining land values and disappointment among residents. Investors’ wariness, exacerbated by the 2017 PSA reviews and unclear long-term policy stability, has left Tanzania struggling to follow footsteps of more successful peers in the oil and gas sector.

## Comparative insights: Lessons from Norway and Nigeria

International experiences offer valuable lessons for Tanzania. Norway, for example, demonstrates how strong institutional frameworks and consistent policy execution can turn resource discoveries into long-term national development. Following major oil discovery in the North Sea in the 1960s, Norway established clear legal structures, created a national oil company (Statoil, now Equinor), and launched the Government Pension Fund Global to manage petroleum revenues transparently and sustainably (Victor *et al.*, 2011; Overland, 2018). These efforts ensured that oil wealth contributed to broad-based social and economic development. In contrast, Nigeria, one of Africa’s largest oil producers, has struggled with revenue mismanagement, regulatory inefficiencies, and corruption. The Petroleum Industry Bill (PIB) first proposed in 2008 was delayed for over a decade due to political and institutional challenges (Gillies, 2010; Gillies, 2020; Nwozor *et al.*, 2020; Olujobi, 2021). Although the PIB was eventually passed in 2021, delays had already undermined investor confidence and the effectiveness of earlier reforms. The bill’s passage aimed to streamline governance, attract investment, and improve transparency, but its late implementation underscores the risks of policy inertia (Gillies, 2020; Solomon, 2021).

## The way forward for tanzania

Tanzania must learn from these contrasting cases by shifting its focus from reform enactment to effective implementation. Swift, predictable, and enforceable regulation affixed in institutional capacity is essential for restoring investor confidence and unlocking the country’s LNG potential. Prioritizing the full execution of the Petroleum Act of 2015, finalizing long pending agreements like the HGA, and providing clarity on PSA reviews are critical steps. Moreover, maintaining a stable investment climate without frequent policy shifts will allow Tanzania to convert its significant resource base into sustainable national growth.

## Infrastructure challenges

Despite possessing substantial natural gas reserves, Tanzania continues to face serious infrastructure deficiency that hinders large scale commercialization. The country faces deficiencies include limited refining capacity, underdeveloped transportation networks, and inadequate distribution and storage facilities (Bishoge *et al.*, 2018). These gaps restrict the country’s ability to process and transport gas efficiently for both domestic consumption and export. Although the construction of the Mtwara Dar es Salaam gas pipeline represented a major step forward, existing infrastructure remains insufficient to meet the rising energy demands fueled by industrialization and urbanization (Bofin *et al.*, 2020).

The Songo Songo gas field highlights the consequences of one-time infrastructure investment without adaptive expansion. While the development of a 70 million standard



cubic feet per day (MMscfd) gas purification plant and a 247 km pipeline from Lindi to Dar es Salaam were important milestones, these installations quickly became inadequate amid growing energy consumption. The later expansion of production in Madimba, Mtwara, and its integration into the Songo Songo system improved supply reliability (Figure 2), but it underscored the need for a comprehensive national gas infrastructure strategy (Pedersen & Bofin, 2015).

Another major concern is the financing structure of Tanzania's energy projects, which relies heavily on external funding. The Mtwara Dar es Salaam pipeline project, for instance, was financed 95% by the Exim Bank of China, with only 5% provided by the Tanzanian government. This raised questions about fiscal sustainability and exposed the country to heightened external debt vulnerability (Bishoge *et al.*, 2018). Similarly, the projected USD 42 billion cost of the planned LNG terminal in Lindi places it far beyond domestic financing capacity, making collaboration with international oil companies (IOCs) essential. Therefore, Tanzania's infrastructure limitations are compounded by a dependence on foreign capital and technology, which not only delays implementation but also reduces local ownership and knowledge transfer. These constraints severely limit the country's ability to meet international gas demand and capitalize on favorable export opportunities.

To overcome these challenges, the government must prioritize strategic investment in midstream and downstream infrastructure, including gas processing plants, regional distribution pipelines, and storage facilities. Unlocking this potential requires embracing public-private partnerships (PPPs), attracting foreign direct investment (FDI), and exploring innovative financing instruments such as infrastructure bonds and sovereign wealth funds. Furthermore, maximizing domestic utilization of natural gas is critical. Investing in gas to power projects, fertilizer production, and petrochemical industries can generate widespread economic benefits and reduce dependency on exports. Increasing upstream gas production, while simultaneously expanding processing capacity and internal distribution, will enhance energy security, industrial growth, and national competitiveness in the global energy market.

## Investment climate

Tanzania has long aimed to position itself as an attractive destination for foreign direct investment (FDI) in the oil and gas sector. Through the launch and issuance of exploration licenses, the introduction of revenue sharing frameworks, and the promotion of resource-based industrialization, government policy has actively encouraged partnerships with international oil companies (IOCs). These efforts targeted both upstream exploration and downstream processing as engines for economic growth, infrastructure development, and job creation (Bofin & Pedersen, 2017).

These policy signals, however, generated a period of increased investor interest in the 2000s and early 2010s. Major

international players in the oil and gas sector including Statoil (now Equinor), Shell, ExxonMobil, and Ophir Energy invested in offshore blocks, conducted explorations, and announced promising gas discoveries which elevated Tanzania's profile in the global energy market (Pedersen *et al.*, 2020).

However, investor confidence has since deteriorated. Frequent regulatory changes, ambiguous fiscal terms, and the enforcement of the 2017 Natural Wealth and Resources Contracts Act which empowers the government to review and renegotiate existing contracts have introduced significant policy uncertainty (Bishoge *et al.*, 2018). Currently, the global investment climate in the oil and gas sector is significantly influenced by global economic trends, including fluctuations in oil prices (Table 3) and the increasing shift towards renewable energy (Heidari *et al.*, 2022; Ekechukwu & Simpa, 2024). This volatility creates uncertainty, which can discourage foreign direct investment (FDI). Despite substantial reserves in Tanzania, the country faces difficulties in attracting and retaining the necessary investment for the commercialization of its natural resources due to fluctuating global oil prices, unstable regulatory policies, and poor infrastructure which discourage long term investments. These shifts have undermined the predictability required for long term capital commitments. Additionally, lack of a transparent and inclusive consultation process with stakeholders, the government's increasing resource nationalism, manifested in stricter local content requirements and a push for state ownership, further complicate negotiations and raises concerns about the adherence of contracts (Jacob & Pedersen, 2018; Bofin *et al.*, 2020; Pedersen *et al.*, 2020).

To address these challenges, Tanzania must create a more stable, transparent, and investor friendly environment. This includes clarifying fiscal and operational terms, minimizing frequent informal policy changes, and providing incentives for both upstream and downstream investment. Streamlined regulatory approval processes, enforceable legal protections, and improved stakeholder engagement are critical to rebuilding investor confidence. Moreover, aligning its energy strategy with global sustainability trends while positioning natural gas as a transitional energy fuel can help Tanzania remain competitive in an increasingly carbon conscious global market.

## Local content and corporate social responsibility (CSR)

Local content requirements (LCRs) in Tanzania's oil and gas sector are designed to promote inclusive economic development by ensuring that Tanzanians participate meaningfully in the value chain. These include mandates for local employment, procurement from Tanzanian firms, use of domestic financial institutions, and technology transfer. Highlighted and protected in the Petroleum (Local Content) Regulations, 2017 and supported by the Petroleum Act of 2015 and the Natural Wealth and Resources Act of 2017, these policies aim to build national capacity and reduce dependence on foreign expertise and capital.

However, despite the good intentions, these requirements have posed significant challenges for commercialization. Studies by Calignano and Vaaland (2018) and recent analyses categorize these barriers into regulatory rigidity, capacity limitations, and investor uncertainty. For instance, Regulation 29 stipulates escalating local content thresholds (ranging from 20% to 80%), while Regulation 13 mandates detailed succession plans for expatriate roles. While these rules aim to promote local participation, they often impose a complex compliance burden that slows down operations and discourages investment.

Calignano and Vaaland (2018) study highlights that the stringent requirements, combined with the Minister of Energy's mandate to prescribe additional requirements, add further uncertainty. Investors, such as Equinor and Shell, faced challenges navigating these evolving rules, which stalled major projects like the \$42 billion LNG facility for years. Delays in final investment decisions (FID) partly stem from such regulatory hurdles, slowing the sector's ability to generate revenue and reach markets.

Beyond regulatory challenges, Tanzania's domestic capacity constraints undermine the practical implementation of local content goals. While the legislation emphasizes skills development and local supplier integration, the workforce and supporting industries often lack the technical expertise, capital, and infrastructure to meet industry demands. Regulation 14(3) allows exemptions where qualified Tanzanians are unavailable, yet frequent reliance on such waivers reveals the systemic gap between policy expectations and market realities (Bofin & Pedersen, 2017). Calignano and Vaaland (2018) point out that the local financial institutions also face limitations. Although Regulation 26 prioritizes Tanzanian banks for financing, many lack the capital base to support large-scale oil and gas investments. This underdevelopment of the local supply chain reduces the sector's potential to generate domestic economic linkages and diminishes the anticipated benefits of resource commercialization.

While there are notable examples where CSR initiatives have successfully contributed to local development, such as community health and infrastructure projects in gas-rich regions like Mtwara, challenges remain. Local businesses often lack the technical expertise or capacity to meet the demands of the oil and gas sector, meaning foreign companies tend to dominate the value chain, reducing the long-term benefits for the Tanzanian economy (Plisnier *et al.*, 2018). However, CSR outcomes have often been undermined by weak governance, lack of transparency, and corruption, leading to poor targeting and ineffective implementation (Silva, 2024).

Tanzania must therefore strengthen its institutional capacity, particularly in regulatory agencies responsible for monitoring compliance and facilitating local participation to enforce local content policies and ensure transparency in the execution of CSR initiatives. Strengthening local technical education and business development support will reduce

reliance on exemptions and foster a competitive domestic supply base. Only through coordinated policy execution, institutional reform, and capacity investment can Tanzania translate its LCR and CSR mandates into physical outcomes that support the broader goals of sustainable and inclusive development.

## Environmental concerns and social impacts

Like many resources-rich developing countries, Tanzania faces the challenge of balancing economic development with environmental protection in its oil and gas sector. These environmental risks are particularly acute in ecologically sensitive areas such as Songo Songo Island and Mnazi Bay, where oil and gas exploration and development activities have raised concerns about potential water contamination and ecosystem disruption (Jacob & Pedersen, 2018).

The urgency of this challenge is perpetuated by the global push for environmental sustainability and decarbonization. As countries adopt more ambitious climate strategies such as the 2030 emission reduction targets support for fossil fuel projects is declining. International financial institutions and development agencies are increasingly reluctant to fund oil and gas ventures, preferring investments aligned with renewable energy and net zero goals. This evolving landscape makes it harder for Tanzania to secure financing for large scale fossil fuel infrastructure and casts doubt on the long term viability of such projects (Nakanwagi, 2021). Tanzania's giant hydropower project is also a reflection of the dynamic shift towards green energy and subsequently has sabotaged its own oil and gas investment. This shift makes securing funding for oil and gas projects increasingly difficult and raises uncertainties about long term market demand.

The East African Crude Oil Pipeline (EACOP) project proves the growing environmental scrutiny faced by fossil fuel infrastructure. The pipeline has encountered global criticism from environmental groups and financial institutions, who highlight potential ecological harm and carbon lock in risks. As international pressure become increasingly, Tanzania must navigate these concerns while pursuing its energy ambitions by adapting to the evolving global energy landscapes and explore ways to integrate sustainable energy strategies into its economic development plans.

In parallel with environmental risks, the social impacts of oil and gas extraction, especially on local communities, are often significant. The displacement of local populations, loss of livelihoods, and conflicts over land rights are common issues in resource rich regions. Tanzania must ensure that its oil and gas projects adhere to international environmental and social standards, such as those set out by the Equator Principles, to minimize adverse impacts (Bishoge *et al.*, 2018). Strengthening the capacity of local authorities to manage these environmental and social risks is critical for the sustainable development of Tanzania's oil and gas sector.

**Table 1:** Tanzania's natural gas discoveries in onshore and offshore reserves (1974-2015)

Location	Year of Discovery	Gas in Place (GIP) - TCF
Songo Songo	1974	2.7
Mnazi Bay	1982	5.0
Mikuranga	2007	0.2
Kiliwani	2008	0.07
Ntorya	2012	0.178
MambaKofi	2015	0.16
Total Onshore GIP		8.0
Deep Sea	2010-2014	47.8
Total GIP (as of June 2015)		55.08

**Table 2:** Summary of the Evolution of Tanzania's Oil and Gas Exploration and Development phases

Phase	Period (Year)	Activities
1 <sup>st</sup>	1952-1964	First research and extraction of natural gas in coastal areas.
2 <sup>nd</sup>	1969-1979	<ul style="list-style-type: none"> <li>Continuation of the research on natural gas on shores and coastal areas</li> <li>Establishment of TPDC in 1969</li> <li>The first discovery of the natural gas in Songo Songo area in Lindi region in 1974</li> </ul>
3 <sup>rd</sup>	1980-1991	<ul style="list-style-type: none"> <li>The enacting of the Petroleum (Research and Production) Act in 1980</li> <li>The discovery of natural gas in Mnazi Bay area in Mtwara region in 1984</li> </ul>
4 <sup>th</sup>	1992-1999	<ul style="list-style-type: none"> <li>The increase in natural gas research and extraction activities</li> <li>The collaboration among the TPDC, TANESCO, Tanganyika Oil Company and other international companies such as Ocelot, Trans-Canada, AMOCO, KUFPEK, Shell, Exxon, Mobil to conduct natural gas activities</li> </ul>
5 <sup>th</sup>	2000-to date	<ul style="list-style-type: none"> <li>The increase of international companies for natural gas activities</li> <li>Songo Songo and Mnazi Bay gas projects entered the successful business activity in 2004 and 2006 respectively</li> <li>The adoption of the National Natural Gas Policy in 2013</li> <li>The adoption of the Local Content policy in 2014</li> <li>The enacting of the Oil and Gas Revenue Management Act in 2015</li> <li>The enacting of the Petroleum Act in 2015</li> <li>Framework agreement signing with Equinor and Shell to advance the \$42 billion Liquefied Natural Gas (LNG) project in Lindi, 2022</li> <li>Launch of a licensing round for 26 oil and gas blocks in 2025</li> </ul>

## International partnerships and regional cooperation

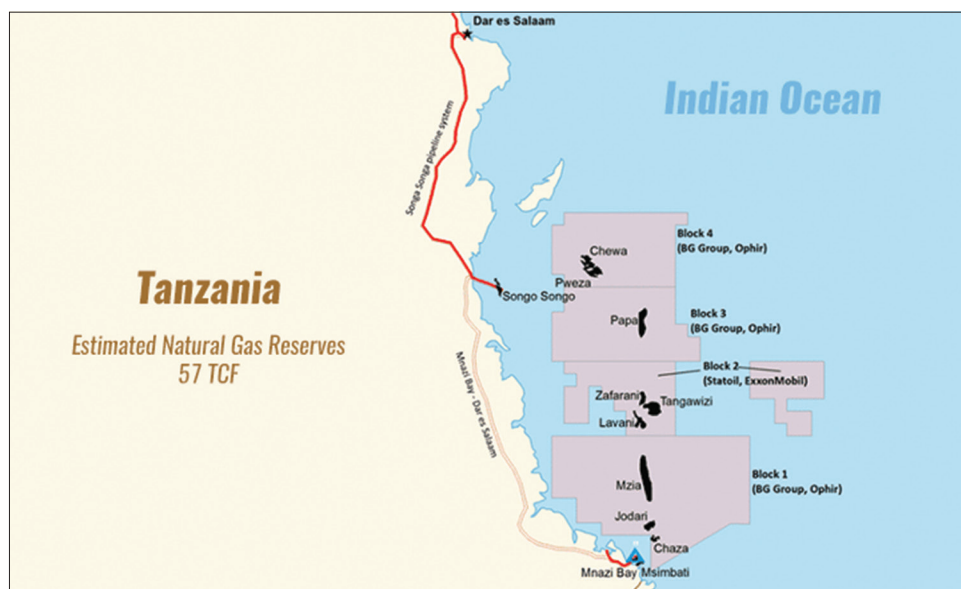
International partnerships and regional cooperation are essential pillars for advancing the commercialization of

**Table 3:** Summarized oil and natural gas prices fluctuations from 2000 to 2024. Prices are in USD and approximate not exact, giving an annual span. The price fluctuations are influenced by different events

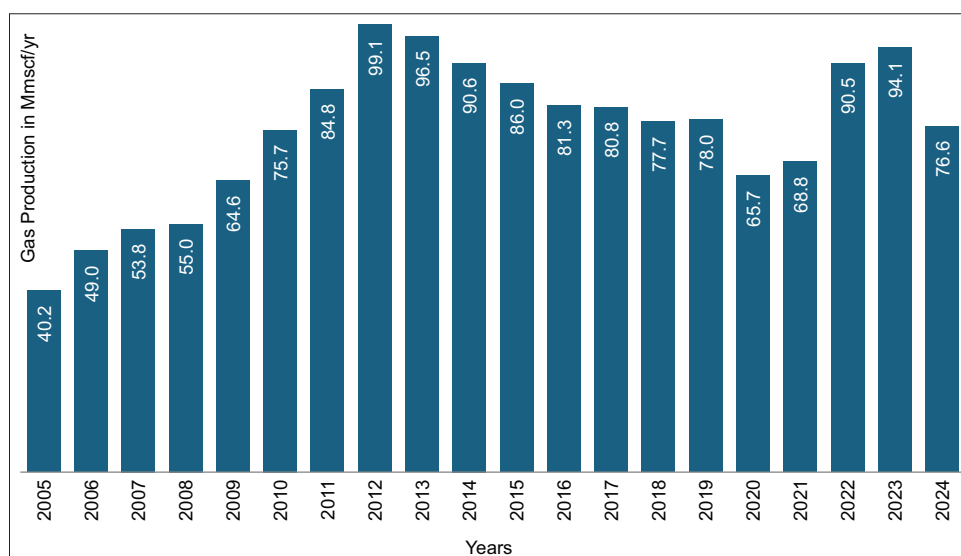
Year	Average Oil Price (USD per Barrel)	Average Natural Gas Price (USD per MMBtu)	Key Events
2000	30	4.50	Stable prices, recovering from the 1998 crisis
2005	55	8.00	Rising demand, geopolitical tensions
June -2008	143	8.86	Recovery, high demand
Dec-2008	30	8.86	Global financial crisis, sharp drop
2011	100	-	High supply demand and price recovery
2012		2.75	Over supply, shale gas production
2014	100 → <70	4.37	OPEC market strategy shift
Jan-2016	27	2.52	Drastic supply demand
April 2020	Negative price	2.03	COVID-19 pandemic, global demand reduction
2021	80	-	Economic recovery post-COVID
2023	82.95	-	Geopolitical uncertainty
2024	80.48	1.91	Market stabilization, green energy shift, LNG supply reduction

Tanzania's oil and gas sector. As a member of the East African Community (EAC) and the Southern African Development Community (SADC), Tanzania is strategically positioned to benefit from the cross-border synergies in infrastructure, policy alignment, and energy trade. Collaboration with neighboring countries like Uganda and Mozambique, which are also developing their petroleum industries, presents clear opportunities. Uganda, for instance, is developing its oil industry through major projects such as the East African Crude Oil Pipeline (EACOP) and refinery industry, despite facing challenges like Tanzania's particularly in financing, environmental impacts, and regulatory harmonization. Joint efforts in infrastructure development, pipeline connectivity, and policy coherence could lower transaction costs, mitigate cross border risks, and accelerate market access for both countries (Nwozor *et al.*, 2021).

Mozambique on the other hand offers an instructive example of how a conducive investment environment can attract large scale international financing and expertise. Its success in securing multibillion dollar commitments for offshore gas development, especially from Total Energies, Exxon Mobil, and Eni demonstrates the importance of regulatory stability, transparent governance, and institutional readiness. Tanzania has a chance to draw lessons from Mozambique's investor engagement strategies and its ability to balance sovereign interests with commercial viability (Victor *et al.*, 2011).



**Figure 1:** The natural gas reserve in Tanzania (source: Tanzania Petroleum Development Cooperation (TPDC))



**Figure 2:** Average annual gas production in Tanzania (Source: TPDC)

Strengthening international partnerships with major energy corporations, multilateral donors, and infrastructure financiers is equally critical. These partnerships can provide access to advanced technologies, technical expertise, and capital-intensive financing that are often beyond domestic capabilities. Additionally, collaboration with development finance institutions such as the World Bank, African Development Bank (AfDB), and IFC can support Tanzania in structuring bankable projects while adhering to environmental and social governance (ESG) standards (Green & Bonds, 2023; Mhlanga, 2024).

Furthermore, deeper regional energy integration through initiatives such as the EAC Energy Strategy and Africa Continental Free Trade Area (AfCFTA) could enhance

Tanzania's competitiveness in exporting gas and other petroleum products to neighboring landlocked countries. Establishing joint regional standards and shared infrastructure could also help streamline cross border energy trade and improve investor confidence (Gogo, 2021; Agarwal *et al.*, 2022; Rwigema, 2024).

To fully capitalize on these opportunities, Tanzania must strengthen its diplomatic and technical engagement with both regional partners and global stakeholders. Proactive participation in regional forums, negotiation of bilateral infrastructure agreements, and harmonization of regulatory frameworks will be crucial in unlocking the economic potential of its oil and gas sector through collaborative approaches.



## COUNTERMEASURES TO IMPROVE TANZANIA'S OIL AND GAS MARKET

### Market regulation and ownership reform

To enhance the performance and competitiveness of its oil and gas sector, Tanzania must urgently undertake reforms in market regulation and ownership structures. While state ownership of oil and natural gas resources remains critical for safeguarding national interests, the current institutional arrangement centered around the Tanzania Petroleum Development Corporation (TPDC) has revealed structural inefficiencies. As the national oil company (NOC), TPDC has been loaded with both unproductive assets and non-commercial social responsibilities, which have constrained its financial and operational effectiveness. Furthermore, corporate governance within TPDC lacks transparency and strategic flexibility, limiting its ability to compete with or attract private sector partners (Bishoge *et al.*, 2018).

To address these challenges, Tanzania should pursue a mixed ownership reform model that redefines the role of the state while encouraging private sector participation. The introduction of Public Private Partnership (PPP) schemes can swing the relationship between private companies and state-owned enterprises from one of competition to collaboration. The model can also help unlock private capital, improve efficiency, and stimulate innovation across the oil and gas value chain. For the mixed ownership reform to work, steps including business restructuring and classification of TPDC's commercial and non-commercial activities, developing a clear roadmap and timeline for implementation, and exploring mechanisms such as equity incentives, employee shareholding programs, and corporatization of operational units to improve accountability and performance must be implemented (Chen *et al.*, 2020).

These reforms should be supported by a strong regulatory framework that separates the commercial and regulatory roles of the state, enhances transparency in decision making, and ensures fair competition in the energy market.

### Management and anti-monopoly regulation

The National Oil Company (NOC) plays a dominant role in Tanzania's petroleum industry, holding exclusive rights over exploration and other strategic upstream activities. However, such administrative monopolies and concentrated managerial authority led to inefficiencies, suppress competition, and reduce overall social welfare. To address these challenges, it is essential to withdraw certain exclusive privileges, allowing room for competitive entry and private-sector innovation. Introducing third-party oversight mechanisms is also important for ensuring transparency, accountability and preventing conflicts of interest between commercial and regulatory functions.

The creation of the Petroleum Upstream Regulatory Authority (PURA) under Section 11 of the Petroleum Act, 2015

(Act No. 21 of 2015) marked a major institutional reform. In parallel, the Energy and Water Utilities Regulatory Authority (EWURA), established under the EWURA Act Cap 414 of 2006 and amended in 2007, 2008, 2019, and 2022, provides technical and economic regulation across the petroleum value chain. These institutions have laid a strong foundation for a more rules based and performance driven sector.

Generally, to strengthen the sector's governance and competitiveness, Tanzania should reinforce the legal and operational independence of PURA and EWURA, clarify the roles and boundaries between TPDC and regulatory agencies, enhance inter agency coordination and data sharing frameworks and ensure adequate funding and human resource capacity for regulators. Moreover, the agencies must operate autonomously, free from political interference (Chengzao *et al.*, 2014; Chen *et al.*, 2020).

### Market risks improvement

Successfully commercializing Tanzania's oil and gas resources requires not only structural reforms but also the capacity to manage external market risks particularly price volatility. Global oil and gas markets are highly influenced by geopolitical tensions, trade disputes, supply disruptions, and macroeconomic shocks, all of which introduce significant uncertainty into investment planning and revenue forecasting (Chen *et al.*, 2020). To mitigate these risks and create a more stable investment environment, Tanzania must develop and implement robust financial risk management mechanisms. One effective strategy is the adoption of financial derivatives such as futures, options, and swaps by both public and private oil and gas entities. These instruments enable firms to verge against price fluctuations, thereby protecting revenue streams and ensuring financial stability during periods of global market turbulence. Moreover, the government should prioritize the development of the domestic oil and gas derivatives market. Establishing regulated trading platforms and enabling institutional participation would allow Tanzanian producers, refiners, and marketers to manage risk locally, rather than relying entirely on foreign exchanges. This would also support market transparency, price discovery, and deeper financial integration of the energy sector.

Some of the key policy actions include introducing a regulatory framework for energy derivatives trading, facilitating the involvement of domestic banks and capital market institutions offering training and capacity building for market participants, and integrating risk management practices into national oil and gas strategies.

### Effective policy reforms

Unlocking the full potential of Tanzania's oil and gas sector depends on the implementation of consistent, transparent, and investor friendly policy reforms. While Tanzania has made important legislative steps, most notably with the Petroleum Act of 2015, the effectiveness of these policies has



been hindered by slow implementation, regulatory ambiguity, and incomplete processes. Emphasis toward restoring investor confidence is the conclusion and publication of the reviewed Production Sharing Agreements (PSAs), which finalized in principle in January 2020 but not fully disclosed to the public. Equally critical is the finalization of the Host Government Agreement (HGA) for the long-delayed LNG export project. Tanzania can learn from Mozambique's efficient HGA and Final Investment Decision (FID) processes, which helped accelerate multibillion dollar offshore gas investments (Elewa, 2022; Barongo, 2024).

Tanzania must also balance between attracting investment and upholding national priorities, particularly in relation to local content and corporate social responsibility (CSR). Aligning compliance requirements while ensuring clarity and enforceability will reduce delays and improve coordination between regulators and investors. Additionally, Tanzania should also streamline its policy framework with global best practices. For example, Norway's stable and transparent fiscal regime fosters investor confidence while managing sovereign wealth effectively and Malaysia's infrastructure focused development model offers a blueprint for integrating upstream and downstream investment through strategic public investment (Overland, 2018; Chuwa & Perfect-Mrema, 2023). Therefore, by pursuing policy predictability, institutional coordination, and regulatory clarity, Tanzania can create an environment that supports long-term investment and promotes sustainable commercialization.

### Infrastructure improvements

Infrastructure development is a foundation of successful oil and gas commercialization. For Tanzania to fully explore and develop its vast natural gas reserves, it must prioritize the expansion of both upstream and downstream infrastructure through diversified financing and strategic partnerships. This includes mobilizing capital for critical assets such as LNG processing plants, gas to power stations, regional pipelines, and domestic distribution networks. These downstream applications can stimulate broad based economic growth, enhance energy access, and reduce Tanzania's reliance on energy imports. Additionally, expanding gas processing capacity and constructing regional distribution pipelines such as EACOP can improve energy security and open new cross border market opportunities. Infrastructure upgrades should be integrated with clear investment frameworks and streamlined regulatory processes to reduce delays and attract long-term capital.

One viable approach is the use of public private partnerships (PPPs) and foreign direct investment (FDI) to share risk and accelerate project implementation. The success of Malaysia's Petronas led Bintulu LNG facility, for example, demonstrates how strategic alliances with international oil companies (IOCs) can rapidly scale up export infrastructure while reinforcing state ownership (Lee, 2013; Kumar *et al.*, 2020). To complement external financing, Tanzania should consider

establishing a sovereign wealth fund, modeled on Norway's Petroleum Fund, to manage resource revenues and support long term infrastructure investments. Such a fund could reduce dependence on foreign debt, provide financial buffers during commodity price downturns, and ensure intergenerational equity (Amoako-Tuffour, 2016; Torvik 2016a, b).

### CONCLUSION

Tanzania's efforts to commercialize its oil and gas resources is not simply a function of delayed investments or global price volatility, it is characteristic of deeper structural and institutional weaknesses that persist despite decades of policy reform. While the country has taken significant steps in legal reform and resource governance, these efforts have failed to change from policy articulation to policy actualization. This mismatch and disconnects between intention and execution remains the central blockage inhibiting the sector's potential.

At the core of the problem is the entanglement of state ownership, regulatory complexity, and underdeveloped institutional capacity. The current configuration of the national oil company (TPDC), tasked with both commercial and social mandates, reflects a legacy approach incompatible with modern energy market dynamics. Instead of serving as a strategic facilitator, it has unintentionally become an organ of inefficiency and risk aversion. This calls for a fundamental reform of Tanzania's state market interface in the hydrocarbon sector, moving from state domination to state enabled, market led partnerships. Moreover, the government's pursuit of resource nationalism, while justified by sovereignty concerns, has resulted in regulatory rigidity that discourages capital intensive and foreign direct investments. Laws like the 2017 Natural Wealth and Resources Act have increased state control but at the cost of investor confidence, particularly when applied directly and without transparent stakeholder engagement. A stable, rules-based investment environment will better serve both national interests and investor expectations.

Tanzania should focus in institutionalizing the conditions under which long term, responsible investment becomes viable. This can be achieved by creating autonomous and technically competent regulatory institutions, embedding legal predictability, and introducing fiscal instruments like energy stabilization funds and risk protecting tools. Equally, local content and CSR mandates must evolve from being compliance checkboxes to systems of shared value, supported by capacity building and strong enforcement frameworks. Commercialization will only occur when policy coherence, institutional reform, and infrastructure development are not treated as parallel entities, but as mutually reinforcing supports of a long-term strategy. This means state ownership must be restructured, regulatory authority must be depoliticized, and infrastructure investment must be driven by economics, not imagination.

Tanzania's energy sector requires not more ambition, but more alignment between policy goals and institutional

capabilities, between local potential and international standards, and between state sovereignty and market competitiveness. A new era of reform must be driven not by the urgency of resource exploitation, but by a long-term vision of structural transformation, sustainable value creation, and inclusive economic growth.

## AUTHORS' CONTRIBUTIONS

The author confirms sole responsibility for the conception, design, analysis, interpretation, drafting, and revision of the manuscript. The author has read and agrees to the published version of the manuscript.

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