

# PETROLEUM SECTOR DIAGNOSTIC ASSESSMENT

# Table of Contents


Summary	II
Introduction	1
Methodology	3
Findings	4
Recommendations	9

List of Figure

<b>Figure 1:</b> State of the Sesheke-Kazungula road on the Namibia-Zambia route	5
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Zambia, Tanzania Gas Pipeline

## SUMMARY

Zambia has since November 2021 embarked on wide-ranging petroleum sub-sector reforms aimed at enhancing the sustainability, resilience, affordability, and security of supply of petroleum products. **Key among the ongoing reform efforts is the conversion of the TAZAMA pipeline from transporting crude oil to refined low-sulphur diesel and transformation of INDENI refinery from crude oil processing to operating as an Oil Marketing Company (OMC).** While the reform process has progressed impressively, numerous challenges remain that need to be addressed as part of the ongoing reform process. Using the diagnostic assessment approach, the Policy Monitoring and Research Centre (PMRC) commissioned a study to understand the key challenges and constraints facing the petroleum sub-sector.

**Our findings indicate that pipeline security, security of supply, poor road infrastructure, and inadequate border logistics were some of the key challenges highlighted by the key stakeholders. Onerous and duplicative licencing requirements for filling/fuel stations and tanker trucks; inadequate storage capacity and facilities; and illegal fuel supply and unfair competition from foreign fuel transporters were all cited as significant challenges facing the petroleum sub-sector.** Last but not the least, nearly all the OMCs interviewed indicated that they suffered **significant financial and exchange losses due to the inefficiency of the current petroleum pricing model used by the Energy Regulation Board (ERB).**

Our main recommendations are that **developing an intermodal-transport system, prioritizing local economic empowerment, improving the efficiency of petroleum pricing and streamlining the customs and licensing processes will greatly improve the sustainability, resilience, and performance of the petroleum sub-sector in Zambia.**



INDENI Petroleum Refinery

## INTRODUCTION

**This policy brief highlights the current status of the petroleum sub-sector and opportunities for reforms in Zambia. The policy brief makes reform recommendations aimed at attaining a more sustainable, resilient and affordable petroleum sector.**

The Policy Monitoring and Research Centre (PMRC) recently completed a diagnostic study of the petroleum sub-sector to understand the status and key challenges with a view to inform reform proposals to ensure the sustainability and reliability of the petroleum sub-sector in Zambia. For several decades up to March 2023, Zambia's national petroleum demand had been traditionally met by importation and refinement of crude oil supplemented by direct importation of finished petroleum products.

However, owing to frequent operational difficulties<sup>1</sup> at both TAZAMA (Tanzania Zambia Mafuta) pipelines and INDENI refinery, the United Party for National Development (UPND) New Dawn Government shutdown and placed TAZAMA and INDENI on care and maintenance in November 2021 pending wide-ranging petroleum sub-sector reforms. The key reforms announced at the time include the repurposing of TAZAMA pipeline from transporting crude oil to the carrying finished petroleum products, specifically, low-sulphur diesel. The reforms also included the conversion of INDENI into an Oil Marketing Company (OMC) to stabilise both the supply and price of petroleum products on the Zambian market.

1. The main operational challenges at TAZAMA and INDENI were largely due to the escalating costs of maintaining the aging infrastructure. In addition, mounting public debt meant that Government could no longer afford to regularly purchase the required petroleum feedstock leading to a prolonged period of shutdowns.

The implementation of the conversion plans has been relatively quick with the first finished products pumped through TAZAMA, received at INDENI on 20<sup>th</sup> March 2023. While the developments in the petroleum sub-sector during the last year or so have been lauded as good steps towards achieving the goal of adequate, reliable and affordable supply of petroleum products in line with the objectives of the 2019 National Energy Policy (NEP, 2019), the petroleum sub-sector still faces significant challenges.

Given the above context, the PMRC with support of the Ministry of Energy (MoE) undertook a rapid diagnostic assessment of the petroleum sub-sector in order to:

- i) Understand the current key challenges in the petroleum sub-sector.
- ii) Identify opportunities of support for petroleum sub-sector reforms.
- iii) Recommend plausible pathways for petroleum sub-sector reforms.



PHOTO SOURCE: <https://www.sinotruckinternational.com/case/fuel-tanker-trailer-long-distance-transport/>



BSL Infrastructure | TAZAMA Crude Oil Tank & Pipeline Repairs

## METHODOLOGY

A total of 39 petroleum sub-sector experts from 15 key stakeholders including the Ministry of Energy (MoE), Energy Regulation Board (ERB), INDENI, Tanzania Zambia Mafuta (TAZAMA), Oil Marketing Companies (OMCs) and petroleum transporters were interviewed to identify the sector's challenges and priorities for reform. The study employed a semi-structured interview tool and conducted a review of key legislation and policy documents to answer the research questions. Stakeholders such as the MoE, ERB, and RTSA were instrumental in shedding light on the policies, legislation and regulatory and licensing requirements as well as enforcement in the sector. TAZAMA and INDENI were also interviewed given their historical role in the transportation and processing of crude oil and crucial role they will continue to play post- reforms. OMCs, petroleum transporters and commercial consumers were also interviewed. All responses were anonymized and consolidated to protect the identity of the individual respondents.

Interview responses thus covered the entire petroleum value chain; enabling the research to benefit from deep insights and corroboration and triangulation of the findings. Thematic analysis was used to identify the common concerns, constraints and challenges that need to be addressed in the petroleum sector.



## FINDINGS

### A) CONCERNS, CONSTRAINTS AND CHALLENGES

#### 1. Pipeline Security

First, there were concerns about the physical security of the pipeline infrastructure, particularly given that the pipeline covers a long distance of 1,710 kilometres across two countries and difficult terrain. Even though the pipeline infrastructure is necessarily largely temper-proof by design, interviewees expressed concern about the increased risk of vandalism and thefts.

**“Security is a challenge... You can never underestimate the ambitions of a fool” Public Sector Interviewee**

The stakeholders therefore felt that the transition must comprehensively address all actual or perceived security risks. In addition, the law needs to be changed to make tempering with or vandalising a pipeline a serious criminal offence with heavy sentences to deter the vice. Currently, tempering with the pipeline is merely treated as vandalism and not as severely punished as in other countries such as Tanzania. There are however ongoing bilateral consultations between Zambia and Tanzania aimed at further strengthening the security of the pipeline.

#### 2. Security of Supply Risks

Another concern raised by nearly all the petroleum sub-sector stakeholders is that because the supply of petroleum products is now left to the private sector, primarily the OMCs, there is a risk to the sustained supply of petroleum especially when OMCs face adverse prices, shortly after the reform, there were reports of shortages of petrol in some filling stations in Lusaka, largely due to OMCs avoiding the importation of petrol on account of low projected profit or losses.

### 3. Inadequate Transport Infrastructure and Border Logistics

A recurring complaint among the OMCs who actively import and transport finished products from ports such as Beira in Mozambique, Dar-es-Salaam in Tanzania and Walvis Bay in Namibia is that Zambia's road infrastructure and logistics is generally poor, resulting in operational losses and costly delays for the OMCs. Most of the road routes from the ports into Zambia are in bad state. The route from Namibia to Zambia for example has a bad stretch between Sesheke and Kazungula, forcing transporters to cover on average an extra 700 KMs going via Mongu to avoid the severely damaged parts of the road (see Figure 1).

**Figure 1:** State of the Sesheke-Kazungula road on the Namibia-Zambia route



Source: Zambia National Broadcasting Corporation (ZNBC, 8<sup>th</sup> January 2023).

With fuel demand projected to increase significantly as the economy grows, there is need to expand and maintain Zambia's road infrastructure to support the petroleum sub-sector. In addition, there were reports of **Inefficient border clearing** with customs and border clearances taking long at the borders. Various OMCs narrated how tanker trucks are often delayed for days at border crossings, resulting in delayed deliveries, and risk of loss of business due to OMCs failure to deliver on contracts on time.

### 4. Onerous Licencing Requirements

A cross-section of OMCs and fuel transporters also expressed concern about the many regulatory requirements needed to register a tanker truck or open a filling station in Zambia. The stakeholders felt that Zambia's licensing requirements were too many, too stringent and somewhat duplicative. In addition to the normal motor vehicle licensing requirements by RTSA such as road service licence, fitness certificate and insurance, prospective tanker operators are required to undergo various other physical inspections by agencies such as the Zambia Compulsory Standards Agency (ZCSA), Zambia

Weights and Measures (ZWM), Energy Regulation Board (ERB) and the Zambia Revenue Authority (ZRA). While the importance of the various road safety checks and inspections was well appreciated, the tanker operators were most concerned about the long time the inspections take, and about the fact that some of the tests were duplicated by different agencies. For example, the calibration checks performed at ZWM are reported similar to what the ZCSA performs or could perform. Apparently, in some neighbouring countries such as Zimbabwe, the inspections and certifications of tanker trucks are usually done in only 1 week, while processes and procedures in Zambia could take much longer before one can start operating on the Zambian roads.

**“The registration process for fuel tanker trucks can take up to 6 months before one begins operating” OMC Interviewee.**

The process for opening and operating a filling station is also reported to be lengthy and cumbersome. Interviewees reported that meeting some of the requirements such as obtaining permits and titles from the local councils and Ministry of Lands and Natural Resources, conducting environment impact assessments with the Zambia Environmental Management Agency (ZEMA), and obtaining clearance from the Road Development Agency (RDA) before the ERB conducts its own technical assessments can result in OMCs taking several months and sometimes years before a filling station can be constructed and allowed to operate.

**“If you look at Tanzania...there are no foreign petroleum trucks on their roads, all transportation is done by locals” Petroleum transporter Interviewee .**

## **5. Insufficient Product Storage**

A key constraint to the operations of the petroleum sub-sector in Zambia is inadequate storage of petroleum products. While Government has adequate bulk storage facilities at the Ndola Fuel Terminal (TPPL), INDENI and in various satellite depots throughout the country with capacity to hold at least 30 days of national consumption, the actual stock holdings were reported to be way below the desired minimum of 15 days of national consumption. At the time of the interview, Zambia's national petroleum stock was reported at around 3 days of national consumption. Reasons for the low product storage include the fact that some satellite depots like Mansa, Mongu and Chipata has not been active due to the TPPL's limited operations at the time. In addition, stakeholder pointed out that most OMCs, except the large ones, did not hold sufficient petroleum stocks and relied on Government storage infrastructure. The lack of sufficient petroleum stocks poses a risk in security of supply of petroleum products especially for far flung rural districts.

**“The lack of strategic petroleum facilities and policies implies that our petroleum sector operates on a hand-to-mouth basis” OMC Interviewee.**

## **6. Unfair Foreign Competition**

Various locally owned fuel transporters and OMCs highlighted unfair competition from foreign OMCs and transporters as a key challenge. Since May 2021, the **Zambian Government** has required any entity importing petroleum products into Zambia to ensure that at least 50 percent of the product is transported by a local transporter in accordance with the provisions of Statutory Instrument (SI) No. 35 of 2021. This legal requirement was passed to ensure that Zambians can also benefit from the jobs and wealth in the petroleum transportation sector, which sector has historically been dominated by foreign owned businesses.

However, full actualisation of the SI has been slow due to a reported lack of effective enforcement mechanisms of the SI and also the fact that several foreign transporters have running contracts signed before the implementation of the SI.

## **7. Illegal Fuel Vending and Smuggling**

Although in general, the ERB has managed to reduce illegal fuel vending and smuggling by working closely with the police and imposing stiff penalties on offenders, **OMCs reported fuel smuggling activities, whereby foreign trucks carrying unmarked petroleum earmarked for exports to markets such as the Congo DR are diverted and sold on the local market.** The resulting loss in unpaid taxes and fees caused by such practices is likely high, given the large volumes involved. The ERB, ZRA and Zambia police must therefore intensify efforts such as increased inspections and monitoring to curb illegal fuel vending and smuggling activities.

## **8. Inefficient Pricing of Petroleum Products**

Finally, a recurring concern from the OMCs is that the current ERB model for pricing petroleum products is not efficient due to the use of historical exchange rate and international price parameters that significantly differ from current rates. All OMCs indicated that the use of the monthly average interbank commercial rate published by the Bank of Zambia (BOZ) has largely resulted in exchange rate losses for them especially that the **Zambian economy** has been under pressure and the **Kwacha** largely depreciating in the last 6 months of the interviews. In addition to reporting exchange losses, OMCs also reported difficulties accessing adequate forex supplies from the BOZ to import petroleum products. The forex shortages have often led to delays in importing petroleum products and business losses for the OMCs

## B) OPPORTUNITIES

Despite the many pressing challenges facing the petroleum sub-sector today, **the existing political will and support for reforms presents a unique opportunity for the transformation of the petroleum sub-sector.** It is a well-known fact that petroleum sub-sector reforms that would result in fuel price increases are particularly difficult to implement anywhere in the world. The current Government however, has demonstrated a strong commitment to implementing the petroleum sub-sector reforms announced in November 2021, including the removal of VAT and excise exemption that resulted in petroleum price increases. By November 2023, our interviews with key stakeholders highlighted various tangible changes on the ground. For instance, administrative changes to the articles of association governing the operations of INDENI had already been made, with ERB having already granted INDENI licences to import, export and distribute finished petroleum products, thus in effect transforming INDENI into an OMC. On the other hand, the conversion of TAZAMA Pipeline from a petroleum feedstock carrier to a carrier of finished products was completed, with the first finished petroleum products received on 23<sup>rd</sup> March 2023. This measure has potential to reduce transportation costs of diesel.

Second, **the ongoing review of legislation in the petroleum sub-sector presents another opportunity for sustainable reforms in the sector.** Various gaps in the petroleum legal framework such as the lack of prescribed minimum standards for the various products and other gaps are set to be addressed in the ongoing reviews.

Finally, the **monthly review and adjustment of petroleum pricing presents an opportunity for Government to move away from implicit petroleum subsidization of petroleum products thereby encouraging investment and growth of the petroleum sector.**

## RECOMMENDATIONS

To promote a sustainable, resilient and affordable petroleum sub-sector, Government needs to implement the following reform recommendations:

- **Develop a Robust Inter-model Transport System:** In addition to opening the finished products pipeline, the Government must promote an efficient and cost-effective inter-model transport system for efficiency to be fully realised in the petroleum sector. Developing and linking a good railway and road network to the new pipeline will help facilitate the smooth and efficient transportation of petroleum products throughout the country in an efficient and cost-effective way.
- **Facilitate Efficient Border Processing for Petroleum Tanker Trucks:** To improve efficiency and ensure reliability of petroleum supply into the Zambian market, customs and border clearance procedures must be reformed to further improve the time it takes for petroleum tanker trucks to cross into Zambia and deliver petroleum products..

- **Leverage the Transition for Local Economic Empowerment and Job Creation:** The ongoing reform present a unique opportunity for Government to legislate the increased participation of locals in the petroleum value chain. Full implementation of the S1 no. 35 requiring at least 50% local transportation of petroleum products would be a good start. Furthermore, Zambian- owned OMCs could be given preference in Government's petroleum product purchases to support the sub-sector. In addition, investment opportunities in rural filling station areas could be prioritised for local OMCs. These measures would help support the growth of local OMCs and fuel transporters, thereby contributing to local job and wealth creation..
- **Invest in Bulk and OMC-level Storage Facilities:** Government must expedite the finalization and operationalization of Lusaka 120,000 capacity bulk storage and ensure OMC- level petroleum storage facilities for smooth supplies and availability of sufficient reserves to meet national demand. OMCs especially medium players who have inadequate storage must be encouraged to build storage facilities through specific and targeted incentives such as fiscal measures on building materials. 5) Streamline Petroleum Licensing Requirements: Government through the ERB must facilitate an efficient and well-coordinated system for the inspection, registration and licensing of petroleum tanker trucks and filling stations in Zambia. Petroleum sector licencing is currently perceived as an onerous and slow process, streamlining the licencing processes without compromising the safety and quality standards would improve the petroleum sub-sector investment climate perception and encourage investments.
- **Tackle Illegal Vending and Smuggling of Petroleum Products:** As established during the study, the Government will need to arrest illegal vending and smuggling of petroleum products. Increasing inspections and monitoring and imposing stiff fines and penalties to protect the petroleum market and the interests of the Zambian Government.
- **Tackle the Security Concerns on TAZAMA Pipeline:** The Government will need to continue to put in place strong security measures including legal deterrents to trespassing and vandalising pipeline infrastructure.
- **Consider Revising the Petroleum Products Pricing Model:** The Government should consider revising the petroleum pricing model by using more recent or forecasted rather than historical exchange rates and international oil prices to minimise OMC foreign exchange and financial losses resulting from adverse movements in currency and international oil prices.
- **Ensure security of supply:** security of supply was one of the challenges identified by most stakeholders as most OMCs do not hold sufficient reserves. Therefore the study proposes two measures that will ensure security of supply countrywide: first, while government has left the market to the market, there is need for it to keep its own stock through Indeni to ensure security of supply. Secondly, there is need for legislation to mandate OMCs to sale stock to each to ensure that there is no shortage of fuel In one part of the country while other parts have excess.

## REFERENCES

- CUTS International. 2020. The Petroleum Sector in Zambia: Opportunities and Challenges. Available on: <https://cuts-lusaka.org/pdf/policy-brief-the-petroleum-industry-in-zambia-challenges-and-opportunities%20.pdf> (Accessed: 3rd January 2023)
- Energy Regulation Board. 2016. Energy Sector Report 2015. Available on: <https://www.erb.org.zm/wp-content/uploads/files/esr2017.pdf> (Accessed: 16th January 2023)
- Energy Regulation Board. 2018. Energy Sector Report 2017. Available on: <https://www.erb.org.zm/wp-content/uploads/files/esr2017.pdf> (Accessed: 19th January 2023)
- Energy Regulation Board. 2022. Energy Sector Report 2021. Available on: <https://www.erb.org.zm/wp-content/uploads/files/esr2021.pdf> (Accessed: 19th January 2023)
- Griffiths, I.L., 1969. The TAZAMA oil pipeline. *Geography*, 54(2), pp.214-217.
- National Assembly of Zambia. 2020. Report of the Committee on Energy, Water Development and Tourism for the Fourth Session of the Twelfth National Assembly. Available on: [https://www.parliament.gov.zm/sites/default/files/documents/committee\\_reports/Main%20Report%20on%20Energy%20-%20Final%202020\\_0.pdf](https://www.parliament.gov.zm/sites/default/files/documents/committee_reports/Main%20Report%20on%20Energy%20-%20Final%202020_0.pdf) (Accessed: 17th February 2023)
- National Assembly of Zambia. 2022. 2023 National Budget Speech. Available on: <https://www.parliament.gov.zm/sites/default/files/documents/articles/2023%20Budget%20Speech.pdf> (Accessed: 9th December 2023)
- Nyamazana M. 2023. The Petroleum Sector. In, *The Oxford Handbook of the Zambian Economy*. Oxford, UK: Oxford University Press (forthcoming)
- Republic of Zambia. 2019. The National Energy Policy 2019. Available on: <https://www.moe.gov.zm/wp-content/uploads/2022/04/The-National-Energy-Policy-2019.pdf> (Accessed: 30th December 2022)
- Republic of Zambia. 2022. Energy Efficiency Strategy and Action Plan. Available on: <https://www.moe.gov.zm/wp-content/uploads/2022/08/Zambia-Energy-Efficiency-Strategy-and-Action-Plan-2022.pdf> (Accessed: 30th December 2022)
- Temu, A.J. and Tembe, J.D.N., 2014. Southern African liberation struggles: contemporaneous documents, 1960-1994.



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