Diversification of petroleum products business in Tanzania

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ABSTRACT

This study examines the capacity of pension funds in Tanzania to invest in the petroleum value chain, highlighting both tangible and financial dimensions. The research highlights energy as a crucial catalyst for socioeconomic growth, emphasising the growing demand and escalating prices of petroleum products both worldwide and locally. Notwithstanding Tanzania's considerable dependence on petroleum imports, institutional investment in this area is still constrained. The study seeks to examine both opportunities and challenges in Tanzania's petroleum sector, informed by the Resource-Based View (RBV) theory, which asserts that enterprises utilise distinctive internal resources to maintain a competitive advantage. A qualitative case study methodology was used, involving expert interviews and desk reviews to provide thorough insights. The data analysis indicated significant investment opportunity across energy and logistic sector, including storage facilities, pipelines, supply, transit, and oil hub projects, propelled by increasing demand, port growth, and infrastructure development. Results demonstrate that 86.67% of participants endorse pension funds' engagement, attributing their support to substantial market demand, governmental energy policies, and effective international practices. Investment opportunities, including offloading facilities, pipeline systems, storage depots, and transportation hubs, are considered viable; nevertheless, obstacles such as elevated construction expenses, port inefficiencies, regulatory mandates, and market uncertainties remain. The analysis determines that investment in Tanzania's petroleum sector is economically feasible and consistent with national development objectives, providing prospects for diversification and revenue generation. Pension funds are advised to strategically engage in infrastructure projects, especially storage, transit, and oil hub development, utilising existing legal frameworks and collaborating with essential government agencies. The paper also recommends further investigation into new finance techniques, such as dollarisation and conveyor belt systems, to improve operational efficiency and mitigate risk. The findings substantiate the assertion that focused investments in the petroleum value chain can enhance economic growth, bolster energy security, and promote local content engagement, contingent upon the prioritisation of strategic planning and stakeholder collaboration. The report offers important details about investment opportunities in Tanzania's energy sector, highlighting the critical roles of infrastructure development, regulatory assistance, and risk management in achieving sustainable advantages.

Keywords: Energy Investment, Pension Funds, Petroleum Value Chain, Port Infrastructure, Risk Management, Tanzania

I. INTRODUCTION

Energy is an essential input to economic activity whereby access to a reliable and affordable energy supply is fundamental for social and economic development. Since the two global oil shocks of 1973 and 1979, interest in demand for petroleum products in both developed Organization for Economic Cooperation and Development [OECD] and developing countries has grown significantly (Ozturk & Canga, 2025). Energy sources differ from petroleum, natural gas, coal, nuclear, and renewable to electricity. The consuming countries are advised to ensure that oil prices reflect their opportunity cost (Nademi, 2017).

In regard to the Tanzania import data from United Nations Commodity Trade Statistics Database [UNCOMTRADE], petroleum products are among the most valued products that are imported in Tanzania. On average, for import data in 2021, these products accounted for at most 10% of the total import of USD 21.7 billion. Petroleum products, especially oil, are economically and strategically crucial resources for many nations due to the fact that they are highly consumed but also drive the economic activities (Maagi, 2021). Most of the countries, including developing countries like Tanzania, need to maintain large reserves of crude oil for future use.

According to Alexeev and Zakharov (2022), there is a great opportunity to invest in the oil business given that oil energy demand is in an increasing trend and its price has been inclined. This is from the frequent observation of the

petroleum and gas business in the country and worldwide as well. The interactive chart below shows the daily closing price for West Texas Intermediate (NYMEX) Crude Oil over the last 10 years. The current price of WTI crude oil as of April 26, 2022, is $101.70 per barrel, representing the annual growth rate of price of almost 64% when compared to an average price of $61.72 in April 2021. During a boom, the prices go down, while during a recession, the prices are at an inclined rate (Energy and Water Utilities Regulatory Authority [EWURA], 2023).

Figure 1
Ten-Year Daily Price Chart of West Texas Intermediate (WTI) Crude Oil
Source: https://www.macrotrends.net/2516/wti-crude-oil-prices-10-year-daily-chart

In Tanzania, the oil price has increased from petrol's indicative price of TZS 1084 (cap price 1165), diesel 5000 ppm TZS 1207 (cap price 1297), diesel 500 ppm TZS 1240 (cap price 1333), and kerosene TZS 734 (789) in January 2009 to petrol's indicative price of TZS 2730.50, diesel 2561.45, and kerosene 2551.48 in April 2022. The retail prices are on the higher side; the consideration is only for Dar es Salaam prices, since in April 2022, the price of petrol was on average TZS 2,861, diesel 2,292, and kerosene 2,682, while petrol's average price was TZS 1,336, diesel TZS 1,478, and kerosene TZS 960 in January 2009. On average, the annual growth rate of prices is as follows: petrol 6.03%, diesel 7.54%, and kerosene 14.59% (EWURA, 2023).

According to the International Energy Agency (IEA), the demand for oil in the world has an increasing trend despite the downfall during the COVID-19 pandemic in 2019. It's estimated that in 2026 the oil demand will be 104 mb/d as compared to 88 mb/d in 2010 (Husaini et al., 2024). Russian oil supply is expected to fall by 1.5 mb/d in April, with shut-ins projected to accelerate to around 3 mb/d from May. Moreover, despite the disruption to Russian oil supplies, lower demand expectations, steady output increases from OPEC+ members along with the US and other non-OPEC+ countries, and massive stock releases from IEA member countries should prevent a sharp deficit from developing (Bâra, 2024).

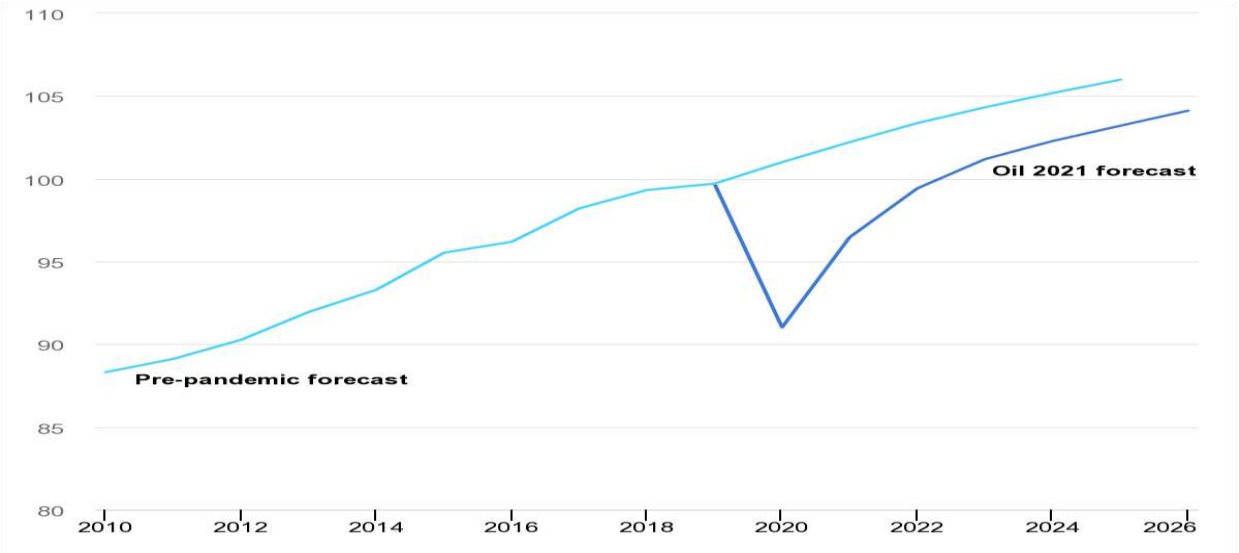

Figure 2
Oil Demand Forecast, 2010-2026, Pre-Pandemic and in Oil 2021

In Tanzania, oil demand appears to be increasing due to observed new developments in the sector. According to Njangang et al. (2022), the IEA estimates that with annual GDP growth of more than 9% in the African case and 5.6% in state policies, Tanzania's economy could be seven times larger in 2040 than today, but with an increase in energy demand limited to 150% driven by fuel efficiency gains. In the AC, diversifying the energy mix and improving energy efficiency are the keys to achieving economic growth while limiting growth in energy demand, with oil, gas and geothermal reducing the share of bioenergy in the energy mix (Njangang et al., 2022).

The demand for Tanzania's energy is expected to rise with the expected increase of the economy. Under the stated policies scenario, it's estimated that the primary energy demand in Tanzania will be around 47.7 million tonnes of oil equivalent [Mtoe] in 2040 as compared to 17 Mtoe in 2010, and the economy is estimated to be 0.6 trillion dollars in 2018 prices equivalent (UNCTAD, 2024). The demand for oil in particular is expected to increase from 4.7 Mtoe in 2030 to 8.6 Mtoe in 2040. Similarly, in the African case (AC), the total energy demand is expected to increase from 16.6 Mtoe to 53.2 Mtoe in 2040, while the GDP is expected to be 1.2 trillion dollars. Oil demand in regard to this projection is expected to increase from 8.1 Mtoe in 2010 to 14.4 Mtoe in 2040 (UNCTAD, 2024).

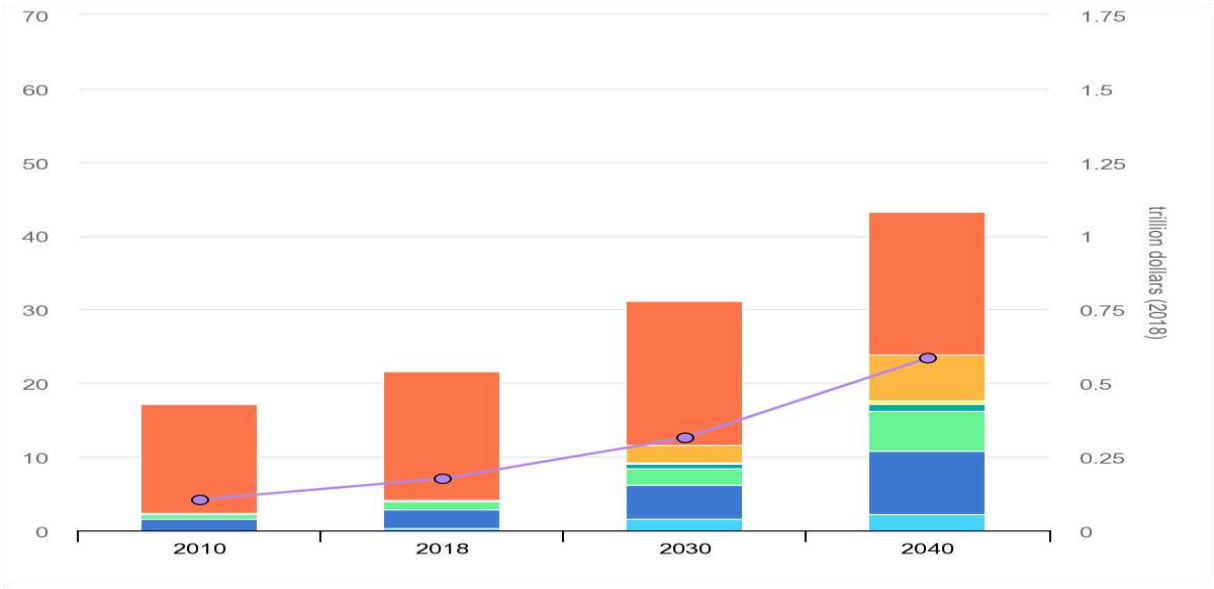

Figure 3
Tanzania Primary Energy Demand and GDP in the Stated Policies Scenario, 2010-2040

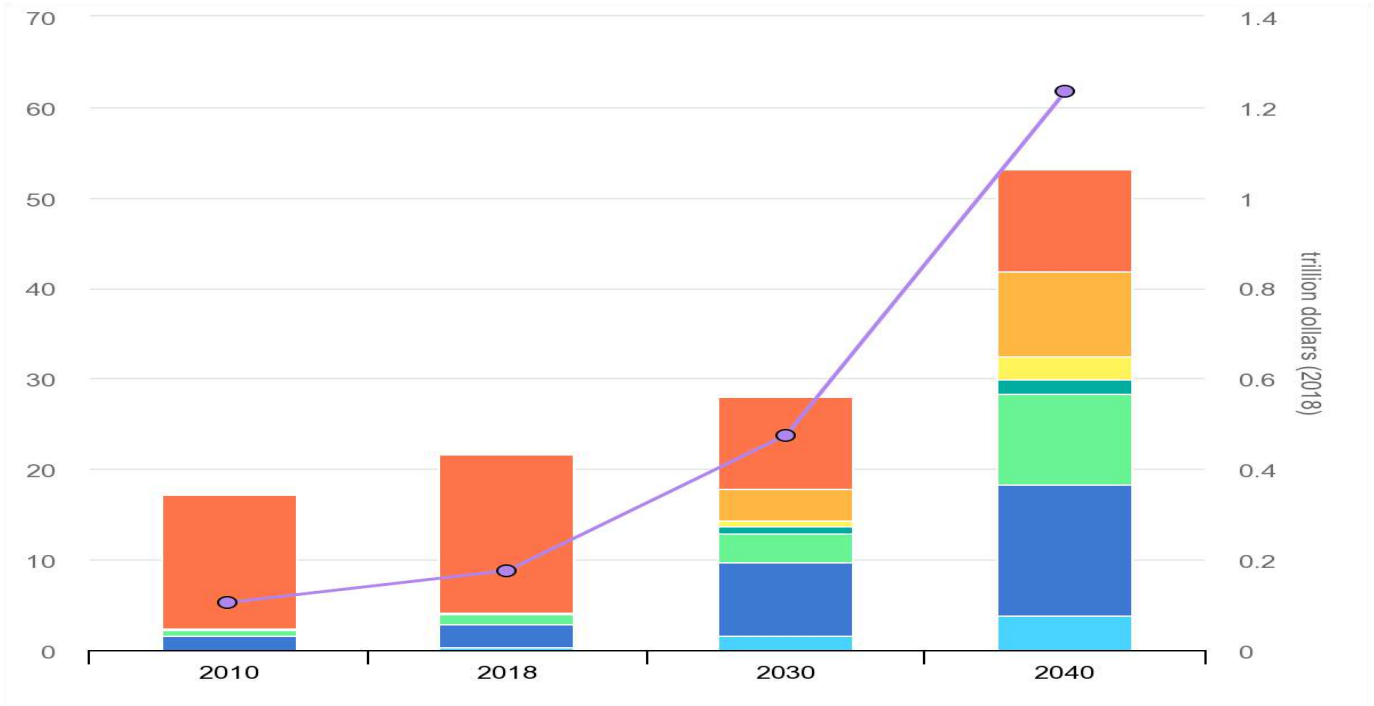

Figure 4
Tanzania Primary Energy Demand and GDP in the Africa Case, 2010-2040

Oil price fluctuations impact economic growth to the extent that it's empirically estimated that doubling oil prices, especially between 2003 and 2005, cumulatively lowered global output by at least 1.5%. It's argued that major cuts in oil production lead to recessions in the US (Vacu & Odhiambo, 2022). Oil's seemingly decisive impact in post-war recessions is correlated with fluctuations in productivity growth, while it affects the stock prices negatively. Moreover, oil prices not only affect the economy of a country but also the country's stock market (Workman, 2024).

It's evident that the empirical results indicate that a higher oil price increases food prices. Also, a higher oil price volatility yields a higher food price. Moreover, an increase in the oil supply reduces the food price (Wang et al., 2020). In the case of profitability of the business, the general rule of thumb is that "countries rich in oil are ranked higher in economic development, while oil companies have higher value shares and market capitalisation compared to companies in other sectors" (Özcan & Cazeiro, 2021). Therefore, regardless of the present oil price recession in the global market, the fact that the country has to be with energy efficiency, the import of oil and petrol filling station operation is still an ideal business in our nation. The demand is increasing, and the oil price variation is the regular scenario in this sector. In Tanzania both demand and price have an increasing trend. Hence, it is recommended to advance further the study so as to establish infrastructure and a financial value chain in the business (Meshi & Vivarelli, 2009).

Pension funds are actively seeking to grow their assets under management (AUM) and diversify asset portfolios. Investment in energy has the potential to trigger a positive economic growth feedback loop through increased productivity and income for the young population (Kinyondo & Villanger, 2017). Pension funds are regarded as institutional investments that can bridge the energy finance challenge in developing countries like Tanzania. But most of the finance for infrastructure projects, including energy, is from foreign investors like development financial institutions, which leads to foreign exchange risks. According to the Brookings Institution estimates, the African Pension Funds can invest about $11.7 billion annually in infrastructure projects (EWURA, 2023).

The finance mechanism is associated with using bank loans and then refinancing the loan (paying off debt typically with new debt at a lower interest rate) with renewable energy bonds after project commission or supporting RE bond market development by providing guarantees for credit enhancement to attain high bond ratings that attract pension funds. Similarly, in Ghana, despite the usual portfolio mix, the Social Security and National Insurance Trust (SSNIT) has diversified its investment in the energy sector as follows: Cenit Energy (100%), Goil Ghana Ltd (18.52%), Total Petroleum Ghana Ltd (2.61%), and Tullow Oil (0.22%) (EWURA, 2023).

1.1 Statement of the Problem

Oil-related products (diesel, kerosene and gasoline) are essential parts of the energy sector in Tanzania and need to be efficiently provided. The demand and prices for oil in Tanzania are forecasted to continue to grow yearly. In addition, oil, among other energy sources, is expected to reduce the dependence on bioenergy by 2040 (EWURA, 2023). Furthermore, the profitability in this industry seems viable since the countries with this potential investment are ranked higher in terms of economic performance, while companies undergoing this business are financially sustainable. However, for oil-importing developing countries like Tanzania, the oil shock is said to be more severe economically than in modernised economies (Gordón et al., 2021).

In addition, the petroleum products are also highly considered as a revenue generation avenue in the country. However, institutional investors like pension funds have not explored the possibility of engaging in this investment wing. Hence, in search of investment diversification, it's expected that through the study the funds will reveal the factors and conditions necessary in the business to make it financially visible (Edore & Aigheyisi, 2020). According to the Social Security Schemes Investment Guidelines of 2021 and the Fund's investment policy, the petroleum category is not well articulated but can fit in the category of others; this is limited to 10% of the investment portfolio and is subject to prior approval by the Bank of Tanzania. Therefore, this study attempts to raise awareness of the opportunities available in the oil/petroleum business and see the ways to grab that business opportunity in terms of investing in the oil/petroleum value chain amid current existing oil suppliers in the country, demand and price potentials.

1.2 Study Objectives

The main objective of this study is to analysis the petroleum value chain in Tanzania in terms of physical and financial value chain so as to uncover the systematic factors and conditions which a value framework and its firms can achieve higher level performance.

1.2.1 Specific Objectives

The specific objectives of the study are investigating oil/petroleum lifecycle through the following value chain approaches:

i. To examine physical value chain of the petroleum business in Tanzania
ii. To explore the financial value chain of the petroleum business in Tanzania

iii. To assess the challenges and achievements in Oil and Petroleum industry in Tanzania.

II. LITERATURE REVIEW

2.1 Theoretical Framework

This research was guided by the Resource-Based View [RBV] Theory

2.1.1 Resource-Based Theory

The diversification of the petroleum products business can be comprehended through the Resource-Based View (RBV) Theory. This theory stresses that a firm's sustainable competitive advantage originates from its unique internal resources and capabilities (Goderis & Malone, 2011). Pursuant to this theory, organisations that possess valuable, rare, inimitable, and non-substitutable resources are better positioned to exploit opportunities in dynamic markets. In the context of the petroleum sector, diversification into related or complementary products such as lubricants, liquefied petroleum gas (LPG), and petrochemicals enables firms to leverage existing infrastructure, technical expertise, and market networks to enhance profitability and long-term growth. Böhm and Haller (1987) noted that petroleum companies can lessen their reliance on a single source of income, protect themselves from market fluctuations, and boost their overall operational efficiency by expanding their product lines.

The relevance of the Resource-Based View Theory to this current study lies in its ability to elucidate how Tanzanian petroleum firms can use their tangible and intangible assets to successfully diversify and remain competitive in an evolving energy market. As global transitions toward cleaner energy and changing consumer preferences reshape the petroleum industry, firms that effectively deploy their internal capabilities—such as technology, skilled workforce, and financial strength—are more likely to adapt and thrive. This theory in essence avails a firm foundation for comprehending the strategic importance of diversification as a means of value creation, risk reduction, and sustained performance within the Tanzanian petroleum sector.

2.2 Empirical Review

Regarding the physical value chain, empirical evidence points to benefits of upstream–downstream integration for enhancing supply efficiency and reliability in Tanzania's oil and gas sector, with Maagi (2021) finding that integrated supply-chain arrangements reduce bottlenecks and raise throughput in product distribution, while implementation of local content policies has been problematic in practice—producing uneven benefits and implementation frictions as shown in the Tanzanian case by Kinyondo and Villanger (2017).

On the financial value chain, cross-country panel and multisectorial analyses reveal how oil price movements, revenue windfalls and trade flows transmit through macroeconomic and sectorial channels to influence imports, investment and income distribution: Asymmetric oil-price effects on growth and import demand have been detected in low-income and oil-importing country panels (Akinsola & Odhiambo, 2020; Ozturk & Canga, 2025); determinants of oil imports display sectoral patterns that matter for balance-of-payments and supply planning (Ogwang et al., 2019); and empirical work on resource windfalls links oil tax revenue management to distributional outcomes and social unrest when governance is weak (Alexeev & Zakharov, 2022). Several studies also document a statistical association between resource dependence and rising income inequality or uneven income distribution across contexts (Kim & Lin, 2018; Kim et al., 2020; Berisha et al., 2021), while revisited evidence from Sub-Saharan Africa underscores heterogeneity in outcomes and the mediating role of institutions and policy (Avom et al., 2022).

Empirical analyses regarding trade flows and distributional impacts (Özcan & Cazeiro, 2021) hint further that petrodollar cycles influence domestic income shares and import structures in resource-linked economies. When these empirical studies are read together for Tanzania, they imply that improvements in physical chain integration (Maagi, 2021) can reduce supply inefficiencies. To this end, they must be accompanied by financial governance measures to manage price volatility, import dependence and revenue windfalls; otherwise, gains in operational efficiency risk being offset by macroeconomic exposure and unequal distribution of benefits (Alexeev & Zakharov, 2022; Berisha et al., 2021). Last but not least, the literature points out concrete attainments. These include efficiency gains from upstream–downstream coordination as well as recurring challenges. They are notably local content implementation gaps, governance and corruption risks, vulnerability to oil-price shocks and import pressures. All these shape whether diversification efforts yield broad-based development outcomes (Kinyondo & Villanger, 2017; Maagi, 2021; Akinsola & Odhiambo, 2020).

III METHODOLOGY

3.1 Research Design

A case-study design was adopted for this study, as it is very useful in the exploration of a real-life phenomenon, while at the same time building upon, or strengthening, already existing knowledge. A case study is appropriate when

there is a 'how' question, the researcher has no control over behavioural events, and the focus is on contemporary events (Creswell, 2020). The situation in pension funds has been chosen because it gives the opportunity to study current developments in investment with regard to the energy business, petroleum products in particular. It allows for studying the factors that might influence the start-up process of this investment. Furthermore, the study adopted the expert elicitation method, where the assessment from the information entails critical data and information supplemented by interviews/consultations with key stakeholders in the oil/petroleum sectors of the country.

3.2 Data Collection

The research involves multiple ways of data collection and analysis, i.e., several rounds of interviews and the analysis of academic literature. The research process can be characterised as a sequential academic problem-solution, with each step following from the data gathered in the previous steps. This was achieved through multiple rounds of interviewing. Creswell (2020) also argues in favour of a conceptual project design, which is an initial outline of the project that may be adapted as insights evolve during the research process.

3.3 Data analysis

The analysis of the collected data was done to obtain usable and useful information related to the study objectives. The collected data was qualitative and quantitative, and the analysis described and summarised the collected data, identified relationships between variables, and compared variables. It also identified the difference between variables and predicted the results.

IV. FINDINGS & DISCUSSION

4.1 Viability of the Petroleum Products Business to the Funds

The study among others, tested the fact that respondents would urge the Funds to invest in the Petroleum Value Chain in Tanzania. 86.67 percent of the respondent showed that this is a positive plausibly investment event for the Funds while 13.33 percent were indifference. The explanatory positive facts were many when believed on the fact consideration that the Funds are financially stable to carry out the investment.

First, it was mentioned that the market of the said investment's product is still high. "The petroleum business is good but also diesel, petrol and Jet are highly demanded". According to TPA's data, overall cargo traffic, liquid bulk is at the annual average of 5,666,148.53 tons with an annual average growth rate of 1.65 percent.

Second, it was highly recommended for the Funds to engage in the investment in order to support the government efforts in ensuring reliable, available, and affordable petroleum products in the country and use the local contents incentives. So to say, "supporting the country's energy policy mission "to provide reliable, affordable, safe, efficient, and environment friendly modern energy service to all while ensuring effective participation of Tanzanians in the sector".

On the third fact, the business was found to be very fine to the Funds because notably mutual funds, have been investing in oil business worldwide. For instance, majority shareholders of BP are the mutual Funds. Despite the fact that BP has almost left Africa it has relocated to China where it opened about 300 petrol station in the country.

Fourth, it was argued that, investing in this venture would diversify more the Fund's investment portfolio "we wonder why Pension Funds are not active on TPA's infrastructure or projects while private sector does and mostly foreigners are at front line". The business is real and business people are getting huge profit.

Generally, UNCTAD (2024) states that involvement of the Funds in the business will increase efficiency and later lead to multiplier effect like demurrage rate will be low, transit will increase, transportation will increase, employment, turnover of Tanks will increase, and taxes will also increase to the government while unit cost of hospitality will be reduced as well.

4.2 General Value Chain of Petroleum Sector in Tanzania

The Petroleum Act, 2015, describes the clusters of involvement on the Petroleum and Natural Gas Sector where there is upstream, mid and down streams. The upstream petroleum operations that the proposed enactment seeks to regulate include petroleum exploration, development and production. The midstream and downstream petroleum supply operations include all operations and activities relating to importation, landing, loading, transformation, transportation, storage, distribution, wholesale or retail trade of petroleum products. The mid and downstream gas activities intended to be regulated include processing, liquefaction, re-gasification, transportation, storage, distribution, supply, import, export and trade in natural gas.

According to the despondences from the interviews, the petroleum product sector has several players who at different levels needs infrastructure to operate. The first player in the market are dealers, tier one, who actually sell the products at world market. The customers of the dealers are the suppliers, tier two, who import the products to different

destinations. In Tanzania the suppliers are registered by the Petroleum Bulk Procurement Agency (PBPA) who controls the premium, transport cost, during petroleum products' importation for the world's petroleum price is always known at every particular time of importation.

The imports are received through the oceanic shipment process and received through the harbour, in our case, the Tanzania Port Authority (TPA). The consignee is either owned by the Suppliers or the Oil Market Companies (OMCs) who orders for either domestic or international market's demand/consumptions. Further to this chain, there retailer companies that sell the products to the end users. The retailer business is in form of Company Owned Company Operated (COCO), Dealer Owned Dealer Operated (DODO), Company Owned Dealer Operated (CODO) and sometimes Dealer Owned Company operated (DOCO).

Therefore, in regards to the Tanzania Petroleum sector, the supplier, for instance TPDC, through PBPA, can import the product for other OMCs and its own OMC, the TANOIL Company. The OMCs either sell the products to retailers who then sell to the final consumers or sell the product to final consumers by themselves. Reinforcing this statement, Parcero and Papyrakis (2016) asserted that this process is also similar to imports that is categorized as transit despite the fact that it is not necessary to import the products through PBPA.

4.3 Physical Value Chain of Petroleum Sector in Tanzania

As noted early, physical value chain deals with all of the infrastructure from upstream (importation, exploration and production), midstream (transmission), downstream (distribution). The case of Tanzania's Petroleum Products Sector, where the country does not produce rather import the products, the chain includes but not limited to:

(i) the importation vessels/ship;
(ii) the port infrastructure in terms of offloading system which start with the offshore offloading Gatts, flow meters and single point mooring;
(iii) offloading and storage facilities well known as farm tanks;
(iv) transportation, mostly roads-trucks and at smaller rate railways and pipeline (TAZAMA);
(v) petrol stations

4.4 Investment Avenues in regards to the Physical Value Chain

4.4.1 Offloading and Storage Facilities (Farm Tanks)

When the respondents were asked on the opportunities in relation to the sector, the following are revealed. **86.67 percent** from the 13/15 score of the respondents reveal that the business idea of storage and offloading facilities, farm tanks, is a positive plausibly investment event for investors. The augment on this fact is cantered into different reasons. First, Ndikumana and Boyce (2012) observed that being on the government's goal to increase the storage days from 15 days to at least 30 days. According to the ministry of energy and EWURA, it was noted that "new investment like this can lead to 30 days storage capacity instead of the current 15 days" which is crucial for the energy security of the country.

Second, other respondents nodded that there is an increasing demand of imports due to the economic development of the country, for instance, the presence of SGR, economic activities growth and the size of the country and transit business. Third, reason was mentioned to be the demand of an independent company, government owned, that will provide the storage service without being in the business (i.e. do not be part of either import or internal sell of the product). In this regards it was urged by Ogwang et al. (2019) that, its better if you open depots for all people to use since the government depot helps in price controls more than the private owned depots. Fourth, was the location factor whereby the areas that were noted to have high demand of storage are Mtwara, Mwanza, Isaka, Tanga (according to TPDC at least 4 big tanks are needed) and Dar es salaam. In case of Dar es Salaam, the business is on offloading tanks so as to increase efficiency of the port operations while for other mentioned areas the target is both offloading and storage.

In regards to this avenue of investment, Tanzania Port Authority intends to construct new oil jetty and tank farm (oil terminal) for receiving and storage of various liquid bulk cargoes, distribution facilities and where viable rehabilitation of the Kurasini Oil Jetty (KOJ) at the port of Dar es Salaam. The project includes both offshore and onshore options. They are viability will be determined once the feasibility study is completed since its currently on progress. This project is in line with idea of few of the respondents (6.67 percent) who mentioned that, storage facilities business depends more on the offloading infrastructure since "some of the storage are still idle and some at capacity utilization rate at 50 percent" due to inefficiency of the port operations.

Therefore, the area is said to be a pride one, just construct and wait for business people to use the facilities enough to yield more positive than negative impact and the that the forecasted negative impact can be adequately mitigated to allow for implementation of the investment. Pursuant to World Bank (2024) the importation is estimated positively plausible to continue in the country, since the country has not discovered oil, and the offloading process, so far, seems not efficient that attracts for increased waiting costs, demurrage charges (15,000 usd per vessel) and price

fluctuations. As of 2044, the import of Gas oil is expected to increase by 70 percent, Mogas by 54.83, and Jet A1 by 365.47 percent.

4.3.2 Pipeline Business

The common pipeline means of transporting petroleum products in Tanzania is that of TAZAMA. In view of the responses from the interviewees, this is efficient, effective/economical, safe and environmentally friendly and can complement the Standard Gauge Railway (SGR). 40 percent of the respondents were positive about the pipeline business, while 33.33 percent were indifference, siting that since the road transportation is dominant, it is clearly that it is needed from Dar es Salaam to Morogoro as well as to Mwanza and Kigoma. Others were in the view that since TAZAMA dwells much in the Tanzania land be utilized for petroleum transportation to Congo and other nearby countries.

Despite the positive indicators in this investment avenue, the following were the issues that of higher concern. First, the pipeline is not complicated to build but it needs daily maintenance and second is that construction cost is actually significant. Hence, Mallaye et al (2015) stated that since the private sector might need the pipeline service, it's the strategical investment if the technology chosen is right. In addition, the business will be more appealing once the offloading infrastructure at the TPA is improved because it needs enough volume to use the pipeline.

Contrary, 13 percent of the respondents mentioned a new investment avenue in regards to the Uganda pipeline. The concept was that since there is nodded conflict idea in the European Union, it seems the project needed or will need funds during it implementation. That being the case, the Funds can explore the possible opportunity on how to fund part of the project needs. Therefore, this outcomes align with Tchitchoua and Madomo (2023) who noted that since the country depends heavily on roads transportation, it is ideal to look at an alternative means of transport as it has been in Kenya's pipeline. TPDC mentioned that a consultant has been hired to explore the possibilities of efficiency petroleum transportation in Tanzania and once the work is done the means will be feasibly identified.

4.3.3 Suppliers' Business

According to the findings, this was found to be a trick and hidden part of the value chain. 33.33 percent of the respondents indicated a negative plausibly event, 26.67 percent were positive but 40 percent were indifference that this is the Fund's investment opportunity. The facts behind these results are the identified facts on how the petroleum world market works. The recommendations were noted to be more research is to be done before thinking of this part of investment despite the fact that TPDC is doing the business. Some of the respondents suggested to share with TPDC in order to increase financial muscles to ensure enough volume for economies of scale.

Nonetheless, Kim et al. (2020) posited that its possible business, strategically good for public institution since most of the suppliers are private firms, but more research and skilled Labour required though the risk on the business is highly rated. Cost wise, the local supplier must have a turnover of about TZS 30 billion while the international firms must have at least USD 100 million. For instance, 80 metric tonnes are equivalent to USD 90 million.

4.3.4 Oil Market Company Business

Oil Market Company as an opportunity for investment was a supported by 46.46 percent of the respondents, 40 percent didn't mention it at all, 13.33 percent were total in negation of the investment avenue. Supporters of this business as an investment avenue for the Funds argued that since the OMCs imports the products are in a better position of making more profit once combined with retails business, the marginalized areas like southern and northern zone as well as rural areas are still at higher demand than the urban areas. It was noted "you can use privileged areas strategy for penetration, especially to districts were there no petrol stations". Moreover, since most of the OMCs are private firms, it is ideal for the government institution to be engaged in this business.

On the other hand, those showed a negative plausibly event, are concerned on the business operation involvement. "Yes, but too engaging and thus some of the companies which were OMCs have turned into storage and retail business". In support to theses outcomes, Hazama (2017) stated that OMCs imports are in a better position of making more profit once combined with retails business, the marginalized areas like southern and northern zone as well as rural areas are still at higher demand than the urban areas.

4.3.5 Transportation Business

Transporting the petroleum products from the storage facilities to different destinations is mostly done through roads. 40 percent of the respondents showed that it's a negative plausibly investment for the Fund, 20 percent positively supported the idea that it is an opportunity for investment but 40 percent were indifference that it's an investment avenue.

The responses from the interviewees reveals that the investment area is possible but it is so demanding, operation and risky. Moreover, the business to be more visible it has to be combined with other parts of the value chain. For

instance, OMCs can have transportation unit, Tanzania Railways Authority can partner with other companies to make it profitable, or a mixed model of OMCs, Retails and Transportation works better.

The respondents who supported the viability of the business were reinforced by Kim et al. (2018) findings in the view that the business is good since most of the OMCs do not have reliable transport tanks.

4.3.6 Retailers Business

The retailer's business was noted to be the strength of the OMCs. 46.67 percent of the respondents supported this as being positive plausibly event but 46.67 percent didn't mention it as an opportunity for Fund's investment. The positive arguments rely on the facts that there are still opportunities, in accordance to EWURA's directives, in regards to villages and marginalized areas where it is mandated the petrol stations to be built. Some of the respondents mentioned that it is possible for the Funds to build filling station in districts and then lend it to GPSA.

Nonetheless, the arguments against the business fell into the reality that the business needs more operation and huge taskforce which might be costly to the Fund's side. "PUMA has almost 70 filling stations in form of COCO and DOCO, respectively (Krugman et al., 2015).

4.3.7 Transit Business

The transit business which is concerned with import and transit white products to neighbouring countries has been growing yearly. The volume is said to be almost equally to the domestic demand. The findings under this study reveals that 53.33 percent of the respondents said it's a positive plausibly investment opportunity, 40 percent did not mention about it and 6.67 percent showed a negative plausibly investment opportunity.

The positive investment opportunity was related to the following facts: first, the comparative advantage of Tanzania when comes to harbour services because its surrounded and provides access route to at least six landlocked countries of Zambia, Democratic Republic of Congo, Burundi, Rwanda, Malawi, Uganda and Zimbabwe. Second, the infrastructure that are used for internal imports are also used for transit consignees. Third, it was noted that pipeline can be thought in facilitating this business such that a hub is made possible at Isaka, Iringa, Kigoma, and Tunduma. Fourth, the transit business is also the source of foreign currency since the cargo is traded in power money like dollar. "There is a demand, especially in Congo" so of the respondents nodded.

In regards to the negative opportunity possibility was attributed to the current efficiency of the harbour services. It was noted from the respondents that, improving efficiency at TPA is vital for competitiveness. "We need to compete with Kenya and making the transit business effective and efficiency we need bigger vessels to doc so as to reduce cost and serve fast moving customers like Uganda and Congo.

Therefore, since there is a continuous high demand of petroleum products in the neighbouring countries, especially the landlocked countries the avenue might be viable after other highly noted attractive investments are explored (World Bank, 2024). Between the year 2015 and 2021, transit cargo has been growing at an average annual growth of 2.7 percent from 4,733,579 tons to 5,579,589 tons and its, on average, 35.7 percent of the total cargo traffic at the Port per year. In addition, liquid bulk by country trend shows that, on average, Zambia leads followed DR Congo, Rwanda, Malawi, Uganda, and Burundi. The highest growing transit business is that of Malawi with an annual average growth rate of 36 percent.

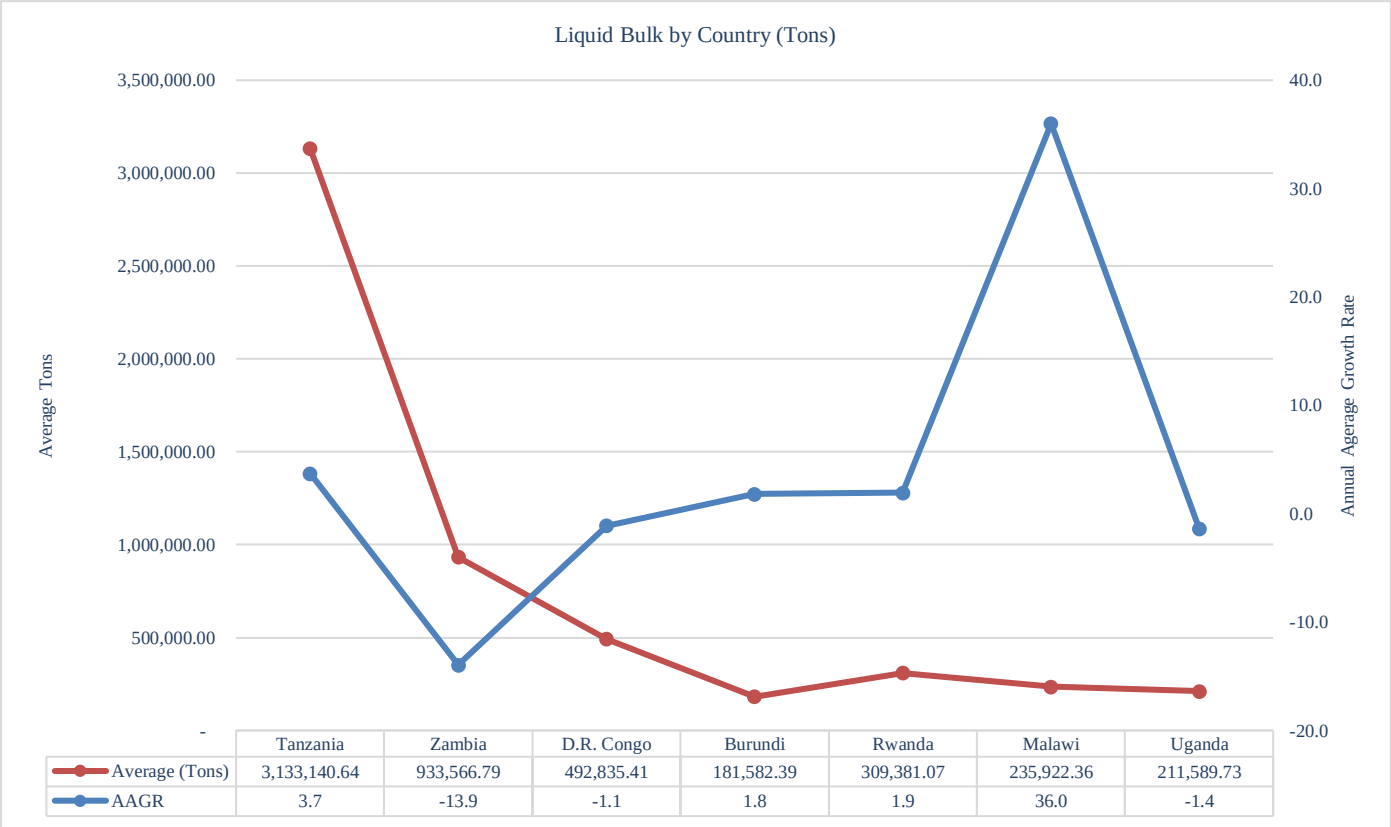

Figure 5
Liquid Bulk by Country in Tons
Source, Calculated form TPA's year Data.

4.3.8 Oil Hub Business

This is an investment avenue when a country, non-oil producing country, intend to be an export of imported petroleum products. The business requires capacitated petroleum product's storage facilities which are strategically located to benefit the countries in need like the landlocked countries. The business differs from the transit one since the later need order of consignee for importation while the first does not. "Import without order/consignee, store and sell to foreign countries with the stamp origin of Tanzania".

In regards to the respondents, 53.33 percent and mostly government agencies, supported that Oil Hub business to have a positive plausibly investment event while 47.67 percent of the respondents were indifference as an opportunity. It was argued that since the country's energy policy mission is "to provide reliable, affordable, safe, efficient, and environment friendly modern energy service to all while ensuring effective participation of Tanzanians in the sector", strategically it aims at increasing the petroleum reserve in the country. According to EWURA (2023), as a respondent insisted that "oil hub is very important for the country's energy security while TIPIER strategic plan is to expand the business at least three times as its today.

Hence, oil Hub investment is inevitable which actual attracts more the storage facilities business and efficiency of the port. "Tank farms, specifically for export, can be located at different places either near the intended import countries or a strategical location in the country. For example, the idea location might be near Malawi or strategic regions/centres like Morogoro, Dodoma, Isaka, Mtwara, and Tanga.

4.3.9 Other Investment Opportunities in Energy Sector

Through the interviews other respondents revealed different opportunities that were not include in the Petroleum Value chain. The opportunities are positive plausibly investment events in utilities, fertilizers, refinery, and natural gas both liquefied natural gas and liquefied petroleum gas.

In support of the mentioned investment opportunities, first on utilities, it was urged that since the country, especially in rural areas, still need electric supply, the Funds are advised to use the new invention in solar energy (sourced from Israel, China and India) to supply energy to the TANESCO main grid for sale. The project is one-time investment cost and its maintenance is low. In addition, undertaking this kind opportunity the Funds might research more on min-hydroelectric power mostly used in Brazil for the similar purpose of sale of the electric and start using the idea in its investments so as to reduce operation costs related to electric supply from TANESCO.

Second, natural gas and fertilizers are related since the presence of natural gas make the fertilizer industrial products possible. The presence of natural gas in Tanzania (57.5 trillion cubic feet) has attracted many foreign investors who will partner with TPDC on behalf of the country. The recommendation is to venture into mid-and down streams which are of a minimum risk because the exploration part is already implemented and the product is confirmed to be real and real for implementation. These two sections of the value chain entail to build pipelines and other infrastructure which attracts fees from users (example of Kinyerezi Station). The natural gas infrastructure can be expanded to Dodoma, Mwanza, and in the East Africa countries. "I think Kenya has interest with the natural gas from Tanzania which might lead to a huge investment".

The refinery investment was identified with a more explorative interest from the PBPA, the question was, why Tanzania and now Zambia are shying aware from importation of crude oil despite the fact that this is one of the biggest business in the World? "This is highly preferred when you consider an investment that will lead to multiple considerations of the economy. However, this is considered to be one of the huge and demanding investment since it involves high technology which is also dynamic (Farzanegan & Krieger, 2019).

4.4 Opportunities at Tanzania Port Authority

The investment opportunities at the Tanzania Port Authority are immense since the demand for efficiency improvement, operational expansion due to increase in cargo traffic and need for modern technology attracts reasonable investment capital. It was noted that, for a period between 2015/16 and 2020/21, Cargo traffic at the ports are increasing at an increasing rate. In terms of imports, the annual average growth rates for Dry Bulk was 19.81 percent, Break Bulk -13.16, liquid bulk 1.66 and overall imports 1.65 percent. The exports annual average growth rates were noted to be 5.36 percent for break bulk, 2.02 for liquid bulk and an overall rate of 5.27 percent. The overall cargo traffic for all ports in Tanzania, annual average, is 16,521,252.0 tons which is growing at an annual average growth rate of 1.87.

The respondents, in regards to the infrastructure development at the port were concerned about the followings; that discharge rate from vessel to depots has to be increased in order to solve the problem of demurrage charges. Hence, single point mooring model was recommended so as to allow bigger vessel to do than what is today. "The Funds have to think of investing in infrastructure like TICTS, it is of lower risk since the cargo keeps on increasing and this will add the comparative advantage of the harbour for we have to compete with our neighbours like Kenya".

During the interview with the TPA officials, it was revealed that the authority is carrying different studies and feasibility studies for projects necessary for improving the efficiency of the port. The projects are open for all interest investors since the law permits partnership between investors and the port authority.

In this regard, a list of investment avenues is attached for further follow up since they were said to be viable and their feasibility studies will be available once completed. Just to mention, these projects, which the TPA is soliciting funds, the estimated cost ranges from USD 35 million to USD 1,000 million, where the first project listed being the highest valued project as follows:

(i) Bagamoyo Port Development- Ras Mbegani;
(ii) Development of Dry Bulk Terminal at Kisiwa/Mgao, Mtwara Corridor
(iii) Development of Dry Ports- Ihumwa (Dodoma), Katosho (Kigoma), and Fela (Mwanza)
(iv) Development of Oil Jetty and Tank Farms- Tanga-Ras Kazone and Chongoleani
(v) New dry bulk handling terminal along berths 1-4 at Dar es Salaam Port[1];
(vi) Modernization and expansion of Lake Victoria Ports of Mwanza, Musoma, Bukoba, Kemondo and Nansio
(vii) Hybrid Terminal Cruise/Ferry Facility development at Dar es Salaam-estimated Project cost

4.5 Factors for Successful investment in the Petroleum Sector

In response of the challenges in the sector, the following were identified as important factors that are to be considered before and during the implementation of the petroleum products investment. These are as follows;

(i) Skills and knowledge- urged to be bold and hire people with the right skill and experience in the field. 80 percent of the responded indicated that this is a key factor for making the business successful. "Knowledge is needed, at the time of preparing TOR engage the government agencies responsible for energy and prior to execution its ideal to engage consultant from abroad";
(ii) Model of operation- the investment management model mentioned was that of shareholding-60 percent of the respondents supported this model of operation so as to lead for quick decision making. "Price is negotiated so quickly so decision has to be done on time". According to TPDC, the law allows for partnership through single source or secured partner in competitive manner, hence we can team up and work on farm tanks and pipeline business;

[1] The dry Bulk traffic cargo, imports, is growing at annual average rate of 19.81 percent, from 2.04 million tons to 6.03 million tons and the exports at 5.36 percent, from 2.42 million tons to 3.31 million tons in accordance to 2015/16 and 2020/21 TPA's data trend.

(iii) Financing - the companies solicit their own funds and the clear model is borrowing from financial institutions from banks. In this kind of business letter of credit is used 100 percent during the importation process. Moreover, power money like dollar is a catalyst in the business". 80 percent of the respondents highlighted this model to be true and 100 percent that the payment is made in dollars. "Financed through bank loans for both CAPEX and operation costs' it is generally still a problem to acquire dollars and the Funds might look at this- how can the Funds capitalize in dollar business?

(iv) Risk - this was ranked medium because the business is highly regulated and researched prior to implementation to the extent that 86 percent of the respondents supported this rating. "50 50 since its highly regulated but also external factors increase the risk (war, recession, pandemic-COVID-19, embargoes, competition from the multination companies, innovation in relation to electric cars, natural gas development and water sourced electricity- Julius Kambara Nyerere- Electric Dam- may be in 30 years the business will shrink)". Internal factors to consider on risk are taxes, and man power, especially youth, in Tanzania.

(v) Price, quality and security (safety, health and environment) - the three issues were considered as operating certainty factors. These are highly regulated and emphasized by the government. "price is regulated by EWURA, quality is controlled (e.g. use of EAC specification) and import is made from the same seller only additives and handling method differ, security is the priority since the product is inflammable and can cause huge loss and damage to the society).

(vi) Profitability - 100 percent of the respondents were in favour of profit earning once one is in this business. "Profit is granted since it is regulated and pronounced by the authority 'EWURA', such that at every point from supplier to retailers each get at most TZS 100 per litre". "The profit is standardized and determined prior to selling".

(vii) Demand- as mentioned early, currently the demand is increasing at an increasing rate and the fact is supported by 86 of the respondents. "The country uses more petroleum products due to growth in industry, the business is tied up into economies of scale-it's the volume-oriented business, presence of SGR will increase the cargo. 86 percent of the respondents supported the idea that there still high demand of the product. 14 percent were indifference.

V. CONCLUSION & RECOMMENDATIONS

5.1. Conclusion

Based on results it was found that to invest in the Petroleum is economically valuable and feasible for economic development. This has been evidently by the fact that 86.67 percent of respondents urged to invest in the Petroleum Value Chain in Tanzania while 13.33 percent were negatives. The explanatory positive facts were many when believed on the fact consideration that many individual and institutions are financially stable to carry out the investment.

Also the study excavated that the market of the said investment's product is still high. "The petroleum business is good but also diesel, petrol and Jet are highly demanded". According to TPA's data, overall cargo traffic, liquid bulk is at the annual average of 5,666,148.53 tons with an annual average growth rate of 1.65 percent.

The tested results was highly recommending for the investment in order to support the government efforts in ensuring reliable, available, and affordable petroleum products in the country and use the local contents incentives. So to say, "supporting the country's energy policy mission "to provide reliable, affordable, safe, efficient, and environment friendly modern energy service to all while ensuring effective participation of Tanzanians in the sector".

Another tested fact is that, the business was found to be very fine to because notably mutual funds, have been investing in oil business worldwide. For instance, majority shareholders are the mutual s. Despite the fact that BP has almost left Africa it has relocated to China where it opened about 3000 petrol station in the country.

Either the findings argued that, investing in this venture would diversify more the Fund's investment portfolio "we wonder why Pension Funds are not active on TPA's infrastructure or projects while private sector does and mostly foreigners are at front line". The business is real and business people are getting huge profit. It is said to an "Open check" investment. Generally, involvement of the Funds in the business will increase efficiency and later lead to multiplier effect like demurrage rate will be low, transit will increase, transportation will increase, employment, turnover of Tanks will increase, and taxes will also increase to the government while unit cost of hospitality will be reduced as well.

5.2. Recommendations

The Funds should to consider and pursue the offloading that will simplify the process for six hours instead of 4 days local system and storage facilities, farm tank, as a potential investment avenue at TPA & TIPER due to availability

of knowhow, skills and land specifically in Mtwara, Tanga and Dar es salaam. This will also attract Beira, Mombasa and Uganda. This will also attract customers from Beira, Mombasa and Uganda.

The Funds ought to consider in investing in supply & transit of oil & petroleum and rethinking about hub investment opportunity in the future. It was noted that pipeline can be thought in facilitating this business such that a hub is made possible at Isaka, Iringa, Kigoma, and Tunduma. The transit business is also the source of foreign currency since the cargo is traded in power money like dollar. "there is a demand, especially in Congo" Isaka, Iringa, Kigoma, and Tunduma, tested results from respondents, 53.33 percent and mostly government agencies, supported that Oil Hub business to have a positive plausibly investment event while 47.67 percent of the respondents were indifference as an opportunity. The Funds to formulate at team, internal (project, investment, planning, and risk, and legal) and external (TPA, Treasury Registrar, EWURA, Ministry of Energy, TPDC and TIPIER) for validating the feasibility studies at TPA and TPDC, respectively. The Funds to include the factors for successful investment in the TOR during the validation of the feasibility studies. The Funds to engage TPA and TPDC in order to have a memorandum of understanding on how to collaborate on the infrastructure investment. The Funds to continue researching more on the transit and oil hub investment for future investment consideration. The Funds to consider the shareholding model of investment since the operation are to be independently to meet operational efficiency. The Funds to research more on how the dollarization can be a viable investment avenue in reputes to the petroleum sector. The Funds should consider to invest in conveyor belt, the study argued that having conveyor system advance our Offloading of cargos and moving large volume of materials on time such as grain, salt, coal, ore, sand ,oil, and petroleum products and more.

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