

THE NON-PERFORMING PORT HARCOURT REFINING COMPANY AND THE DEPRESSED NIGERIA ECONOMY

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ABSTARCT

There is uncertainty in the petroleum sector of Nigeria following the non-performing refineries in the country, which has led to shortage in petroleum product to serve the growing populace. This paper analyses the non-performing Port Harcourt refining company and the depressed Nigeria economy. The study revealed that the non-performing Port Harcourt refining company has inherent effect to the Nigeria economy. Notably, most of the problem that contributed to the non-performing PHRC includes, corruption, obsolete laws and regulation, pipeline vandalism and lack of government funding. This has resulted to hurting the Nigerian economy like, inflation, unemployment, government policy, monetary policies, inadequate infrastructures and power supply, inadequate health facilities, insecurity, ineffective leadership and corruption, and over-reliance on oil. This study therefore concludes that the non-performing Port Harcourt refining company has an umpiring effect on the Nigerian economy. Thus, the study recommends that the existing Port Harcourt refining company should be rehabilitated and brought back into operation to at least 80–90% capacity utilization.

Keywords: Non-Performing, Refinery, Port Harcourt Refining Company, Economy, Nigeria.

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INTRODUCTION

Once upon a time, oil was discovered in Nigeria which later was in commercial quantity (Egba, 2020). Soon enough, it became Nigeria main source of livelihood, the foundation upon which its national budget rests, and the one commodity that provides most of our foreign inflows. To be able to extract value from this oil, we created refineries all of which are government-owned and managed. Oil might have been one of Nigeria's biggest blessings, but it also undoubtedly doubles as its biggest curse.

As far back as 1970s, Nigeria, Norway, and Malaysia set up national oil companies for the exploration, production, and refining of oil, so when Norway came up with Statoil (now Equinor) and Malaysia, Petronas, Nigeria created NNPC. Today, while Malaysia and Norway boast of having the biggest state-owned oil and gas companies in the world, NNPC has a long list of excuses and mind-boggling losses to show for it, while PH and Warri are oil-producing states, Kaduna does not produce any oil. For the sake of balance and to have a national spread, some of the crudes are moved to Kaduna via pipeline.

The capacity of all three refineries is also insignificant, compared to the required consumption of the nation (Egba, 2020). Hence, most of our oil is still imported because we cannot produce enough. This rate of importation is over 80% of our consumption. The existing refineries also operate significantly below capacity. Sometime last year, the refineries operated as low as 5.55 percent capacity. To increase capacity, the country carries out turnaround maintenance periodically and not only does it cost an arm and a leg, it takes months but barely anything ever changes (CSL Stockbrokers, 2020). Production stays low and cost stays high. Even if we turn all 3 around successfully, we have shown that we are incapable of increasing their capacity.

Yet in the midst of this, salaries and employee benefits are huge. KRPC, WRPC, and PHRC reported 13.8 billion, 13.8 billion, and 9.2 billion in employee wages and salaries, excluding directors' remuneration, staff pension and other benefits. Given the inefficiency of the operations of the refineries, the only thing that could have been done besides creating better refineries is to have an overhaul of the entire thing and shut down the refineries. But that is a different problem.

The Nigerian National Petroleum Company (NNPC) (June, 2020) released its audited financial statements for 2019, noting that its refineries recorded losses of N154 billion. As embarrassing and disappointing as it sounds, it is not as surprising. The nation's 3 refineries located in Port Harcourt, Warri, & Kaduna, reported combined losses of N154 billion. Kaduna Refining and Petrochemical Company (KRPC) incurred a loss of N64.5 billion, Port Harcourt Refining Company (PHRC) recorded a loss of N45.6 billion, while Warri Refining and Petrochemical Company (WRPC) recorded a loss of N44.4 billion. The losses also are not new as all refineries performed better than the preceding year 2017. The only thing more confounding than the billions in losses is the convenience with which Kaduna refinery conveniently recorded zero revenue for 2018.

According to the report, the four refineries owned by the Federal Government lost a combined N7.1 billion (August 2019-N13.2 billion) in September. Consequently, the cumulative loss for the first nine months of 2019 comes to N111.3 billion. However, the NNPC Group recorded surplus of N8.6 billion (August 2019, N5.2 billion) for the month (NNPC, 2019).

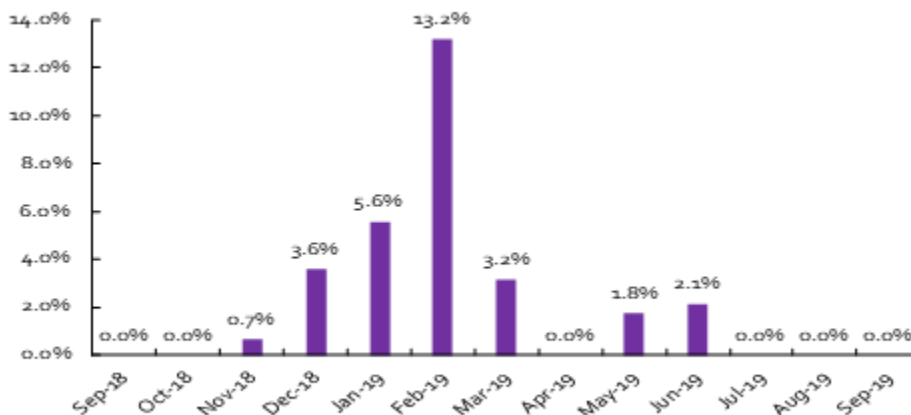
Despite the overall m/m improvement in the performance of the group, we remain concerned about the state of refinery operations, where sustained operational losses have continued to drag the group's performance.

For the third consecutive month, capacity utilization was 0.0%- this was attributed to ongoing rehabilitation works at the refineries. Notably, the 0.0% capacity utilization has occurred in six of the past 12 months while peaking at 13.2% in February 2019.

This comes against the backdrop of the promise made by the Buhari-led administration to revamp all the refineries and ensure they are operating at a minimum of 90.0% capacity. We note the combined capacity of the four refineries (two in Port Harcourt and one each in Kaduna and

Warri) stands at 445,000 bpd, however, Nigeria still relies heavily on the importation of PMS and other petroleum products to meet local demand.

Monthly Refineries Consolidated Capacity Utilisation



Source: NNPC, CSL Research

It is obvious that the government are struggling to see the possibility of achieving the country’s target of 90.0% capacity utilization in the medium to long term. Meanwhile, the process for raising funds broke down after talks with third-party financiers stalled in 2018 following disagreements on key commercial terms as such the government is ultimately relying on the launch of the 650,000 bpd Dangote refinery.

The Nigerian National Petroleum Corporation (NNPC) has released an operational performance report of the nation’s refinery (NNPC, 2019). According to the report, two refineries; Kaduna and Port Harcourt refinery plants did not refine any crude oil for the month of March 2019. However, the Warri refinery is performing better, as its capacity utilization has appreciated considerably.

The analysis further showed a capacity utilization of zero percent for both the Port Harcourt Refinery Company and Kaduna Refinery Petrochemical Company, while the Warri Refinery Petrochemical Company recorded 51.32 percent.

However, despite the huge amount expended on the refineries, their woeful performances remained, as the NNPC stated that they posted trading deficits of N82.09 billion, N77.84 billion, N32.84 billion, N131.64 billion and N149.23 billion in 2015, 2016, 2017, 2018 and 2019, respectively, while in the first half of 2020, they posted trading deficits of N58.736 billion. The Breakdown showed deficits of the Port Harcourt Refinery only amount ₦11.51 billion. It is upon this backdrop that this study aimed at investigating the impact of the non-performing Port Harcourt Refinery to the depressed Nigeria economy.

CONCEPTUAL FRAMEWORK

The Port Harcourt Refining Company

The Port Harcourt Refining Company Limited is in business to optimally process hydrocarbon into petroleum products for the benefit of all stakeholders (Gasandoil, 2004; Nwachukwu, 2010). The company’s vision is to be an innovative international hydrocarbon processing company of choice.

PHRC Limited is made up of two refineries. The old refinery commissioned in 1965 with current nameplate capacity of 60,000 barrels per stream day (bpsd) and the new refinery commissioned in 1989 with an installed capacity of 150,000 bpsd. This brings the combined crude processing capacity of the Port Harcourt Refinery to 210,000 bpsd. It has five (5) process areas - Areas 1-5. The new refinery is made up of Areas 1-4 while the old refinery is Area 5.

Area 1 is made up of the Crude Distillation Unit (CDU), where kerosene and Automotive Gas Oil (AGO) are produced as finished products. Other intermediate products from CDU are Straight –Run Naphta (SRN). Straight Run Gasoline (SRG) used for PMS blend, Liquefied Petroleum Gas (LPG) and Atmospheric Residue (AR). Vacuum Distillation Unit (VDU) where AR (CDU bottoms) are further processed under vacuum, or significantly less than atmospheric pressure to produce high-value products without cracking like Vacuum Gas Oil (VGO) FCCU feedstock and light as gas oil (AllAfrica, 2014; Vanguard, 2014).

Area 2 is made up of Naphtha Hydrotreating Unit (NHU), where naphtha is hydro-desulphurised; the Catalytic Reforming Unit (CRU), responsible for upgrading naphtha to reformate which has a higher octane value for PMS blend; the Kero Hydrotreating Unit (KHU) where kero is treated to make it acceptable for aviation use: Area 2 also has the Continuous Catalyst Regeneration Unit (CCRU), which constantly reactivates the deactivated catalyst from the reformer. Other units in Area 2 include, the Hydrogen Purification, Fuel Gas Vaporizer, Sour Water Treatment and Caustic Treatment Units (Gary & Handwerk, 1984; Leffler, 1985).

Area 3 is made up of a Fluid Catalytic Cracking Unit (FCCU), where Vacuum Gas Oil (VGO) and Heavy Diesel Oil (HDO) are cracked to obtain more valuable products, like FCC gasoline used as PMS blend and Light Cycle as blend component for LPFO and LPG. Other units in Area 3 include the Gas Concentration, Gas Treating and Mercaptan Oxidation Units (Gary & Handwerk, 1984; Leffler, 1985; NNPC, 2019).

Area 4 has three process units namely Dimersol, Butamer Isomerisation and Alkylation Units. The units are designed to produce high octane gasoline blend component.

Area 5, which is the old refinery, is made up of the Crude Distillation Unit (CDU); the Platform Unit (PU), the LPG Unit, as well as utilities section.

The refinery is self-sufficient in power and utilities generated from the Power Plant & Utilities. There are four (4) turbo-generators each with a capacity of 14MW of electricity per hour and four (4) Boilers, capable of generating 120 tons of steam per hour each. The section also generates cooling/service water, plant/instrument air and nitrogen.

The refinery has a pool of maintenance personnel that take care of routine, programmed and emergency repairs of equipment (Barr &, Skylar, 2019-08-14). There is also the Supply Chain Management Department that oversees the procurement and storage of needed spare parts and chemicals.

PHRC Products

PHRC produces the following products; Liquefied Petroleum Gas (LPG), Premium Motor Spirit (PMS), Kerosene (aviation and domestic), Automotive Gas Oil (AGO - diesel), Low Pour Fuel Oil (LPFO) and High Pour Fuel Oil (HPFO). PHRC produces UNLEADED gasoline that meets international standard. The PHRC also has in-house firefighting capabilities (NNPC, 2019).

PHRC Quality Policy and Objectives

PHRC is committed to always offer Petroleum Products and Services that shall fulfil our customers' requirements and expectations using modern technology at prices that guarantee customers' value, stakeholders' continued interest and support (NNPC, 2019).

To meet the objective of this quality policy, PHRC shall:

- Continually improve the efficiency of the process and utility plants to optimize their capacity utilization;
- Deliver all products on specifications;
- Train at least one third of the total staff population in the relevant skills annually;
- Strive to achieve nil accident annually;
- Treat all plant effluents to statutory safe levels before discharge into the environment, and
- Be a responsible corporate citizen by contributing to the social and economic development of our contiguous communities.

These Policy and Objectives shall be reviewed annually for continual improvement of the Quality Management System in accordance with the requirements of NIS ISO (001: 2000. (NNPC, 2019).

Operations and Services Directorates and Key Departments

There are two Directorates, the Operations and Services Directorates with 16 main Departments in the establishment. These are the Production, Maintenance, Production Programming and Quality Control, Engineering and Technical Services. Power Plant and Utilities Department; Health, Safety and Environment, Supply Chain Management, Finance and Accounts, Planning and Budget Monitoring, Administration, Human Resources, Public Affairs, Internal Audit, Security, Total Quality Management Department and Company secretary /Legal Department (NNPC, 2019).

The Nigeria Economy

The economy of Nigeria is a middle-income, mixed economy and emerging market, with expanding agriculture, petroleum, manufacturing, financial, service, communications, technology and entertainment sectors. A key regional player in West Africa, Nigeria accounts for about half of West Africa's population with approximately 202 million people and one of the largest populations of youth in the world (KPMG, 2015; IBP, 2015). Nigeria is a multi-ethnic and culturally diverse federation which consists of 36 autonomous states and the Federal Capital Territory. With an abundance of natural resources, it is Africa's biggest oil exporter, and has the largest natural gas reserves on the continent.

Oil price volatility continues to influence Nigeria's growth performance (Consulate General of Nigeria, 2019). Between 2000 and 2014, Nigeria's Gross Domestic Product (GDP) grew at an average rate of 7% per year. Following the oil price collapse in 2014-2016, combined with negative production shocks, the Gross Domestic Product (GDP) growth rate dropped to 2.7% in 2015. In 2016 during its first recession in 25 years, the economy contracted by 1.6% (Consulate General of Nigeria, 2019).

Given that the economy is expected to grow more slowly than the population, living standards are expected to worsen. Domestic demand for local refined petroleum product remains constrained by the non-performing of the refineries and growth rate is also constrained by a weak macroeconomic framework with high persistent inflation, multiple exchange rate windows and foreign restrictions, distortionary activities by the central bank, and a lack of revenue-driven fiscal consolidation results. Rising public debt, and increasingly complex policy interventions by the central bank constrain private sector credit growth. External balances are fragile to hot money movements, and fiscal buffers are exhausted, making Nigeria's economy vulnerable to external risks (depressed).

The Nigerian Oil and Gas Industry

The Nigerian oil and gas industry is heavily regulated and comprises multiple regulators including the Ministry of Petroleum Resources (MPR), Nigeria National Petroleum Corporation (NNPC) and Department of Petroleum Resources (DPR) (Nkenta & Oso, 2017). The effectiveness of these bodies in the refining sector has remained debatable. Delays in the passage of the Petroleum Industry Bill (PIB) and full deregulation of the downstream sector are major factors which have consistently dampened investor's confidence in the potential of the refining sector. According to the Nigerian Extractive Industries Transparency Initiative (NEITI), Nigeria loses an estimated \$15 billion yearly in foreign investments due to regulatory uncertainty (Nkenta & Oso, 2017).

Premium Motor Spirit (PMS): Nigeria consumes over 17 billion litres of PMS annually. Transportation and power are the major drivers of demand for PMS in the country. Imports currently account for over 90% of PMS supplied in the country and this is likely to continue in the future. Imported PMS is primarily sourced from North Western Europe and United States. West Africa consumes over 22 billion litres of PMS annually. Imports currently account for over 90% of PMS supplied to the region (PwC, 2017).

AGO: Nigeria consumes over 3 billion litres of AGO annually. The erratic state of the country's power sector has been the major driver of AGO demand. The power sector is currently plagued by a plethora of challenges, increasing the demand for self-generation options such as AGO-powered generators. Imports currently account for about 60% of AGO supplied in the country. West Africa consumes about 11 billion litres of AGO annually. Imports currently account for over 70% of AGO supplied to the region (PwC, 2017).

Aviation Fuel: Nigeria consumes over 400 million litres of aviation fuel annually, most of which is primarily sourced from the United States. In 2014, Nigeria was the 2nd largest importer of US aviation fuel in the world. Imports account for 100% of the aviation fuel supplied in Nigeria due to the inability of existing refineries to produce the fuel (PwC, 2017). There is a current deficiency in supply which is likely to continue in the short to medium term and this is primarily due to the shortage of foreign exchange and less to do with availability of the product. West Africa consumes over 1 billion litres of Aviation fuel annually with imports currently accounting for over 80% of Aviation fuel supplied to the region. For instance, Ivory Coast is responsible for a significant portion of locally refined Aviation fuel within the region.

Nigeria's refining sector is currently not operating at full potential and laudable attempts are being made by the current administration to drive private investment. These include plans to upgrade existing refineries and the issuance of 25 refining licenses (conventional and modular) to indigenous companies. These initiatives, if executed rigorously, will drive growth and reforms within the sector in the medium to long term. The combined capacity of the 25 candidate refineries stands at approximately 1.6 million bpd. Three (3) of the licensed companies are billed to construct conventional stick-build plants with capacity estimated at over 850,000 bpd, while 22 licenses are to construct modular units estimated at about 700,000 bpd in combined cap (PwC, 2017).

NNPC'S REFINERIES CONTRIBUTED NIGERIA'S ECONOMY

A study commissioned by the Nigerian Natural Resource Charter (NNRC) and conducted by the Centre for Petroleum, Energy Economics and Law (CPEEL), University of Ibadan on the contributions of the four refineries owned and operated by the Nigerian National Petroleum Corporation (NNPC) to Nigeria's Gross Domestic Product (GDP) has showed that their average contribution was just about 0.55 per cent as at 2016.

The study also stated that the contribution of the refineries to the GDP of other sectors of the Nigerian economy as at that time was 0.18 per cent, in addition to a -1.69 per cent contribution of the refineries to the gross net output in the country's economy.

Report of the study was presented at a stakeholders' workshop on 'assessing petroleum sector wealth: NNPC's contributions to the economy,' recently in Lagos. It focused on the contribution that NNPC refineries and pipelines have made to the Nigerian economy in 2016. Its estimations were done along the lines of direct contributions; indirect contributions and induced contributions, as well as their contributions with respect to Gross Domestic Product (GDP); Gross Net Domestic Product (GNDP); value-added; indirect taxes; compensation in terms of wages and salaries for employees; as well as employment.

The report noted that its assessment of value-added was made up of wages and salaries; operating surplus and depreciation, while indirect taxes included value added tax (VAT); excise and custom duties.

According to it, the refineries contribution to value added in the economy was 0.35 per cent; contribution to indirect taxes in the economy was 0.19 per cent; contribution to compensation of employees in the economy was 0.13 per cent; while NNPC refineries and pipelines' contribution to employment in the economy was 0.05 per cent.

The small contribution of NNPC refineries and pipelines across measures can be related to the sector's low capacity utilization 18 per cent for quite some time now. This has led to an unprecedentedly high importation of its products at the expense of the economy as every item of import is a leakage in the system. The importation is making negative contribution to the economy," said the report.

It added: The sector has also been running at a huge loss thereby reducing its contribution to the economy. There is a need for concerted efforts to promote accountability in the management and turn-around-maintenance of the refineries.

The existing refineries and pipelines at full capacities appear inadequate to fully satisfy domestic demand for petroleum products as a rigorous CGE modelling exercise reveals.

EFFECTS OF NON-PERFORMING PHRC ON THE ECONOMY

The petroleum sector contributes substantially to the Nigerian economy; however, the potential benefits are diminished due to the existence of significant subsidies on imports of petroleum products as a result of the non-performance nature of the country refineries. A country of about 200 million people imports more than 90% of products like gasoline and diesel, swapping its prized export-crude-for petroleum products that people need in their everyday lives. Nigeria spent N836.67 billion on the importation of Premium Motor Spirit (PMS) also known as petrol, and other petroleum products in the second quarter of 2019, according to data obtained from the National Bureau of Statistics (NBS, 2019).

Data obtained from the NBS Foreign Trade in Goods Statistics for the Second Quarter of 2019, showed that the amount spent on the importation of PMS and other petroleum products rose sharply by 193.98 per cent from N284.599 billion spent on the importation of the product in the first quarter of 2019.

Specifically, of the total amount, spent on the importation of petroleum products, the report noted that N575.28 billion was spent on the importation of PMS, representing a 201.55 per cent increase compared to N190.777 billion spent on importation of the commodity in the first quarter. Subsidies on imported petroleum products are considered to be an important instrument for keeping fuel prices, and hence the cost of living, low. The costs of these subsidies, however, has risen dramatically in recent years due to increased volatility in world petroleum and petroleum product prices and increased illegal exportation of subsidized petroleum products into neighboring countries. High value of import of petroleum products by Nigeria due to the non-performing of the refineries has led to unfavorable balance of payment, trade balances, terms of trade and even trade policies for the country. Dumping has affected local products due to the heavy inflow of low-priced foreign goods which are pushed out of imported countries into Nigeria.

Increase in Cost of Living

In addition to school fees, house rent, etc. the cost of every item of food has astronomically increase with removal of fuel subsidy over fuel importation due to non-performing PHRC and, for all same people, this is where the trouble is. When poor people are unable to eat because they cannot buy food (which they usually eat as meal) as is bound to happen when fuel subsidy is removed when the refineries are still not working, there will be no peace in this country but hunger in the land. This is a fact we must accept and it is one reason why the implications of all policies must be rigorously scrutinized before decision is taken by been more practical as to make the refineries work at its full capacity as to serve the growing population.

Impacts of PHRC on the Balance of Payment

Increase in fuel price usually has serious macroeconomic effects throughout the globe, which may adversely affect economic growth and could lead to inflation and large swings in term of trade, with important balance of payments repercussions.

It is also clear that each time there is an increase in the pump price of fuel the value of naira depreciates, which in effect, affect the purchasing power of the Naira, hence, a higher level of financial instability among Nigerians. The upsurge in the pump price may lead to an increase

in poverty level hence posing a challenge to the long term vision of reducing poverty in the country. The balance of payments is badly affected because the inflation that results from fuel subsidy removal can discourage foreign investors because the naira would not have any value again. Hence, there is capital flight and Nigeria would experience unfavourable balance of payments. Again, importers of all kinds of goods especially capital goods would incur more financial burden to import few goods. And the foreign countries would spend less to trade with Nigeria which makes them record favourable balance of trade and Nigeria recording unfavourable balance of trade. Finally, the situation is made worse when the local demand outweighs (more than) aggregate supply. This is true of high rate of consumption. This would lead to high demand for foreign goods both consumer and producers' goods and intermediate goods with attendant unfavourable balance of trade.

Effect of Non-Performing PHRC to Transportation

As the cost of fuel rises due to non-functionality of the PHRC, carriers are forced to raise prices or take losses. In turn, the cost of fuel does not only affect the logistics company, but also the shipper and the profit source of the shipper as well. It is an outward domino effect. If it costs more for the freight carrier to transport the freight, the shipper is going to be charged more to make up for this. If the shipper is going to be charged more to transport the freight, the receiver is going to be charged more to make up for their added costs.

The preferred means for transportation shift as it becomes less and less economically viable to move freight using fuel inefficient methods relative to the market. For instance, if the cost of rail usage is low and fuel costs are high, a logistics company may ship more freight via intermodal carriers than over the road trucks.

This means the products are going to be sold to consumers at higher costs to make up for the higher transportation and fuel costs. Basically, higher fuel costs cause product inflation, and affect every aspect of production transportation along the way.

Declining NNPC revenue is bad for Nigeria's economy

The decline in NNPC's revenue, as occasioned by the poor performance of Nigeria's refineries, is a bad development for Nigeria. This is because the Nigerian economy is mainly funded with funds disbursed by the NNPC.

Another negative implication of the inability of local refineries to perform is that the country will continually depend on the importation of petroleum products to meet demand. This is a disgraceful thing for Nigeria, which produces a considerable volume of the global crude output have a detrimental impact on household income, and in particular on poor households.

More so, the importation of refined petroleum products is a costly alternative, seeing as the Government has been projected N39.9 billion monthly in fuel subsidy fees, according to an earlier analysis.

CONTRIBUTORY FORCES TO NON-PERFORMING PHRC

The Fuel Subsidy Scam

One of the most confounding things is the fuel subsidy saga. With the cost of import landed cost high, the government had thought it a great idea to subsidize fuel for the average Nigerian. Forget the question of whether we should be paying subsidies or not, how much in subsidies is the government really paying? Subsidies are based on the volume of petroleum consumed, but one unconfirmed information is how the subsidy is being calculated (Egba, 2020). Even today, NNPC and PPRA cannot agree on the volume of petrol being consumed daily in Nigeria.

If DPR says Nigeria is consuming around 38 million litres in a day and NNPC suggests that the country's daily petrol consumption is around 50-60 million litres, it means there are significant discrepancies. As it is, no one knows how much subsidies Nigeria is actually paying every day and where the money is going to if we're not actually consuming as much.

Corruption

Of the series of challenges, the refining space is plagued with from theft of petroleum products, to poor maintenance and a series of operational challenges, corruption ranks tops and it isn't news. Corruption in the downstream sector was also exposed during the subsidy probe. It revealed that some of the companies that took money for subsidy did not even import refined products at all. With marketers preferring to import, our refineries stay dormant. The funds used in Turn Around maintenance (TAM) annually also does not also contribute to any meaningful and could also be another avenue for exploiting the industry.

While Nigerians sit and watch the decay in the system fester, one billionaire is on course to provide an alternative that both the government and the private sector are basing all their hopes and dreams. Aliko Dangote's 650,000 barrels a day refinery which is set to be one of the world's largest, is due to start operations in less than a year's time. Even as we hope that the refinery brings some sanity to the modus operandi and reverse the decades-old rot in the system, it too is not bereft of flaws. Yet, it is the only foreseeable hope we have to put an end to the joke that is our refining system and commence the process of recovery.

Poor governance

The problem of poor governance has been recognized as a key factor that has affected the performance of the refineries. The refineries are 100% owned by the Government and have no independent control of or access to their funds. All requests for funds to carry out maintenance are subject to multilayer bureaucratic processes (Egba, 2020). Approvals for any meaningful maintenance are subjected to considerations first by the refinery management committee, thereafter by the corporate refineries directorate, then by the corporate management committee, followed by the corporate board and finally by the National Federal Executive Committee chaired by the President of the Nation, depending on the amounts required. These processes often require months to go through the various stages. Refineries cannot run reliably in this manner.

Outright commercialization or outright divestment of significant equity has been promoted as a solution to this malaise. The Petroleum Industry Bill which was first presented to

the National Assembly in 2007 was intended to introduce better governance along these lines. Unfortunately, the bill has been considered by successive assemblies, but is yet to be passed nor signed into law.

Lack of TAM/rehab on the performance of the refinery

Machines and other service facilities are subject to deterioration due to their use and exposure to process & environmental conditions. This deterioration requires to be duly taken care of by various maintenance interventions, techniques and at certain pre-determined intervals so that the required use of facilities can be continued and service life extended until the point where maintenance costs become prohibitive and replacement action becomes inevitable (Egba, 2020).

Pipeline Vandalization

Refineries were designed to receive crude oil feedstock by pipeline. In like fashion, they were designed to have products evacuated mainly also by pipeline (Ogbuigwe, 2018). Lifting of products from depots immediately contiguous to the refineries was intended mainly to supply the towns and cities nearby.

An extract from the PHRC Annual report for 2013 highlights the negative impact of pipeline vandalization on crude delivery to the refinery. An average of 23.46 % and 37.58% capacity utilization and on-stream efficiency were attained, respectively, as at end of June 2013 for NPHR. Performance of the plant was impeded mainly by inadequate supply of bonny light crude oil.

The average capacity utilization and on-stream efficiency of FCCU within the period under review were 12.84% and 16.73%. This low performance was as a result of insufficient feedstock from the upstream vacuum distillation unit, which itself was starved by poor supply to the Crude Unit (Ogbuigwe, 2018). Thus, the problem of pipeline vandalization warrants special treatment. The security and safety of the pipeline infrastructure are imperative for the viability of the Downstream Oil and Gas sector.

CONCLUSION

The Port Harcourt refinery is Nigeria's oldest, built in 1965, nine years after oil was found under the marshy soil and creeks of the delta, where the Niger River runs off into the Gulf of Guinea that is concerned with the business of processing crude oil into fuels and other value-added products. The petroleum industry has led to a significant economic growth in Nigeria. It created thousands of new jobs and income sources for the country. Still, nothing comes without a price. The Port Harcourt refinery have been almost non-functional due to a poor maintenance culture and a profound difficulty for Nigeria to sustain the industrial ethics needed for large-scale refining. Although the refineries in question have since started working at less than half of their installed capacities, a lot more needs to be done to bring the production to optimal levels as well as encourage the establishment of modular refineries to make Nigeria self-sufficient at meeting local demand.

Recommendations

The following recommendations were made for this study:

- Effective Regulations will be a key driver for growth within the refining sector and therefore bold & decisive reforms are necessary. Regulations are pertinent to driving confidence within the refining sector and boosting attractiveness to potential investors.
- Full deregulation of the downstream sector remains the most glaring to boost the attractiveness of the sector. Removal of price caps on PMS is the key trigger.
- The current institutional construct and policies need to be rationalized and reconstituted to drive efficiency of the sector.
- Given the stratified nature of the Nigerian population in terms of ethnic tensions, it may be advisable for regional refining to be considered where indigenous modular plants are operated and overseen by indigenes of the region for their own economic benefit.
- Small scale modular plants will yield more economic benefits and return on investment than their large-scale counterparts and with a proper government incentive, imports will be reduced to zero and export of refined crude oil to neighboring countries will be promoted, the Naira will be further strengthened, the problem of fuel scarcity which the country experiences will be finally rested.
- One of several ways of boosting Nigeria's economy is for Nigerians, including marginal field operators whose crude export terminals have been vandalized, to embrace modular refineries.

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