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Oil Bunkering Activities in the Niger Delta "The Way Forward"

Oriji Alurechi Boniface[1], Odagme Baridor Samuel[2]
[1](Department, Of Petroleum and Gas Engineering/ University Of Port Harcourt, Nigeria.
[2](Department, Of Petroleum and Gas Engineering/ University Of Port Harcourt, Nigeria.

Abstract : *Bunkeringis the practice and business whereby duly licensed operators stores petroleum products in tanks and subsequently provide fuels, water and lubricants (bunkering services) for marine services on request. It could be likened to establishing a floating fuel service station on the high seas or at coastal jetties to supply fuel and provisions of water to ships. The Niger Delta is a host to Nigeria's proved Oil and Gas reserves. In this study, the history of Bunker oïl and the various types of bunkers were examined; Bunker trade, transportation of bunker fuel and the various types of vessels used were also analyzed. The study provides accurate information on how the bunkering business could be managed using world best practices for the economic benefit of the Nigerian economy thereby creating jobs for citizens and income for the gouvernement. Also, this research gives a guide line on how to re-orient Nigerian citizens on the legitimacy and the economic potential for the bunkering business in Niger Delta. The results showed that an organized bunker trade would add positively to the GDP of Nigeria.*
Keywords: *Bunkering, Bunker, Bunker Trade, Bunker fuel and Environmental Impact.*

I. INTRODUCTION

Bunkering is an international trade mostly practiced in countries with costal territory (Oceans, high seas etc.). Bunkering was introduced as a legitimate business activity in Nigeria with license issued by Department of Petroleum Resources (DPR) in 1979. The trade was limited to five major Oil marketing companies in 1984. However, due to the abuse by non-licensed operators, it was put on hold in the year 2000 by the federal government on the account of subsidy on Petroleum products. Fortunately in 2013, the federal government of Nigeria resuscitated the bunkering activities through the DPR. The DPR was the only authorized body to issue and review licenses for bunkering activities. The main focus populations of this study are the Oil and gas companies involved in bunkering activities in the Niger-Delta region. The multinational bunker companies own most of the barges and tankers used in bunkering operations while the indigenous operators most times rent some of these facilities.

1.1 Bunker Oil and Types of Bunker

Bunker fuel is a by-product of crude oil refining and it comes in many forms. Crude oil are usually measured in barrels and when extracted undergoes a refining process producing over fourteen byproducts from each barrel of crude. Table 1 shows the refinery yield per barrel of Oil from which the bunker fuel is obtained.
From the above analysis, there are three by products derivable from a barrel of crude oil that can be used by ships as bunker fuel .Example include:Gasoline, Distillate and Residual fuel oil. (**See Table 1**)
The type of bunker used by a vessel is determined by the class survey and the type of engine in the vessel for transportation. The bunker market uses barges for transportation of bunker fuel. This include: Dumb barges, self propelled barges, Bunker tankers and Supply vessels. Most of these barges have an in-line blending facilities but it is common practice that products are blended to specification into the barges from the tanker facilities. Capacity varies from 2000 MT to 6000 MT.

1.2 Classification of Bunker fuel in the Maritime field

The maritime field classifications of fuel oils are as follows
i.Marine Gas Oil (MGO): This made from distillate only.
ii.Marine Diesel oil (MDO): This is a blend of gas oil and heavy fuel oil
iii.. Intermediate Fuel Oil (IFO): A blend of gas oil and heavy fuel oil with more gas oil(than marine diesel oil
iv. Medium Fuel oil (MFO): A blend of gas, oil and heavy fuel oil with less gas oil than (iii) above
v. Heavy Fuel Oil (HFO): Pure or nearly pure residual oil. Marine Diesel oil contains some heavy fuel oil, unlike regular diesels. However, the kinematics viscosities of marine fuel oils are considered in their classification.

II. MATERIALS AND METHODS

Extensive research was carried out on the fundamentals requirements and effective management of bunkering operations in Nigeria and how to start a legal bunkering business in Nigeria .The Information was obtained from a directory of registered bunker traders in Nigeria (DPR), the newspapers and Magazine adverts and bunker dealers. The companies used represented a sample whose proportion is unknown because the bunker trade was not as open as most trades. About 90% of these companies are wholly owned and registered businesses in Nigeria while the rest are branches of multinational companies in Nigeria.

2.1 .**Organization of the Bunker Trade Market**

The bunker trade like any other commodity market is a highly organized and specialized a market (buyers, sellers and brokers) with the economic forces of demand and supply playing the important role in determining the prices of commodity. In many countries of the world, the free market economy plays important role while in some others there is bureaucracy and government intervention. Bunkering is very vital to the economic activities of many nations, particularly those countries that have ships sailing into their territorial waters.

2.2. **Bunker Trader**

Bunker traders are vital link in the supply chain between the refinery, oil majors and end users. These are the dealmakers, allowing smaller players to remain in the bunker business where lines of credit are not strong enough for buyers to deal directly with large companies. The job of a bunker trader is more than that of a bunker broker whose work is just matching the seller on one end with the buyer at the other end. The trader actually buys and sells for others rather than just handling the contracts for others (Wikipedia 2008). They make profits from these deals and are players in the market themselves, rather than being pure service providers. For the bunker trader to remain relevant in the deal making process, the trader must be in constant contact with both sides. As a result, the first task for a bunker trader every morning is to check the mailbox and respond to many enquiries as possible. Many traders deal directly with brokers and some deal with owners as well. A good bunker trader is one who is able to keep both the supplier and the buyer happy. Flexibility in the work of the trader is quite important. Being a trader is a balancing act, between meeting the expectations of the refineries and oil majors on one side and the customers on the other providing the perfect bridge between owners and refineries.

2.3. **The Bunker Broker**

The main job of a bunker broker is to match the seller with the buyer and at the end of each deal earns a commission. To successfully do this, the broker's main instrument in trade is information. The broker has to do this every morning by searching for means to find out what the bunker markets have been doing over-night and what is likely to happen over the course of the day. This involves checking a number of market reports and specialized websites. Most bunker brokers also work for ship broking firm where many regular chartering principals also use the firm to source for bunkers. In the case of short-term chatterers on the spot market, bunkers are usually purchased by the owners rather than by the charterers .Brokers do not usually take position in any bunker business but always act as the middle party throughout the dealOnuzurike (2008). The main role of the broker is to find the right grade of fuel for a given vessel in a given port and to arrange for credit for the clients. When a client places a firm enquiry about purchasing bunkers, the first decision to make is to find the most appropriate method of supply. The broker might choose to purchase the oil from a trader or directly from a supplier or both. This will depend on a variety of factors, including the credit lines of the owner, the port, the fuel grades, the quantity involved and the right price in the right place.

2.4. **The Bunker Buyer**

Bunker fuel is the most expensive outlay for a voyage and because of this bunker buyers are bound to be very opinionated about the quality of product service they receive. This is because the quality of the bunker and its price can make the difference to profit margins and the fact that if a bunker fuel is substandard it can ruin a voyage. In the past, bunker buyers have had to approach suppliers with a degree of caution and hope that they would not get bitten. Today the industry is increasingly more competitive and buyers have a comparatively wide choice of suppliers to approach. "The buyer's duty will be to choose the supplier who can deliver on time. Punctuality is a must for a supplier if he is to be relevant. There must be no waiting time. There must also be good cooperation between the buyer and the seller and a degree of assistance if it is needed. The suppliers must always be honest and inform the buyer when there is a problem". (Onuzurike 2008)

There must be flexibility and constant communication between buyers and sellers so as to avoid potential problems. Information is very important to the daily operations of both the bunker buyer and seller. The buyers will have to explore the various possibilities of where and when it is best to bunker. Once the ship operators have decided to bunker, they put in a request to the bunker buyer using a form, which will state fuel

specifications, vessel position, terms and conditions. The buyer then starts his work by making contacts comparing both price and quality. The bunker buyer is therefore someone who has a good negotiation skill, a good understanding of the oil industry and the shipping business, good technical and legal knowledge. (Overall R. 2008)

III. THE BUNKER TRADE IN THE NIGER DELTA

The organization of the bunker market trade in the Niger Delta region is a replication of what is obtainable in the country as a whole. The Niger Delta is the centre of action for all bunkering activities in the country and it accounts for over 90% of crude oil and gas in the country unlike in the developed world where bunkering trade is properly organized with traders, brokers and buyers performing separate roles. The lack of organized bunker trade in the Niger Delta is due to no proper ocean governance and monitoring by those expected to be in charge. Proposals and memos submitted to the federal Government on the way forward have not been attended to and the resultant effect is that illegal bunkers take advantage of the delay and refusal in treatment of proposals and very low monitoring level thus, resorts to illegal bunkering activities. Licenses for operation of the bunker trade were last issued and renewed in 1999 (DPR Annual report 2010). According to the listing in Bunker world, not less than 20 companies (foreign & local) were published as bunker dealers in Nigeria. Ordinarily, when the master of a vessel needs bunker, the owners are contacted depending on the type of contract or agreement, this triggers all the process involved in bunkering. Information and communication are very important in the process.

IV. REGULATORS OF THE BUNKER MARKET TRADE IN NIGERIA

The major regulator of the bunker market trade in Nigeria cum Nigeria is the Department of Petroleum Resources (DPR).The DPR keeps and update records, particularly for petroleum reserves, export of crude oil and refined products, licenses and leases. It advises government on policies that impact on the administration, control and compliance with relevant petroleum laws and regulations. The regulations are issued as guidelines, circulars and standards to the industry. The DPR also has regional offices across the country and maintains an office in each of the state owned refineries and depots. In regulating the trade, the DPR issues guidelines, approves licenses and renewal of some sanctions and penalties are usually imposed on defaulters. The guidelines usually state all the conditions that are to be met before licenses are issued. The Nigerian Navy also plays an important role in the regulation of the bunker market trade in the Niger-Delta..

V. BUNKER MARKET PRICE STRUCTURE IN THE NIGER DELTA

Generally, the price of bunker at any given time follows the price development in the crude oil market and the cost of refining the crude oil. When there are increases in the prices of crude then it will also affect the price of bunker. But the general behavior in the bunker market is that

1. Bunker pricing is highly volatile despite the fact that it is poorly organized in the region
2. Bunker quality is very important but it varies from one source to the other.
3. Bunker market operations are usually low margin but highly competitive industry
4. Market manipulation is part of bunker business.

   Since almost all bunkers trade in the region is imported, it therefore means that the prices in the region will be higher than other countries whose refineries are still in full operation. The Niger Delta region would have benefited immensely from bunker trade but the products are mostly unavailable

VI. GUIDELINES FOR BUNKERING OPERATIONS IN NIGERIA

All oil reserves in the country belong to the Federal Government of Nigeria. The government through the appropriate agencies sells the reserves in blocks to deserving companies who in turn explores for crude oil. This is achieved through the joint venture agreements with the NNPC. Most of the crude oil in Nigeria are located in deep seas, hence floating platforms are constructed. Licenses for bunkering operation and trade are usually issued by the Federal Government through the Department of Petroleum Resources (DPR) been the agency responsible for the monitoring and regulation of the trade in Nigeria. The DPR issues guidelines regularly which are also updated for operators of the bunker trade and the type of coastal vessels to be used in the trade. Over, the past 10 years, the DPR has not issued any new single license neither have they renewed those already issued in the past. The effect is that bunkering is now an all comer's affairs in the Niger Delta Region. There are no controls and monitoring whatsoever presently been done by the DPR since the Federal Government has not considered their proposals on how to resuscitate the trade? Huge sum of money in both foreign and local currencies are lost daily as there are no registration fees, license and renewal fees from the illegal bunkers. However, the following were the guidelines, which were in place and are obtainable from the DPR on the payment of application fees

1. All licensed fuel bunkering companies will be required to provide evidence of the quantities of bunker fuels supplied in the last twelve months (by presentation of copies and bunker receipts for each delivery).

2. Any bunkering company found to have received petroleum products but did not supply such to vessels in the Nigeria coastal and international waters would be disqualified.
3. Applicants for bunkering licenses must show evidence of strong working relationship with reputable bunker fund trade partner's locally or abroad.
4. Bunkering license applicants must have functional offices with licensed and technically efficient communication equipment / facilities.
5. Vessels owned or leased for operations must meet the international fuel bunkering safety standards.
6. Any company found to have prevented / stopped the clearance of bank draft issued in favor of the Federal Government of Nigeria or presented DUD-Draft /cheque in respect of bunker trade and operations shall automatically be blacklisted and appropriate action taken against the erring company

VII. SECURING A BUNKERING LICENCE

Application for a new license or renewal of a previous license shall be made on an official form issued by the Department of Petroleum resources for that purpose and the application fee payable on submission of the form The DPR official inspects the applicant's head office, field office and port location to verify the claims made in the completed form and also determines the ownership and condition of all equipment and facilities mentioned. The communication system is also been accessed.
A 'Clear Recommendation' is made to Minister of Petroleum Resources to: Grant the application for a bunkering license or Reject the application and also advise the applicant based on information received. Thereafter, an inspection team consisting of officials of DPR and an independent internationally recognized inspectors of shipping inspect each of the applicant's vessels designated for fuel bunkering and establish a safe operating condition. Secondly, ensure that the vessel is numbered with the inscription "Bunkering" marked on both sides and the vessel has calibration table for volume determination and certified by an organization recognized by the DPR. Thirdly, the vessel must have a current and adequate insurance, functioning flow meters, sufficient flexible hoses, reducers, sample containers, seals for samples, label for samples, documentation for bunkering operations including at least request for bunkers, time sheet, receipt for samples, receipt for documents, and notice of readiness. Finally, the vessel is marked with a deep yellow bank 50 cm wide round the bow and having a minimum of two fenders. In addition to the above submissions, the applicant company shall pay a non-refundable license application fee renewable annually. Approval shall be granted by the Minister of Petroleum Resources, if the applicant satisfied the stipulated requirements.

7.1. **Monitoring Bunkering Activities - DPR**

The PPMC ensures that only vessels (Bunkering / Coastal) licensed by the DPR are loaded at the nation's approval jetties. The DPR clears every vessel before being allowed to berth and issues a Certificate of Quantity in line with the requirements of the Petroleum Products lifting. The DPR prescribes the format for monthly performance reports on bunkering to be submitted to the Director, Department of Petroleum Resources (DPR). Each licensed company shall submit bunker-fuel lifting returns not later than seven days after loading at the jetty. No company shall be cleared by the DPR to load without remitting the previous loading documents. The guideline for Bunkering operations in Nigeria by DPR (2010, 2014) stipulates that the DPR shall periodically inspect all bunkering vessels and bunkering companies' facilities/equipment in order to discourage illegal business and unsafe operations. Established breaches / infringements are promptly sanctioned.

7.2. **Environmental Impact Assessment of Bunker Trade**

In a typical bunker market operation, bunker fuel is usually transferred from one point to another .Either by Unloading from shuttle tanker or a refinery to a terminal and Loading of bunker from a terminal to a barge or from barge to ship (offshore). In either operations, the risk associated with it is that of an oil spills. Notwithstanding, Badejo et al;(2004) stated that one percent (1%) of oil spills recorded in the Niger Delta region in 2003 could be attributed to inadequate care in loading and unloading oil in vessels. But according to National oil spill Detection and Response Agency (NOSDRA), there are 574 incidences of oil spills reported worldwide in 2004 alone. Out of these, 548 oil spills were of less than 7 tons while the rest 26 cases were in the range of 7-700 tons only.
However, there could be a large amount of incidences, which have gone unreported.

7.3. **Factors Affecting Oil Bunkering in Nigeria**

1. Unavailability of established trade union, trade association and organized groups involved in oil bunkering in Nigeria, who would have stand as catalyst for the development of legal bunkering in Nigeria , help in gathering data and informing the general public about transactions within the industry.
2. Nigeria's inability to monitor its borders, particularly sea borders by an established coast guard who would have helped in gathering data pertinent to the industry.

3. Lack of indigenous skilled manpower very critical to this sector of Nigeria's economy.
4. Nigerian ports inability to accommodate larger ocean vessels and the paucity of knowledge by ports operators in Nigeria.
5. Non availability of organized bunker market structure in the region

VIII. RESULTS AND DISCUSSION

There is a great misunderstanding of the Bunkering business in Nigeria and it is seen as an illegal and criminal business because of poor organization structure and monitoring .This assumption is due to ignorance of the legitimacy of the trade; therefore DPR should thus give a proper orientation on oil bunkering to enable interested business men to invest in the sector. An average of 5,000 sea- going vessels, berth at various Nigeria ports every year. Based on reports obtained from the Nigeria Port Authority (NPA) during this research, it was found that due to the suspension of bunkering operations, the Nigeria marine users now go to the neighboring countries such as Senegal, Angola, Ghana, Cape Verde and cote D'Ivoire to refuel their ships, boot and Marine engines since the year 2000 to 2015. According to Nigerian Punch 16th January 2014, the resumption of the bunkering business would reduce oil thief and safe oil gas and reduce the time wasted by marine operators to go and buy from the neighboring countries to refuel vessels that operates in the Nigerian territorial waters. Hence, an organized bunker trade would have added positively to the GDP of Nigeria. The DPR estimated that from structured supply of bunker fuel to various vessels, tariffs, licensing of bunkers and renewals registration of vessels, for bunkering business, annually generates about 250million naira. This will increase good business growth in the inland ports and water ways.

IX. CONCLUSION

The report gathered indicated that there exist more illegal bunkering operators than the registered ones. These illegal operators are involved in stealing both crude and other refined products Bunkering has the potential to provide employment for many unemployed youths, especially youths from oil producing states of the Niger Delta. As the Nigerian refineries are now working and some are been repaired for full capacity. If the bunkering trade is properly structured, managed and dependable, vessels coming into Nigeria would be sure of buying fuel, lubricant and water from the bunkers. This will make freight cheaper, produce earning for Nigeria, Jobs creation around the coast and help to consume refined products from the internal refineries .Thousands of Nigerians could be gainfully employed in this sub-sector and also lead to the reduction to the cost of goods for instance, a vessel coming into Nigeria, will carry just enough bunkers for the market, Therefore, the unit cost of cargo will be very low and would results in reduction of cost of goods coming to Nigeria.

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Table 1 Refinery yield per barrel of oil (Free encyclopedia 2007).

1	Gasoline	45.8 %
2	Jet Fuel	10.7%
3	Liquefied Gases	3.6 %
4	Kerosene	0.3 %
5	Distillate	20.9 %
6	Residual Fuel Oil	6.8 %
7	Feed stocks	2.9 %
8	Special Naphtha	0.4 %
9	Lubricants	1.2 %
10	Waxes	0.1 %
11	Coke	3.9 %
12	Asphalt	3.2 %
13	Still Gas	4.8 %
14	Miscellaneous	0.5 %
15	Shortage (gain*)	-4.9 %