

# Covid-19 Pandemic and Coping Strategies across Selected Petroleum Companies in Port Harcourt

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## ABSTRACT

This study assessed COVID-19 pandemic and coping strategies for the petroleum industry. The study used the descriptive survey design approach. 80 health, safety and environment (HSE) workers in the selected oil companies that operate in Port Harcourt, Nigeria, constituted the population of the study. Purposive sampling methods were applied in choosing the sample for assessment. The sample size for the present study was derived utilizing Yamane Taro's statistical technique to arrive at a sample size of 70. The study made use of interviews and questionnaires of both structured and semi-structured nature. Data from the answered questionnaires were analyzed both qualitatively and quantitatively using percentages. The result revealed that the safety impacts of COVID-19 pandemic across selected petroleum companies in Port Harcourt are in two (2) folds (positive and negative). The Positive Safety Impacts are: increased level of awareness of threat to health globally and increased level of safety measures practiced. The Negative Safety Impacts include: increased risk of getting infections and increased risk of disease transmission from one person to another. From the results gotten, the economic impact felt was a reduction in the barrel price of oil. Finally, the result revealed that some of the possible coping strategies as: Rigid travel policies permitting essential duties workers only should be formulated and implemented for the short period of time and reduction of working days for offshore staff.

**Keywords:** Covid-19, Pandemic, Strategies

## I. INTRODUCTION

What began as a health crisis - with grave impact on populations, within days became an economic and fiscal crisis with a high risk of

negative social implications. The outbreak of coronavirus disease-2019 (COVID-19) first emerged at the end of December 2019, from the Hunan seafood market in Wuhan City of China, and declared as an international public health emergency in a couple of weeks by the World Health Organization [15]. Genomic analysis revealed that SARS-CoV-2 is phylogenetically associated with SARS viruses, and bats could be the possible primary source [2]. The transmission of the virus mainly occurred through person-to-person via direct contact or droplets produced by coughing, sneezing and talking [5]; [7]; [13]. To control the spread of the virus and reduce the death rate, government of most of the affected countries initiated to restrict the movement of people. It is found that countries like India and China restricted the movement of the largest number of people (approximately 1.3 billion) as a preventive measure of COVID-19, which started from March 24, 2020 [12]. As of April 7, 2020, World Economic Forum reported, nearly 3 billion people are faced with some form of lockdown globally, and movement is being restricted by respective governments to control the COVID-19 infection [14]. Overall, the pandemic has caused huge global socioeconomic disruption, which directly or indirectly affected the environment like improvement of air and water quality, reduction of noise and restoration of ecology. Moreover, the increased use of personal protective equipment (PPE) (e.g., face mask, hand gloves, gowns, goggles, face shield etc.), and their haphazard disposal creates environmental burden [3]; [8]. In these circumstances, this study intended to explore the environmental and safety consequences of the COVID-19 pandemic in the oil industry in Port Harcourt, Nigeria, and propose possible strategies as future guideline for environmental sustainability. Companies are forced

to operate skeleton crews to continue operations, with disruptions expected for the maintenance, inspection, repair and replacement of equipment and drilling activities. Operators are being forced to seal off wells as a result of the reduced number of personnel on drilling rigs falling below the level required by health and safety regulations and the reasonable and prudent operator standard. As the situation deteriorates, many industry participants are reaching for the force majeure (FM) provisions in their key contracts to excuse failure to perform or to exit. In the offshore section of the oil industry, personnel are now expected to stay not less than 28 days for each rotation, thereby increasing the workload on each personnel. There are now expected number of personnel per time in each work vessel offshore, as earlier stated, this invariably has led to reduced production. Therefore, this study is targeted at assessing the environmental and safety impact of COVID-19 pandemic and coping strategies adopted by the petroleum industry, focusing on selected petroleum companies in Port Harcourt.

## II. LITERATURE REVIEW

On December 8, 2019, the government of Wuhan, China, announced that health authorities were treating dozens of new virus cases, identified as coronavirus disease 2019 (COVID-19). Since then, COVID-19, a new strain of SARS (SARS-CoV-2), has grown into a global pandemic and spreading across many countries. A highly transmissible respiratory disease, COVID-19 spreads through contact with other infected individuals, with symptoms such as fever, cough, and breathing problems. Transmission can also occur from asymptomatic individuals, with up to 40% of infected persons remaining asymptomatic. Other factors that facilitate infection include (1) speed and efficiency of

COVID-19 transmission; (2) airborne transmission; (3) close contact between infected and non-infected individuals; (4) vulnerability of immunocompromised individuals with specific underlying health conditions (e.g., hypertension, diabetes, cardiovascular disease, respiratory problems); (5) susceptibility of persons over 65; and (6) contact with persons who have traveled to locations with a high number of cases. The outbreak of coronavirus has disrupted several world economies including China's economy ensuring uncertainties that slowed world trade. China's demand for raw materials has declined which penalized the commodity-exporting countries such as Saudi Arabia, Russia, and Australia. The shutdown of many Chinese

companies has resulted in a shortage of spare parts in other countries' industries, such as the Hyundai company that has shut down factories in South Korea due to a lack of supplies. In some affected countries such as Italy and Hong Kong, the pandemic has generated panic purchases and food shortages [10]. According to the [9], global growth could drop at 2.4% this year, compared to 2.9% expected and the central banks could drop key rates to revive the economy by adopting expansionary monetary policy as did by several central banks in several countries. Several studies have highlighted the impact of economic activity on the oil price. [1] shows that a slowing on the global economy has reduced the Brent price per barrel by \$49 between June and December 2014. [6] explained this decline by a weakening of the demand for crude oil and also shows that there is a strong cointegration relationship between oil prices and economic growth in the 10 OPEC countries over the period from 1970 to 2011 and he confirms the impact of Dutch Disease on price oil fluctuations. Several empirical studies have been focused on understanding the macroeconomic consequences of oil price shocks on the US economy. According to [4], the oil price shock of 1973-74 has been explained by the lack of supply that led to the rise of its price. [4] attributed the Arab oil production cuts to the Arab oil embargo against selected Western countries, which lasted from October 1973 to March 1974. There have been significant concerns regarding the current and long-term effects of the novel coronavirus ("COVID-19") on international trade and the global economy, following the declaration of COVID-19 as a global pandemic in March 2020. Of particular importance to Nigeria is the adverse effect that this global pandemic has had on the price of crude oil in the international market (which has been on a freefall in the past few months), considering how crucial revenues from the sale of crude oil is to the sustenance of the Nigerian economy. Further to a Circular No. DPR/1160/A/Vol.11/49, dated March 23, 2020, the DPR directed oil & gas companies to reduce their workforce on offshore platforms as part of the measures to curtail the spread of COVID-19. In so doing, the DPR specifically directed that only staff who are engaged in essential duties should be nominated and permitted to travel to offshore/remote locations while non-essential staff currently at those locations should be withdrawn with immediate effect. Further to a Circular No. DPR/1160/A/Vol.11/49, dated March 23, 2020, the DPR directed oil & gas companies to reduce their workforce on offshore platforms as part of the measures to curtail the spread of

COVID-19. In so doing, the DPR specifically directed that only staff who are engaged in essential duties should be nominated and permitted to travel to offshore/remote locations while non-essential staff currently at those locations should be withdrawn with immediate effect. Since the outbreak of COVID-19, medical waste generation is increased globally, which is a major threat to public health and environment. For sample collection of the suspected COVID-19 patients, diagnosis, treatment of huge number of patients, and disinfection purpose lots of infectious and biomedical wastes are generated from hospitals [12]; [16]. Since the outbreak of COVID-19, the production and use of plastic-based PPE is increased worldwide [11]. The COVID-19 pandemic has elicited a global response and make us united to win against the virus. Similarly, to protect this globe, the home of human beings, united effort of the countries should be imperative [11]. Therefore, some possible strategies are proposed for global environmental sustainability such as: sustainable industrialization, use of green and public transport, use of renewable energy, wastewater treatment and reuse, waste recycling and reuse, ecological restoration and ecotourism,

behavioral change in daily living, international cooperation

### III. METHODOLOGY

This study adopted a descriptive survey design approach. Descriptive survey design is effective, and easy to conduct and it also ensures ease of accessing information. The study area was Port Harcourt, Rivers State in the oil rich Niger Delta region of Nigeria. There were eighty (80) participants from health, safety and environment (HSE) background selected across oil companies that operate in Port Harcourt, Nigeria using Yamane Taro's statistical sample technique. A purposive sampling method were applied in choosing the sample for assessment. Two major tools (interviews and questionnaires of both structured and semi-structured nature) were used to obtain the reliability of the study. Data from the answered questionnaires were analyzed both qualitatively and quantitatively using Statistical Package for Social Sciences (SPSS). Ethical considerations were made in distribution of the questionnaire and interview conduction.

### IV. RESULTS AND DISCUSSION

**Table 1: Responses to ascertain the environmental impact of COVID-19 pandemic across selected petroleum companies in Port Harcourt**

Items	SD	D	N	A	SA
Due to movement restriction and a significant slowdown of social and economic activities, air quality has improved with a reduction in water pollution in different parts of Port Harcourt.	-	18	8	31	13
As industries, transportation and companies have closed down, it has brought a sudden drop of greenhouse gases (GHGs) emissions	2	17	10	29	12
During the lockdown period, the major industrial sources of pollution have shrunk or completely stopped, which helped to reduce the pollution.	-	13	-	41	16
COVID-19 lockdown, and lessens of economic activities reduced the noise pollution around Port Harcourt	6	17	-	33	14
Due to travel restrictions, the number of flights and vehicular movements have drastically reduced around the world, which have ultimately reduced the level of noise pollution	7	15	4	30	14
Such haphazard dumping of these trashes creates clogging in water ways and worsens environmental pollution	2	17	12	26	13
Disruption of routine municipal waste management, waste recovery and recycling activities, led to increased land filling and environmental pollutants worldwide	-	18	13	32	7
Huge amount of disinfectants applied into roads, commercial, and residential areas to exterminate SARS-CoV-2 virus may kill non-targeted beneficial species, which may create ecological imbalance	-	9	2	44	15

The Table above revealed that the environmental impacts identified were both negative and positive. The positive impacts were; improved air quality, reduction in water pollution, drop of greenhouse gases (GHGs) emissions and reduction in noise pollutions. Meanwhile the

negative impacts identified were; clogging in water ways, increased land filling and environmental pollutants within Port Harcourt, possible deaths of non-targeted beneficial species, which may create ecological imbalance.

**Table 2: Responses to ascertain the safety impact of COVID-19 pandemic across selected petroleum companies in Port Harcourt.**

Items	Negative			Positive	
	SD	D	N	A	SA
Since the outbreak of COVID-19, medical waste generation is increased globally, which is a major threat to public health and environment	-	21	7	29	13
To protect from the viral infection, presently peoples are using face mask, hand gloves and other safety equipment, which increase the amount of healthcare waste	-	12	-	41	17

Due to lack of knowledge about infectious waste management, most people dump face mask, hand gloves etc. in open places and in some cases with household wastes.	7	19	-	33	11
Mixing up these wastes increases the risk of disease transmission, and exposure to the virus of waste workers	-	20	9	28	13

From the findings, there were both positive and negative impacts. The positive safety impacts are: increased level of awareness of threat to health in Port Harcourt, increased level of safety

measures practiced while the negative safety impacts are: increased risk of getting infections, increased risk of disease transmission from one person to another

**Table 3: Responses for the possible coping strategies amidst the global COVID-19 pandemic in the petroleum industry**

Items	SD	D	N	A	SA
In industries where a huge number of people work, proper distance and hygienic environment should be maintained to reduce the spread of any infectious communicable disease	-	11	-	41	18
To reduce emissions, it is necessary to encourage people to low carbon emission vehicles	8	18	23	21	-
People should encourage to use bicycle in a short distance, and public bike sharing (PBS) system	12	26	18	14	-
Use of renewable energy sources like solar, wind, hydropower, geothermal heat and biomass can meet the energy demand and reduces the GHGs emission	-	18	8	31	13
Industrial and municipal wastewater should be properly treated before discharge	-	15	2	35	18
Government should implement extensive awareness campaign through different mass media, regarding the proper waste segregation, handling and disposal methods	-	-	-	55	15
Only staff who are engaged in essential duties should be permitted to travel to offshore/remote locations	-	19	9	32	10
Offshore staff should work for a minimum period of twenty-eight (28) days	-	21	17	32	-

The result above suggests possible approach to coping with COVID-19 pandemic in the petroleum industry as: proper distancing and hygienic environment should be maintained, increased adoption of solar, wind, hydropower and geothermal heat for used in energy generation, proper treatment of industrial and municipal waste water, extensive awareness campaign on proper waste segregation, handling and disposal methods should be conducted by government, rigid travel policies permitting essential duties workers only should be formulated and implemented for the short period of time and reduction of working days for offshore staff.

## V. CONCLUSION

The study revealed the positive, negative and economic impacts of Covid-19 in the oil and gas industries globally and in Nigeria in particular. Some of the coping strategies for the global pandemic were also highlighted.

## VI. RECOMMENDATIONS

The researchers therefore recommend the following:

- i. The adoption of possible greener sources of energies for global reduction of greenhouse gases.
- ii. Global corporation in combatting the pandemic through funding of medical aids and research.
- iii. Continuous adherence to all pronounced Covid-19 protocols to limit spread of the virus.



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