
Sustainability Performance of NNPC Limited: A Triple Bottom Line Assessment

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Abstract

The sustainability performance of NNPC Limited has in recent times become a topical issue of public discourse among various stakeholders within and outside Nigeria. This concern is largely prompted by the gradual negative impact of the corporation's oil deregulation policy and the consequent rise in the prices of fuel which has plunged the country's economy into gradual crisis. A study on the sustainability performance of the nation's sole crude oil management entity is, therefore, more relevant in the present time than ever before. This paper examines the sustainability performance of Nigerian National Petroleum Company Limited. To achieve this objective, the study uses secondary data collected from the financial statements of the NNPC for four years (2019-2022). Content analysis was used to analyse the data on Triple Bottom Line dimensions of Economic, (Total Revenue, Crude Oil Processed, Refineries Contribution, Contribution to Federation Account), Social (Safety Man Hours, Expenditure on CSR, Children Support, Students Training), and Environmental (Energy Conservation, Solar Power, Pipeline, Ethanol Blending) sustainability performance in NNPC. The findings reveal that, the NNPC implements sustainability performance based on TBL dimensions across the study period, although the company performs below its potential, particularly on the social and community and its contribution to the Nigeria's revenue generation. The study, therefore, recommends that the NNPC should improve on implementing more programmes that will enhance the welfare of the citizenry and boost the Nigerian economy more efficiently.

Keywords: Sustainability, Performance, Economic, Social, Environmental, NNPC.

1. Introduction

The 21st Century has catalyzed significant changes in sustainability performance driven by changes and improvement in technology, changes in consumer behaviour, awareness and policies which come with a number of challenges on environment, these have given raised to a lot discuss at both industrial and academic levels. Over the past decades, there has been increased public awareness and focus on the environmental impact of organisations operations. Sustainability performance encompasses activities other than those financial measures frequently used in the financial accounts such as natural resource conservation and emission levels, environmental activities and initiatives, aspects of employment, occupational health and safety, community relations, stakeholder involvement and the economic impact of the organisation (Hoque & Adams, 2008).

Sustainability accounting enables the systematic identification and interlinking of the social, environmental and economic costs and benefits of organisational strategies and actions and embeds these considerations into organisational decision-making (Hopwood et al., 2005). Subsequently, sustainability reporting serves as "a vehicle to assess the economic, environmental and social impacts of the organisation's operations, products, and services, and

its overall contribution to sustainable development” (GRI, 2004). Goswami and Lodhia (2014) add that sustainable reporting is an important means for assessing an organization's performance in relation to economic, social, and environmental issues. Within the public sector, sustainable reporting and accounting are essential for enabling citizens to judge the extent to which a respective level of government provides social welfare (Macintosh & Wilkinson, 2012). Accountability for sustainability performance in this information and communication age has implications for public sector entities, which cannot be ignored and there is need for academics to explore these issues (Lodhia, 2018).

Public sector is regarded as a steward for social and environmental issues. The primary objective of public sector organisations is to deliver public policy and promote social welfare (Ball and Grubnic, 2007). The roles and responsibilities of public sector are more explicitly linked to the sustainability agenda than those of the corporate sector (Ball, 2002). The public sector has far greater responsibilities for promoting and supporting sustainable development in comparison to the private sector whose core goal is limited to maximizing shareholder value (Ball et al., 2014). Public agencies have a civic responsibility to properly manage public goods, resources or facilities in a way that supports sustainable development objectives and promotes the public interest public agencies are expected to lead by example in reporting publicly and transparently on their activities to promote sustainability (GRI, 2005).

The Nigeria National Petroleum Corporation (NNPC Limited) occupies a central position in the Nigerian oil and gas industry. NNPC was incorporated on April 1, 1977 through Decree No. 33 of 1977, by a merger of the defunct Nigerian National Oil Corporation (NNOC) created by Decree 18 of 1971, and the former Federal Ministry of Petroleum Resources (Hamid, 2011). NNPC is responsible for managing Nigeria's oil and gas resources in all segments of the petroleum industry (namely Exploration and Production (E&P), storage and transportation, refining and hydro processing and distribution and marketing). It has been active in seismic exploration onshore and offshore. It also carried out work on contract for Phillips Petroleum and other E&P companies in the Chad, Anambra and Benue Basins. But NNPC has depended on the technological capabilities of the major operators in IOCs, like Shell, Mobil, Gulf (Chevron) which produced the bulk of Nigerian oil and did most of the exploration work.

The NNPC through two of its subsidiaries - the Nigerian Petroleum Development Company (NPDC) and Direct Exploration Services of the National Petroleum Investment Management Services (NPIMS) undertake oil exploration and production. In total, an upwards of 55 companies are operating in Nigeria under joint venture, production sharing contract, service contract, sole risk contract and NNPC direct exploration efforts (Hamid, 2011). The NNPC as a corporation, has in August, 2021 following the enactment of the Petroleum Industry Act (PIA) by the previous administration made a successful transition to a limited liability company as NNPC Limited. The law now mandates the NNPC Ltd to operate under the Companies and Allied Matters Act.

The performance of NNPC Limited has in recent times become an issue under question by various stakeholders within and outside Nigeria. This concern could be due to the gradual negative impact of the corporation's deregulation policy and the consequent rise in the prices of fuel which has plunged the country's economy into recession. Therefore, a study on the sustainability performance of the NNPC Limited is more relevant in the present time than ever before.

Prior researches on sustainability performance have mostly focused on disclosures by corporations (Guthrie & Abeysekera, 2006), and there has been relatively little research into the reporting of these matters by organizations in the public sector. Ball and Grubnic (2007) stated that the agenda for research and practice in sustainability accounting and accountability has been played out in most exclusively for-profit, corporate setting and they have called for researchers to help in understanding the nature of sustainable development accounting and

accountability in PSOs (Public Sector Organizations) whose core tasks have to do with social welfare and justice. More so, a section of existing literature including the study by Ball and Grubnic (2007), indicates that the public sector has embraced sustainability accounting and reporting practices while others such as Gra and Milne (2002) maintain that there is much more that needs to be explored in relation to sustainability performance and reporting in the public sector. The present literature illustrates that public sector companies implemented sustainable accounting and reporting practices.

The public sector entities have greater responsibilities for promoting and supporting sustainable development in comparison to the private sector organisations whose core goal is limited to maximizing shareholder value. Considering the expected role played of the NNPC Limited on the Nigerian economy and its expected responsibility in changing the dynamics of the overall living standards of the Nigerian populace including its contribution to the Nigeria's economic, social and environmental spheres, this paper therefore, specifically examines sustainability performance of NNPC Limited's selected indicators for Economic, Social and Environmental performance based on what has been reported in line with the GRI guidelines. The GRI is chosen because it presents a good attempt to overview developments internationally (Ball & Grubnic, 2007). More so, according to GRI (2006), the GRI guideline provides the basis of worldwide standardized and comparable reporting on the sustainability performance of organizations (GRI, 2006).

Through this comprehensive content analysis, Therefore, the paper aims to provide a clear understanding of NNPC's sustainability performance across these dimensions. The findings will contribute to ongoing discussions about the company's role in promoting sustainable development in Nigeria, highlighting its achievements and areas for improvement.

2. Literature Review

This section reviews literature relevant to the study. The section specifically reviews concepts of sustainability reporting, sustainability disclosure, sustainability reporting global best practices as well as sustainability reporting in the Nigerian oil sector. The section further reviews theories relevant to the study and explains the theoretical framework. The theories reviewed include legitimacy theory and stakeholder theory.

2.1 The Concept of Sustainability Reporting

Sustainability reporting as a term is viewed in varying perspectives by different sources. For example, Sustainability reporting as defined by the Global Reporting Initiative (GRI) (2021), is the practice of measuring, disclosing, and being accountable to internal and external stakeholders for organizational performance towards the goal of sustainable development. In the vein, United Nations Environment Programme (UNEP) (2019) opines that, Sustainability reporting is the process of communicating the social, environmental, and economic impacts of an organization's activities, products, and services, and the extent to which it is contributing to sustainable development. Conversely, sustainability reporting is the disclosure of non-financial information that reflects the economic, environmental, and social impacts of an organization's operations, helping stakeholders understand the organization's contributions to sustainable development (Accountability, 2018). Sustainability accounting and reporting – which serve the collection, analysis and communication of corporate sustainability information – become crucial tools for management in moving towards corporate sustainability (Bowrey, 2008). In another view, Ball and Grubnic (2007) opined that, information about sustainability impacts and sustainability performance can help managers to incorporate deliberative, sustainable thinking into their decision-making, planning, implementation and control activities. Ball and Grubnic (2007) further submitted that, the term sustainability reporting is usually used to refer to the publication of external reports, as either printed brochures or electronic versions on the internet.

Corporate sustainability can be viewed as the result of management attempts to tackle challenges posed by the need for corporations to move towards the goal of sustainability (Dyllick & Hockerts, 2002; Schaltegger & Burritt, 2005). Sustainability accounting at the moment represents the zenith of accounting and reporting with its conceptual emphasis on accounting for ecosystems and accounting for communities, consideration of eco-justice, as well as a focus on issues of effectiveness and efficiency (Gray & Milne, 2002). The term corporate sustainability development is therefore used here to mean the processes which are implemented in order to reduce negative impacts and to increase the positive effects of corporations towards attaining a sustainable economy, environment and society, whilst corporate sustainability represents the desired outcome of such processes. In corporate practice, the focus is usually on the processes rather than on the end state, representing in essence an incremental process of continual development towards sustainability. In another view, sustainability accounting and reporting as the foundation for external sustainability reporting, with a major emphasis on environmental impacts and extended performance expressed in physical and qualitative terms (Schaltegger & Burritt, 2000).

It can be deduced from the foregoing review of the concept of sustainability reporting as defined by various sources that, sustainability reporting is a term primarily used to refer to an accounting process that provides accurate information to stakeholders about the socio-economic performance of an entity in a particular social and geographical environment of operation for a specified period of time. It can also be said to be a process of providing information to various stakeholders about reciprocal life-changing activities or contributions of an entity which improve or sustain the economic, social and environmental well-being of its host community and other stakeholders.

2.2 Sustainability Reporting Disclosure and Financial Statements

In accounting literature, corporate disclosure is divided into two broad categories: mandatory disclosures and voluntary disclosures (Abdullahi & Makama, 2021). Mandatory disclosure represents disclosures that are promulgated by the regulatory authorities for that particular country such as the Companies and Allied Matters Act (CAMA), International Financial Reporting Standards (IFRSs), stock exchanges and securities commission, which are required by the law and failure to comply attract sanctions. Voluntary disclosure is such a disclosure that has evolved as best practices and represents the conventional approach to accounting. It results from a management decision to disclose information that is not specified in the mandatory requirements; companies disclose such information to win the confidence of users not as a result of sanction or enforcement. (Kiliç & Kuzey, 2017).

However, it should be noted that, sustainability reporting focuses on a company's environmental, social, and governance (ESG) performance. It aims to disclose how a company manages risks and opportunities related to sustainability. Therefore, investors and stakeholders alike are increasingly interested in ESG factors. Companies that disclose sustainability information may enhance their reputation and appeal to socially responsible investors.

2.3 Sustainability Reporting Global Best Practices

The global best practice for sustainability reporting has several reporting guidelines for reporting sustainability which entails reporting the firm's environmental, economic and social performance. Assessing the environmental report of firms reflects the firm's disclosure of the impact of its production activities on the environment (Adekoya, 2023). Also, economic report echoes the firm's disclosure of the economic impact of its sustainable activities, while social report incorporates the firm's report on the various social responsibility activities embarked upon during the year.

The GRI Standards provide incipient global standards for sustainability reporting. The standards are a modular, interrelated structure, and represent the global best practice for

reporting on a range of economic, environmental and social (EES) impacts (Global Reporting Initiative, 2002). Several reporting standards exist as guidelines for reporting sustainability. According to Abdullahi and Makama (2021), these standards are as follows:

Global reporting initiative sustainability reporting guideline developed by Global Reporting Initiative in 2006; Oil and Gas Industry Guidance on Voluntary Sustainability Reporting developed by American Petroleum Initiative (API) and the International Petroleum Industry Environmental Conservation Association (IPIECA); Organization for Economic Cooperation and Development Guidelines for Multinational Enterprises developed by Organization for Economic Cooperation and Development (OECD); Environmental Management (ISO 14001, EMAS); Greenhouse Gas Protocol developed by World Business Council for Sustainable Development (WBCSD) and World Resources Institute (WRI); Global Compact and United Nations Norms developed by the United Nations; AA 1000 for auditing and assurance process developed by Accountability, an international membership organization; Social Accountability 8000 developed by Social Accountability International, an independent organization consisting of business, non-governmental organizations, trade unions and others.

However, among the various sustainability reporting standards, the GRI G3 Sustainability reporting guidelines and the API/IPIECA oil and gas industry guidance on voluntary sustainability reporting are the most widely accepted (Abdullahi & Makama, 2021).

Thus, according to GRI (2006), the sustainability reporting framework provided by the GRI Standards is the world's most widely used and trusted framework. It has been adopted by the world's largest corporations and referenced in policy instruments and stock exchanges internationally. GRI pioneered sustainability reporting and, today, the GRI Standards are the leading global standards for organizations to report on economic, environmental and social impacts. 75% of the largest 250 companies in the world reporting on sustainability use GRI (GRI, 2005).

2.3.1 System of GRI Standards

In line with the GRI standard brochure, these standards are of different categories. The standards states:

This Standard is part of the GRI Sustainability Reporting Standards (GRI Standards). The GRI Standards enable an organization to report information about its most significant impacts on the economy, environment, and people, including impacts on their human rights, and how it manages these impacts.

The GRI Standards are structured as a system of interrelated standards that are organized into three series: GRI Universal Standards, GRI Sector Standards, and GRI Topic Standards.

Universal Standards: GRI 1, GRI 2 and GRI 3

GRI 1 Foundation 2021: specifies the requirements that the organization must comply with to report in accordance with the GRI Standards. The organization begins using the GRI Standards by consulting GRI 1.

GRI 2 General Disclosures 2021 contains disclosures that the organization uses to provide information about its reporting practices and other organizational details, such as its activities, governance, and policies.

GRI 3 Material Topics 2021 provides guidance on how to determine material topics. It also contains disclosures that the organization uses to report information about its process of determining material topics, its list of material topics, and how it manages each topic.

Sector Standards

The Sector Standards provide information for organizations about their likely material topics. The organization uses the Sector Standards that apply to its sectors when determining its material topics and when determining what to report for each material topic.

Topic Standards

The Topic Standards contain disclosures that the organization uses to report information about its impacts in relation to particular topics. The organization uses the Topic Standards according to the list of material topics it has determined using GRI 3.

2.4 Sustainability Reporting in Nigerian Oil and Gas Sector

The Nigerian oil and gas sector is the backbone and mainstay of Nigeria's economy, accounting for over 95% of its foreign exchange earnings, 40% of its GDP and 85% of the Federal Government's revenue (Uwakonye, Osho & Anucha, 2006). The major oil producing companies operating in Nigeria are Shell Petroleum Development Company of Nigeria Ltd., Mobil Producing Nigeria Unlimited, Chevron Nig. Ltd., Nigerian Agip Oil Company Ltd., Elf Petroleum Nig. Ltd., and Texaco Overseas Petroleum Company of Nigeria Unlimited (Hamid, 2011). These multinationals participate in the petroleum industry in joint ventures with Nigeria National Petroleum Corporation (NNPC), as operators/contractors in the Nigeria deep water under production sharing contracts (PSC) which did not address the triple bottom line aspect of sustainability reporting and in one instance under a service contract with NNPC.

2.5 Theoretical Framework

The theoretical aspect reviews two (2) relevant theories – Legitimacy theory and Stakeholder theory as the theories underpinning the study. The theories are further explained under the following sub-sections.

2.5.1 Legitimacy Theory

Legitimacy theory as pioneered by Dowling and Pfeffer (1975) is essential for understanding the behaviour of an organization in evolving and applying policies on social responsibility, as well as communicating their results. It regards the organization's social and environmental performance, as well as the dissemination of this information, as a means of achieving the social compact that enables it to achieve its goals. The legitimacy theory's viability depends on the management legacy that links previous norms and ideals with modern ethics (Burlea & Popa, 2013).

The legitimacy theory is predicated on the assumption that a corporation exerts influence over the society in which it operates. Concurrently, the company has a social impact, which is why its operations resemble a social contract designed to gain and maintain societal acceptability. In the era of Corporate Sustainability Reporting, this social approval of a company's actions is extremely crucial. according to legitimacy theory, the link between sustainability reporting and going concern is contingent on social reciprocity, which is contingent on how the society decodes the coded message contained in the company sustainability report. Generally speaking, a socially and environmentally responsible organisation will receive corresponding patronage from society. As a result, corporations that report on sustainability earn significantly better financial success than those that do not. With this potential in mind, investors tend to perceive companies that include additional information in the form of sustainability disclosures in their annual reports more favourably (Wibowo, 2014). According to them, companies that disclose sustainability scorecards in their annual reports attract a premium over those that do not.

2.5.2 Stakeholder Theory

Stakeholder Theory is a school of thinking within capitalism that focuses on the interdependent interactions between firms and their consumers, suppliers, employees, investors, and other stakeholders (Freeman, 1984). A business is supposed to provide value for all of its stakeholders, not only its shareholders, in accordance with this idea.

Corporations do not exist in an exclusive shareholder-defined universe. Consequently, these groups of individuals, known as stakeholders, are essential to the organization's existence and

development. If a firm requires the participation and collaboration of multiple stakeholder groups, it must successfully manage them. Corporations must avoid causing harm to their many stakeholders in the quest for profit. Instead, they should take proactive steps to enhance the working and living conditions of their employees, give back to the communities in which they do their business, and conserve and protect the environment. In a nutshell therefore according to stakeholder theory, exhibiting enhanced responsibility and transparency through a stronger commitment to sound environmental practises can assist improve a company's reputation by balancing the competing needs of many stakeholders (Dixon et al., 2005; Welford, 2007)

3. Methodology

This study examines the sustainability performance and reporting practice of Nigerian National Petroleum Company Limited. To achieve this objective, the study uses secondary data collected from the Annual Reports and Accounts of the NNPC for four years (2019-2022). The choice of the study period is informed by the major policy changes that took place in the Nigerian oil and gas sector during the period. The Nigeria Gas Transportation Network Code (NGTNC) was announced in the year 2019 and subsequently launched in February 2020 to deepen the growth of the domestic oil and gas market. The NGTNC is part of the key reforms instituted by the government to expand domestic gas-to-power, gas-to-industry, gas-to-manufacturing and mitigate the challenges associated with gas flaring in the country.

The NNPC Limited uses the GRI Guidelines and Sector Supplement for Public Agencies (2005) GRI) G4 Guidelines in accordance with the “Core” criteria for reporting. Therefore, this study uses content analysis as a systematic approach to examine the sustainability performance of the Nigerian National Petroleum Company Limited (NNPC). The analysis is structured around three core dimensions: economic, social, and environmental, each of which provides critical insights into NNPC's overall sustainability efforts.

Economic Dimension: This segment will analyze key financial metrics, including Total Revenue, the volume of crude oil processed, and the contribution of refineries to the Federation Account. By examining these indicators, we aim to assess NNPC's economic viability and its role in contributing to national economic development.

Social Dimension: The social analysis will focus on several key indicators: Safety Man Hours to evaluate workplace safety practices, Expenditure on Corporate Social Responsibility (CSR) initiatives, the number of children supported in backward areas, and the number of students trained in IT-related skills. This analysis seeks to measure NNPC's commitment to social equity, community support, and the development of human capital.

Environmental Dimension: The environmental evaluation will explore NNPC's sustainability initiatives, including energy conservation measures at refineries, the capacity for solar power generation, and the focus on pipeline management and ethanol blending. This analysis aims to assess NNPC's efforts to mitigate environmental impact and promote sustainable practices within the industry.

4. Results and Discussion

This section presents the study results in terms of contribution of NNPC Limited's on economic, social and environmental aspects of sustainability performance from the company's financial and operation reports for the periods of the study.

Table 1 below shows the NNPC Ltd.'s sustainability performance in terms of revenue generation, crude oil procession, refineries contribution as well as the financial contribution to the nation's federation account.

Table 1: Economic Performance of NNPC Ltd. from 2019-2022

Year	Total Revenue ₦ (trillion)	Crude Oil Processed (million barrels)	Refineries Contribution ₦	Contribution to Federation Account ₦
2019	6.05	734.27	-148,956,460,00	1,099,066,939,782
2020	4.61	642.91	-100,039,910,00	1,055,573,537,692
2021	6.4	686.66	-131,641,000,000	427,786,876,550
2022	5.14	417.33	-128,714,000,000	0.00

Source: Compiled by Author from NNPC Financial and Operations Report, 2019-2022

From Table 1 above, it can be seen that in 2020, the total crude oil production amounted to 642. 91m barrels. The year's production level represents a decrease from the total crude oil production of 734.27m barrels recorded in 2019. The year 2020 was still a performing year that brought in 642.91 million barrels. Unfortunately, the amount gotten from the sale of crude oil lifted decreased drastically in 2020. This can be attributed to the crash in crude oil price due to the COVID-19 pandemic. NNPC Group's revenue in 2020 was N4.61 trillion, showing a 23.8% decrease from N6.05 trillion the group earned in 2019. The expenditure of all its subsidiaries stood at N4.52trillion. Total Crude oil production suffered an 11.61% decrease, from the 734.27m barrels produced in 2019 to the 649.00m barrels produced in 2020.

In the last column, Crude oil and gas lifting is classified into equity export and domestic export, both are handled by the NNPC. Proceeds from the two types were remitted into the Federation Account (in Naira and Dollar). In 2020, the NNPC made a total payment of N1.05tn to the Federation account. These include N713.12bn for Naira payments from Domestic Crude and \$1.12bn (N342.45bn) USD payments. Year on year, this N1.05tn represents a 3.67% decrease from the total N1.09tn remitted to the federation account in 2019 from both equity export and domestic export.

Table 2: Social Performance of NNPC Ltd. from 2019-2022

Year	Safety Man Hours ₦ (trillion)	Expenditure on CSR (million barrels)	No. of Children Supported in Backward Areas	Students Training on IT Related Skills
2019	10.44	23.74	8,000	3,700
2020	N/A	34.07	N/A	5,000
2021	12.00	71.67	7,100	5,000
2022	16.32	82.23	7,100	5,000

Source: Compiled by Author from NNPC Financial and Operations Report, 2019-2022

From table 2 above, the employees and contract staff are imparted comprehensive training on health and safety. A host of technical and behavioural schemes including unique initiatives for effective capability building and sensitization for improved occupational and road safety has been taken up. To ensure emergency preparedness, mock drills were regularly conducted to keep everyone in a state of readiness. During the study period, due to the said measures, the NNPC Ltd was able to achieve year on year milestones in safety; saving 10.44 million man-hours in the 2019 period of assessment. Although the year 2020 recorded no man-hour safety, the figure rose up to 16.32 million man-hours of safe operations during the financial year 2022. During the study period, also, various socioeconomic development programmes selected for the study initiated by NNPC Ltd. Programmes aimed to provide Liquefied Petroleum Gas (LPG) connections to households in the country. The scheme is aimed at replacing the unclean cooking fuels mostly used in the rural areas with the clean and more efficient LPG. Moreover, during the period, a scheme aimed at training students in the I T related skills. During the year 2019, 3,700 students benefited and in the years 2020 to 2022, 5,000 students benefited for each of the periods respectively. Overall, during the study period, the contribution to the society through this scheme indicated an increasing trend.

Table 3: Environmental Performance of NNPC Ltd. from 2019-2022

Year	Energy Conservation in Refineries	Solar Power Capacity	Pipeline (MMT)	Ethanol Blending (%)
2019	25,535	2.00 kWh	15.69	3.30
2020	N/A	3.35 kWh	21.50	5,000
2021	N/A	12.00 kWh	17.91	5,000
2022	N/A	13.35 kWh	17.61	3.50

Source: Compiled by Author from NNPC Financial and Operations Report, 2019-2022

From table 3 above, it can be seen that NNPC Limited has demonstrated its readiness to contribute particularly in environmental protection and in nation building at large, by effectively implementing various initiated tonnage per year and in monetary terms. It can be observed the component energy for the company is one of the most critical aspects of operation of refineries therefore given highest priority for operating cost and conserving energy. However, it is evident that during the rest of the study periods of 2020, 2021 and 2022 there was absence energy conservation recorded for the periods. From the table, it can also be observed that, the company has shown strong overall performance across the supply network of product pipelines. As revealed in the findings, during the period of study NNPC Ltd was making every year record and recorded the pipeline throughout. Also, from the findings as revealed in the table 4.3, the company demonstrates intention towards achieving Ethanol blending programme to reduce carbon intensity. During the year 2019, company procured 3.30 KL of ethanol. However, there is zero record of commitment in terms of ethanol blending for the remaining period of the study. This could be viewed from the perspective of the dysfunctionality of the entire four (4) refineries in Kaduna, Port Harcourt and Warri during the period of assessment.

5. Conclusion and Recommendations

Based on the findings, the study concludes that, from the economic dimension, there was a noticeable decline in total crude oil production from year 2019 to 2020 which indicates a significant impact on production levels, likely influenced by global events. The drop in production and revenue can be directly linked to the COVID-19 pandemic, which caused a crash in crude oil prices. The pandemic affected demand for oil globally, leading to lower prices and reduced production activities. It can also be concluded that, the NNPC Ltd experienced a substantial decline in revenue. This sharp decline reflects the combination of reduced production and lower market prices for crude oil.

In addition, despite the drop in revenue, the expenditures of the company's refineries remained high. This suggests that while revenue decreased, operational costs continued to remain significant, potentially leading to tighter profit margins or losses for the group. The findings further highlight the vulnerability of the crude oil market to external shocks, such as pandemics, which can drastically affect both production levels and pricing. Thus, the NNPC Ltd needs to evaluate its strategies for risk management and production efficiency in light of such drastic changes in market conditions.

From the social dimension, the emphasis on workforce safety and corporate culture has been a key factor in the company's consistent performance. There have been comprehensive training programs on health and safety, combined with a focus on creating a culture of safety. Regular mock drills and readiness training have also helped ensure that employees are well-prepared for emergencies, contributing to the overall safety and operational efficiency of the company. In addition, NNPC Ltd has actively engaged in various socioeconomic initiatives, such as providing Liquefied Petroleum Gas (LPG) connections to households. This initiative addresses the need for cleaner cooking fuels in rural areas, showcasing the company's commitment to environmental sustainability and community welfare. Furthermore, the company's focus on training students in IT-related skills reflects a commitment to workforce development and

community investment. The increasing number of beneficiaries demonstrates a growing impact on local communities and an investment in future talent.

From environmental dimension of sustainability, it can be concluded that, NNPC has shown willingness to engage in environmental protection through initiatives like the Ethanol blending program, aimed at reducing carbon intensity. Hence it indicates a proactive approach in the first year, even though there was no further commitment in the subsequent years of assessment. Furthermore, it can be concluded that energy conservation is critical for the operation of refineries. However, the lack of recorded energy conservation efforts during the period of assessment correlates with the stoppage of refinery operations. This suggests that, NNPC's energy management practices may have been adversely affected by operational disruptions, limiting its ability to implement effective energy conservation strategies during these years. In addition, the dysfunctionality of the refineries in Kaduna, Port Harcourt, and Warri during the assessment period significantly impacted NNPC's ability to execute its environmental and operational strategies. The shutdowns not only hindered energy conservation efforts but also limited progress in the ethanol blending initiative.

Finally, while NNPC Limited has made strides in certain areas, its operational challenges and the dysfunctionality of its refineries have hindered consistent progress toward its environmental goals. Addressing these challenges could help the company better align its operations with its stated commitments to environmental protection and compliance with national and global sustainability goals.

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